2019

38

ENVIRONMENTAL STUDIES & DISASTER MANAGEMENT: CONCEPTS AND ISSUES

(Based on UGC and ICAR Syllabi)

RANJEETA SONI

2019

Certified True Copy

Registrar

Jagan Nath University, Jaipur

ATPA

Agrotech Publishing Academy
Udaipur- 313002

PREFACE

Environment Science is an integrated and interdisciplinary approach of Basic Science. Environmental studies are the study of social sciences to understand human interactions with the environment. It provides to the study of environmental problems.

The Book has been divided into six chapters (Ecosystem and Biodiversity, Natural Resources, Pollution, Disaster Management, Solid Waste Management and Social Issues and Environment). It serves the purpose of students of all streams of graduate courses.

The chapters of book having many titles containing concepts, methods ,types various issues, causes about environmental designs and problems and their management. I hope this book is beneficial for all graduate students.

A humble effort has been made to present the subject matter in a simple and according to syllabus. If there are any mistakes please feel free to write along with your suggestions and feedback.

I am happy to present this book to students and readers.

Ranjeeta Soni

□□□

Certified True Copy
Registrar
Jagan Nath University, Jaipur

ABOUT THE AUTHOR

Dr. Ranjeeta Soni is working as a Professor at Jagannath University, Chaksu, Jaipur. She possesses experience of teaching in Environmental Science for more than 14 years. She is engaged in various academic and cultural activities of university. She is actively engaged in various Environmental subject discussion of Interacting radio counseling from IGNOU at All India Radio (AIR).

❑❑❑

Certified True Copy
Registrar
Jagan Nath University, Jaipur

ACKNOWLEDGEMENT

I feel emotionally moved when it comes to acknowledgements after the task is accomplished. My mind is full of images of those who directly or indirectly helped me in this endeavor. I thank to all.

Primarily, praises and thanks to the God, the Almighty, for His showers of blessings throughout my work to complete this book successfully.

First, I express my immense gratitude and thanks to good advice, support and suggestions of my Dean, Professor P.N. Kalla that has been invaluable on both an academic ~~and a personal level. I am~~ highly grateful for his invaluable guidance, wholehearted support and encouragement in accomplishing the whole work.

I express my sincere thanks to my Parents, and other members of my family for their love and long continuing support extended to me.

My Sincere thanks are to my friends and colleagues who help and support me time to time in the right direction.

I also wish to extend my thanks to Professor (Rct.) L. L. Somani, Agrotech publishing Academy Udaipur for their kind support. It was a matter of great pleasure to work with him.

These acknowledgments would not be complete without thanking to my husband Mr. Ravi Soni, for their constant support and care. He also gave me moral support time to time.

Last but not the least, my two kids, Bhavya and Tashvi who gave me a moral support to finish my work because they give me their precious time. I had to cut my caring and playing time allotted to them for completion of my work. They co-operated me in their own way, which I am highly in gratitude .Throughout my life I am thankful to them.

Dr. Ranjeeta Soni

Certified True Copy

Jagan Nath Uni [illegible] y, Jaipur

CONTENTS

S. NO.	TITLE	PAGE
	FOREWORD	3
	PREFACE	4
	ABOUT THE AUTHOR	5
	ACKNOWLEDGEMENT	6
	ABOUT THE BOOK	8
	CHAPTERS	
1	ECOSYSTEMS: CONCEPTS AND FUNCTIONS	9-32
2	ENERGY RESOURCES	33-47
3	POLLUTION	48-88
4	DISASTER MANAGEMENT	89-110
5	SOLID WASTE MANAGEMENT	111-120
6	SOCIAL ISSUES AND ENVIRONMENT	121-135
	SUBJECT INDEX	135-136

□□□

Prediction of productivity of any crop in a season has very important economic importance for a country. For yield improvements in rice, information about suitable management practices is rapidly increasing. The generation of new data through agronomic research methods is insufficient and time-consuming to meet these needs. It is important for a country like India, where, productivity of crops in any season may vary greatly depending on the prevailing weather conditions of that season. In recent years, several dynamic crop growth simulation models have been developed to help in such a predictive process. Model accuracy in prediction and their sensitivity also help in mid-course correction, so that farmer can adopt a measure to avoid any drop in potential production of any crops. The main goal of a crop simulation model is to estimate crop production, resource use and environmental impact as a function of local weather and soil conditions and crop management. Agricultural system models have untapped potential to help agricultural research and technology transfer in the 21st century.

Mr. Kamal Kant, Assistant Professor, Jagannath University, Jaipur (Raj.), born at Birthaliya wali, Sri Ganganagar District, Rajasthan. He completed his undergraduate (2011-2015) from Mahatma Jyoti Rao Phoole University, Jaipur. He completed his M.Sc. (Agriculture) in Agronomy at College of Postgraduate studies, CAU, Imphal (2015-2017).

Certified True Copy

Jagan Nath University, Jaipur

978-620-2-05985-5

A Modelling approach (CERES-RICE Model)

Kant, Gogoi, Telkar

Kamal Kant
Meghna Gogoi
Shivkumar G. Telkar

Response of Lowland Rice Cultivars to Nitrogen Application

A Modelling approach (CERES - RICE Model)

LAP LAMBERT Academic Publishing

Kamal Kant
Meghna Gogoi
Shivkumar G. Telkar

Response of Lowland Rice Cultivars to Nitrogen Application

A Modelling approach (CERES - RICE Model)

FOR AUTHOR USE ONLY

LAP LAMBERT Academic Publishing

Imprint

Any brand names and product names mentioned in this book are subject to trademark, brand or patent protection and are trademarks or registered trademarks of their respective holders. The use of brand names, product names, common names, trade names, product descriptions etc. even without a particular marking in this work is in no way to be construed to mean that such names may be regarded as unrestricted in respect of trademark and brand protection legislation and could thus be used by anyone.

Cover image: www.ingimage.com

Publisher:
LAP LAMBERT Academic Publishing
is a trademark of
International Book Market Service Ltd., member of OmniScriptum Publishing Group
17 Meldrum Street, Beau Bassin 71504, Mauritius

Printed at: see last page
ISBN: 978-620-2-05985-5

Copyright © Kamal Kant, Meghna Gogoi, Shivkumar G. Telkar
Copyright © 2019 International Book Market Service Ltd., member of OmniScriptum Publishing Group

FOR AUTHO

Prediction of productivity of any crop in a season has very important economic importance for a country. For yield improvements in rice, information about suitable management practices is rapidly increasing. The generation of new data through agronomic research methods is insufficient and time-consuming to meet these needs. It is important for a country like India, where productivity of crops in any season may vary greatly depending on the prevailing weather conditions of that season. In recent years, several dynamic crop growth simulation models have been developed to help in such a predictive process. Model accuracy in prediction and their sensitivity also help in mid-course correction, so that farmer can adopt a measure to avoid any drop in potential production of any crops. The main goal of a crop simulation model is to estimate crop production, resource use and environmental impact as a function of local weather and soil conditions and crop management. Agricultural system models have untapped potential to help agricultural research and technology transfer in the 21st century.

Mr. Kamal Kant, Assistant Professor, Jagannath University, Jaipur (Raj.), born at Birthaliya wali, Sri Ganganagar District, Rajasthan. He completed his undergraduate (2011-2015) from Mahatma Jyoti Rao Phoole University, Jaipur. He completed his M.Sc. (Agriculture) in Agronomy at College of Postgraduate studies, CAU, Imphal (2015-2017).

978-620-2-05985-5

Certified True Copy
Registrar
Jagan Nath University, Jaipur

FOR AU HOR US

A Modelling approach (CERES-RICE Model)

Kant, Gogoi, Telkar

Kamal Kant
Meghna Gogoi
Shivkumar G. Telkar

Response of Lowland Rice Cultivars to Nitrogen Application

A Modelling approach (CERES - RICE Model)

LAP LAMBERT Academic Publishing

Kamal Kant
Meghna Gogoi
Shivkumar G. Telkar

Response of Lowland Rice Cultivars to Nitrogen Application

A Modelling approach (CERES - RICE Model)

FOR AUTHOR USE ONLY

Cerfified True Copy
Registrar
Jagan Nath University, Jaipur

LAP LAMBERT Academic Publishing

Imprint
Any brand names and product names mentioned in this book are subject to trademark, brand or patent protection and are trademarks or registered trademarks of their respective holders. The use of brand names, product names, common names, trade names, product descriptions etc. even without a particular marking in this work is in no way to be construed to mean that such names may be regarded as unrestricted in respect of trademark and brand protection legislation and could thus be used by anyone.

Cover image: www.ingimage.com

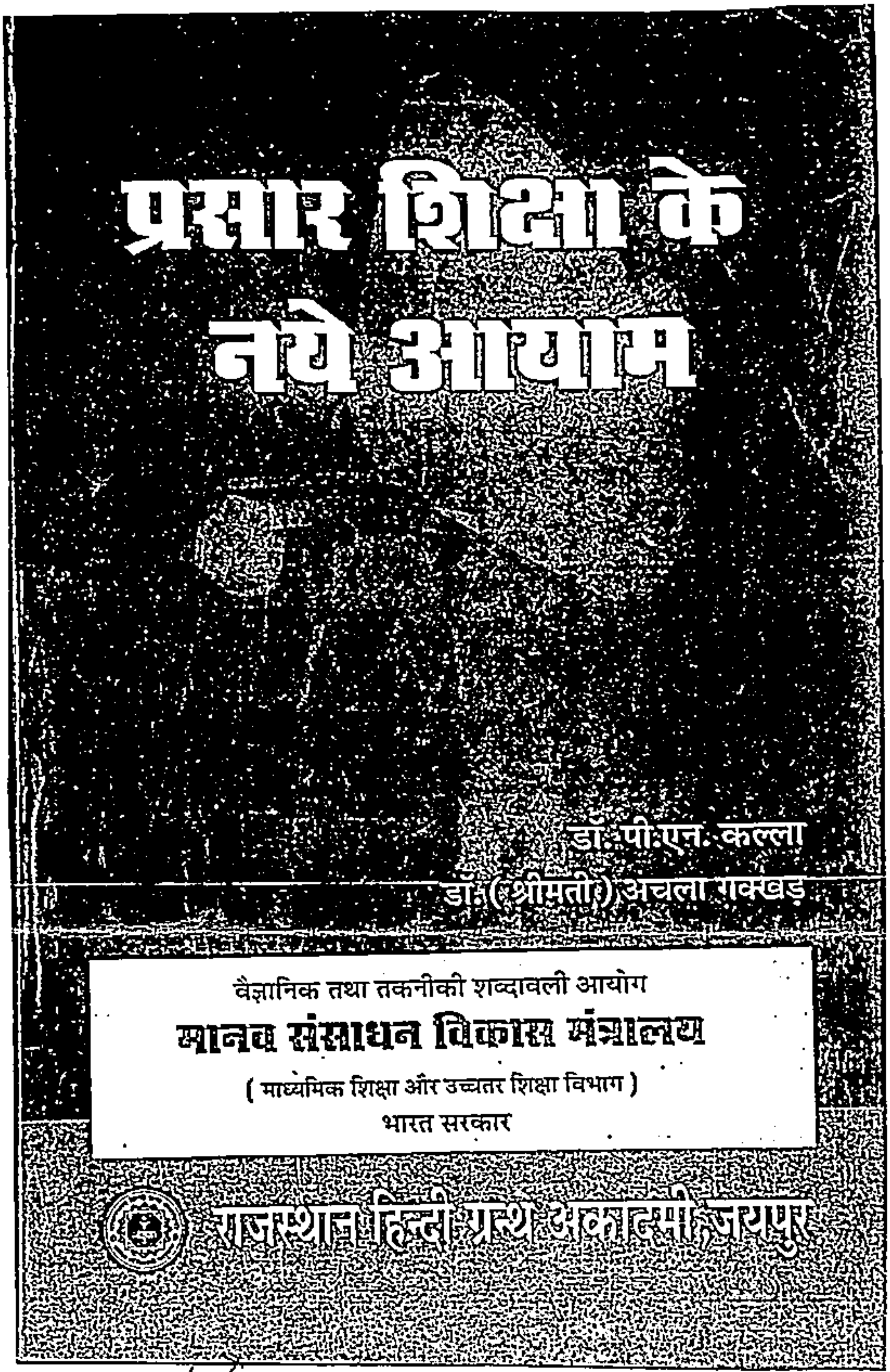
Publisher:
LAP LAMBERT Academic Publishing
is a trademark of
International Book Market Service Ltd., member of OmniScriptum Publishing Group
17 Meldrum Street, Beau Bassin 71504, Mauritius

Printed at: see last page
ISBN: 978-620-2-05985-5

Copyright © Kamal Kant, Meghna Gogoi, Shivkumar G. Telkar
Copyright © 2019 International Book Market Service Ltd., member of OmniScriptum Publishing Group

FOR AUTHOR USE ONLY

Cerfified True Copy
Registrar
Jagan Nath University, Jaipur



प्रसार शिक्षा के नये आयाम

डॉ. पी.एन. कल्ला

डॉ. (श्रीमती) अचला गक्खड़

वैज्ञानिक तथा तकनीकी शब्दावली आयोग
मानव संसाधन विकास मंत्रालय
(माध्यमिक शिक्षा और उच्चतर शिक्षा विभाग)
भारत सरकार

राजस्थान हिन्दी ग्रंथ अकादमी, जयपुर

आय तथा खर्च का पुनर्निर्धारण
या जा सके।

'hy does Gender Budgeting
। महिलाओं की ओर केन्द्रित होने

ह हिस्सा महिलायें हैं।
र बहुत अधिक है।
'ओं की निर्णय लेने में भागीदारी

ले कार्यों में लगी हैं और समान
ी तुलना में कम होती है।
चों का पालन-पोषण व रख-
कर रही हैं।
वे संशोधनों तक पहुंच व उन
ता स्वास्थ्य, पोषण, साक्षरता,
से स्पष्ट होती है।

निम्नानुसार प्रस्तुत किया है:-
उद्देश्य वित्तीय आवंटन करने
क्रमों का क्रियान्वयन करके

गाँधी राष्ट्रीय ग्रामीण रोजगार
। शून्यता के आधार पर लागू
जदूरी दर समान है।
क मुख्यधारा की क्रियाओं
स्पष्ट जिम्मेदारी देने तथा
सरकार को जवाबदेह बनाने

"जॉब कार्ड" प्रदान कर
तथा कार्य किए जाने के
ते में पहुँचा दी जाती है।
श्चित किया गया है।

□□□

डॉ. पी.एन. कल्ला ने स्नातक एवं स्नातकोत्तर की उपाधि श्री कर्ण नरेन्द्र कृषि महाविद्यालय, जोबनेर से तथा पीएच.डी. की उपाधि राजस्थान कृषि महाविद्यालय, उदयपुर से प्राप्त की है।

1981 से आपने व्याख्याता कृषि के रूप में अपनी सेवाएँ प्रारम्भ की। 1989 में आप सह आचार्य एवं 1996 में आचार्य नियुक्त हुए। आपने 12 पीएच.डी. व 33 एम.एस.सी. करवाई है तथा 7 शैक्षणिक सामग्री, 30 अनुसंधान पेपर प्रकाशित किए हैं। आपने राजस्थान कृषि विश्वविद्यालय, बीकानेर में आचार्य एवं विभागाध्यक्ष, निदेशक प्रसार शिक्षा एवं निदेशक स्टाफ एकेडमिक कॉलेज के रूप में भी अपनी सेवाएँ प्रदान की हैं। आप इज़राइल, जर्मनी, अमेरिका, कनाडा व इथियोपिया आदि देशों की यात्राएँ कर चुके हैं।

डॉ. (श्रीमती) अचला गक्खड़ ने स्नातक उपाधि महारानी कॉलेज, जयपुर से, स्नातकोत्तर (गृह विज्ञान प्रसार शिक्षा) गृह विज्ञान महाविद्यालय से एवं पीएच.डी. की उपाधि वनस्थली विद्यापीठ से प्राप्त की है।

1987 में आपने विद्यापीठ में ही प्रवक्ता, प्रसार शिक्षा के रूप में सेवाएँ शुरू की। अबतक आपके 12 शोधपत्र विभिन्न पत्रिकाओं में प्रकाशित हो चुके हैं। वर्तमान में आप वरिष्ठ व्याख्याता के पद पर गृह विज्ञान विभाग, वनस्थली विद्यापीठ में कार्यरत हैं। आपको स्नातक तथा स्नातकोत्तर स्तर पर अध्यापन कार्य का 17 वर्षों का अनुभव है।

Certified True Copy
Registrar
Jagan Nath University, Jaipur

मानव संसाधन विकास मंत्रालय, भारत सरकार की
विश्वविद्यालय-स्तरीय ग्रन्थ-निर्माण योजना के अन्तर्गत,
राजस्थान हिन्दी ग्रन्थ अकादमी, जयपुर द्वारा प्रकाशित।

ाठवां संस्करण : 2019
(प्रतियाँ 1100)

सार शिक्षा के नये आयाम
SBN 978-93-88776-93-6

ूल्य : 215.00 रुपये मात्र

© सर्वाधिकार प्रकाशक के अधीन

काशक :
ाजस्थान हिन्दी ग्रन्थ अकादमी
लाट नं. 1, झालाना सांस्थानिक क्षेत्र
यपुर- 302 004
ूरभाष : 2711129, 2710341
Vebsite: www.rajhga.com

ेज़र कम्पोजिंग :
I. क्रियेशन
रदार पटेल मार्ग, सी-स्कीम, जयपुर
ूरभाष : 0141-4911189

द्रक :
[illegible]ावाला ऑफसैट प्रिन्टर्स
यपुर

प्रव

लगभग चार दशक से राजस्था
शिक्षा प्राप्त कर रहे विद्यार्थियों के
विषयों की पाठ्य सामग्री उपलब्ध
है। इस पाठ्य सामग्री में पाठ्य पुस्

चूँकि अकादमी न लाभ-न हा
है, अतः अकादमी की किताबें कम
पुस्तकें विषय विशेषज्ञों के द्वारा लिखाई
तक अकादमी ने विज्ञान, तकनीकी
90 अनूदित पुस्तकें प्रकाशित की हैं।
तक 1168 संस्करण प्रकाशित किये
हो रहे हैं।

राजस्थान के विश्वविद्यालयों
100 से अधिक किताबें अनुशंसित
हरियाणा एवं दिल्ली सहित हिन्दी
भी अकादमी की अनेक पुस्तकें अ

अकादमी द्वारा कराये जाने व
का शत-प्रतिशत व्यय भारत सरकार से
से प्राप्त अनुदान से किया जाता है।

प्रस्तुत पुस्तक का आठवाँ संस्
करती है। अकादमी पुस्तक के लेख
के प्रति आभार व्यक्त करती है।

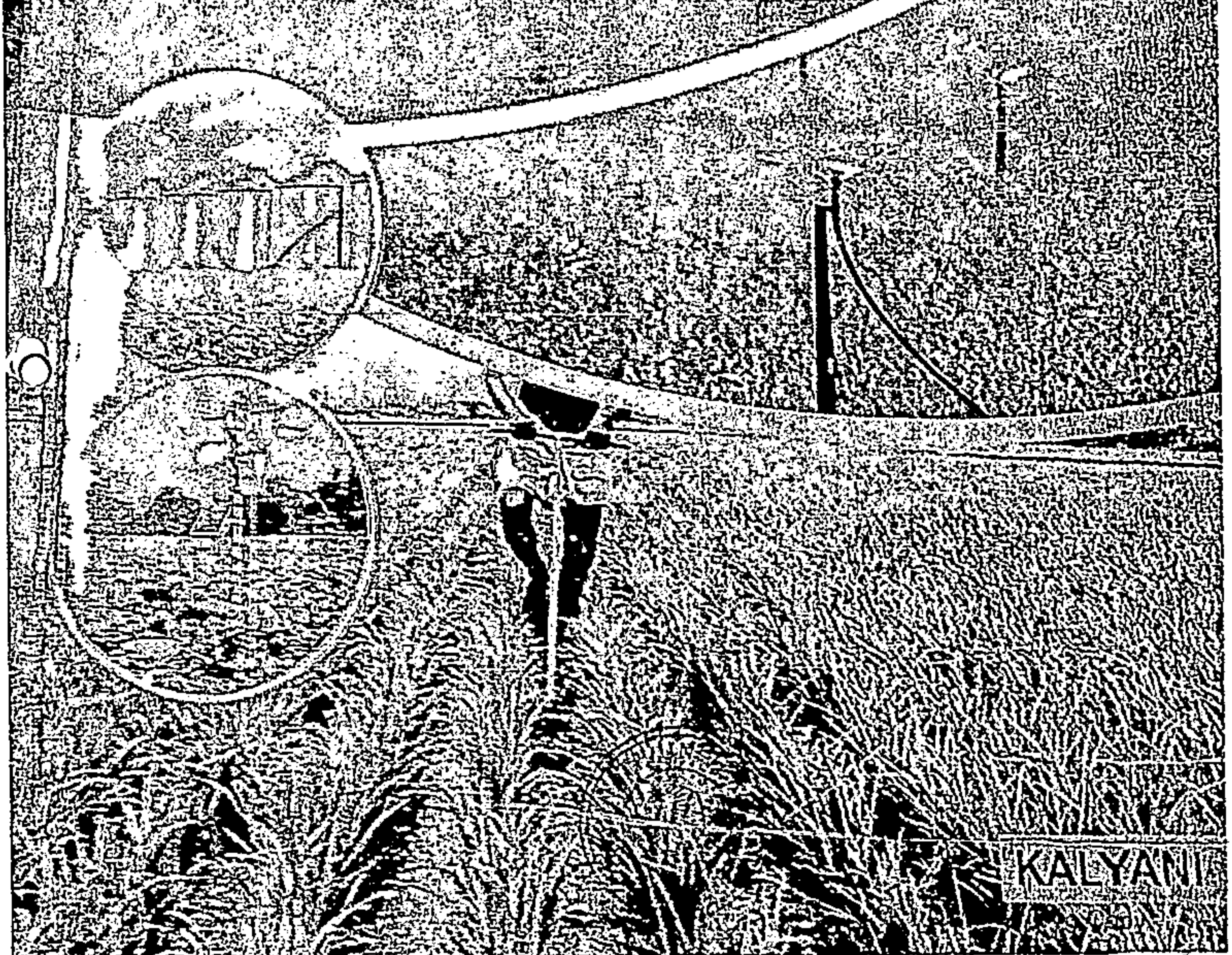
मई, 2019

Certified True Copy
Registrar
Jagan Nath University Jaipur

As per ICAR New Syllabus

FUNDAMENTALS OF
AGRONOMY

Shivkumar G. Telkar
Shivendu Pratap Singh Solanki
Kamal Kant



KALYANI

Registrar
Jagan Nath University, Jaipur

ABOUT THE AUTHORS

Mr. Shivkumar G. Telkar, Assistant Professor, Jagannath University, Chaksu, Jaipur (Raj.), born at Nandura, Buldhana District, Maharashtra. He received his under graduate degree in Agriculture (2011-15) from Shri Shivaji Agriculture College, Amravati, Dr. Punjabrao Deshmukh Krishi Vidyapeeth, Akola (Maharashatra) and he was awarded the ICAR-PG-NTS for his M.Sc. (Agriculture) in Agronomy at college of post graduate studies, CAU, Imphal in 2015-17. He has qualified the ICAR-ASRB-NET in Agronomy and also qualified ICAR-PGS-SRF examination. He has published 4 research papers, 3 review papers in national and international journals and more than 16 popular articles in reputed international news-letter. He has author of book "Question Bank on general agriculture and agricultural Engineering".

Shivendu Pratap Singh Solanki Ph.D Scholar, Punjab Agricultural University, Ludhiana, born at village Lamkana, Katni District, Madhya Pradesh. He received his under graduate degree in Horticulture (2011-15) from College of Horticulture, Vasantrao Naik Marathwada Agricultural University, Parbhani (Maharashatra) and awarded with University Gold Medal and Best Student award for excellent academic performance. He was awarded the ICAR-JRF for his M.Sc. (Horticulture) in Fruit Science at Dr. Yaswant Singh Parmar University of Horticulture and Forestry, Nauni, Solan (Himachal Pradesh) in 2015-17. He has qualified the ICAR-ASRB-NET in Fruit Science and also qualified ICAR-PGS-SRF examination with AIR 2nd rank in year 2017. He is advisory board member and reviewer of International Journal of Agricultural Sciences and Assistant editor of International Journal of medicinal plant studies. He is also a life member of various reputed scientific societies. He has published 7 popular articles and 5 research articles in national and international journals and awarded with Excellence AIASA Cabinet Member Award 2017. He is mentor of popular educational website Horticulture Gyan (https://horticulturegyan.wordpress.com/). He has author of book "Question Bank on general agriculture and agricultural Engineering".

Mr. Kamal Kant, Assistant Professor, Jagannath University, Chaksu, Jaipur (Raj.), born at Birthaliya wali, Sri Ganganagar District, Rajasthan. He received his under graduate degree in Agriculture (2011-15) from Mahatma Jyoti Rao Phoole University, Jaipur (Rajasthan) and he was awarded the ICAR-PG-NTS for his M.Sc. (Agriculture) in Agronomy at college of post graduate studies, CAU, Imphal in 2015-17. He has published 4 research papers, 2 review papers in national and international journals and more than 6 popular articles in reputed international news-letter.

Certified True Copy

Regi
Jagan Nath University, Jaipur

0 27725 05 ₹ 160.00
ISBN 978-93-272-9984-7
9 789327 299847

kalyani_delhi@kalyanipublishers.in
kalyani_delhi@yahoo.co.in
kalyanipublishers.co.in
www.kalyanipublishers.co.in

Prediction of productivity of any crop in a season has very important economic importance for a country. For yield improvements in rice, information about suitable management practices is rapidly increasing. The generation of new data through agronomic research methods is insufficient and time-consuming to meet these needs. It is important for a country like India, where productivity of crops in any season may vary greatly depending on the prevailing weather conditions of that season. In recent years, several dynamic crop growth simulation models have been developed to help in such a predictive process. Model accuracy in prediction and their sensitivity also help in mid-course correction, so that farmer can adopt a measure to avoid any drop in potential production of any crops. The main goal of a crop simulation model is to estimate crop production, resource use and environmental impact as a function of local weather and soil conditions and crop management. Agricultural system models have untapped potential to help agricultural research and technology transfer in the 21st century.

Mr. Kamal Kant, Assistant Professor, Jagannath University, Jaipur (Raj.), born at Birthaliya wali, Sri Ganganagar District, Rajasthan. He completed his undergraduate (2011-2015) from Mahatma Jyoti Rao Phoole University, Jaipur. He completed his M.Sc. (Agriculture) in Agronomy at College of Postgraduate studies, CAU, Imphal (2015-2017).

978-620-2-05985-5

A Modelling approach (CERES-RICE Model)

Kant, Gogol, Telkar

FOR AUTHOR U

Kamal Kant
Meghna Gogoi
Shivkumar G. Telkar

Response of Lowland Rice Cultivars to Nitrogen Application

A Modelling approach (CERES - RICE Model)

LAMBERT
Academic Publishing

Certified True Copy
Registrar
Jagan Nath University Jaipur

Imprint

Any brand names and product names mentioned in this book are subject to trademark, brand or patent protection and are trademarks or registered trademarks of their respective holders. The use of brand names, product names, common names, trade names, product descriptions etc. even without a particular marking in this work is in no way to be construed to mean that such names may be regarded as unrestricted in respect of trademark and brand protection legislation and could thus be used by anyone.

Cover image: www.ingimage.com

Publisher:
LAP LAMBERT Academic Publishing
is a trademark of
International Book Market Service Ltd., member of OmniScriptum Publishing Group
17 Meldrum Street, Beau Bassin 71504, Mauritius

Printed at: see last page
ISBN: 978-620-2-05985-5

Copyright © Kamal Kant, Meghna Gogoi, Shivkumar G. Telkar
Copyright © 2019 International Book Market Service Ltd., member of OmniScriptum Publishing Group

FOR AUTHOR USE ONLY

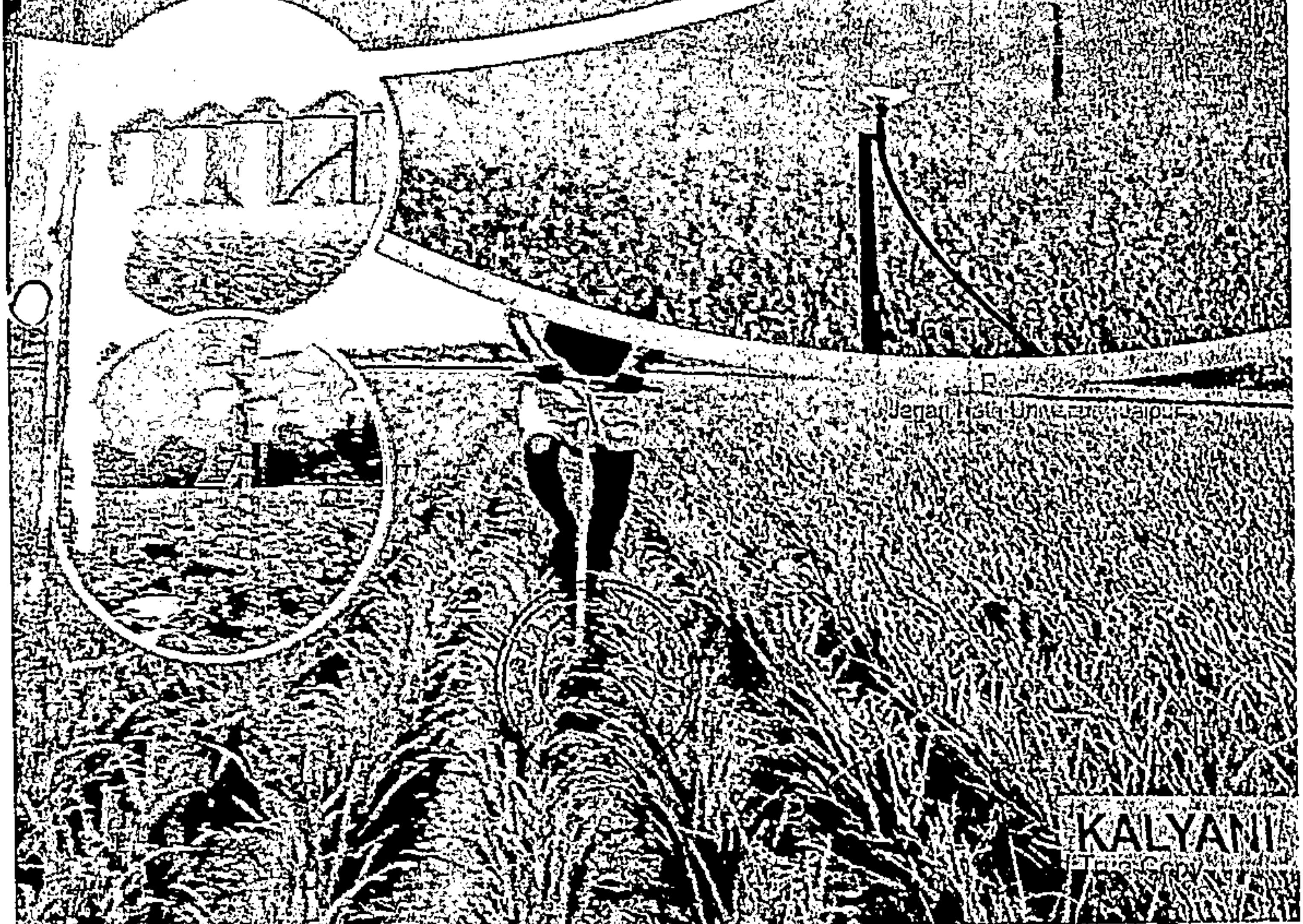
Certified True Copy
Registrar
Jagan Nath University, Jaipur

As per ICAR New Syllabus

FUNDAMENTALS OF
AGRONOMY

39

Shivkumar G. Telkar
Shivendu Pratap Singh Solanki
Kamal Kant



KALYANI

ABOUT THE AUTHORS

Mr. Shivkumar G. Telkar, Assistant Professor, Jagannath University, Chaksu, Jaipur (Raj.), born at Nandura, Buldhana District, Maharashtra. He received his under graduate degree in Agriculture (2011-15) from Shri Shivaji Agriculture College, Amravati, Dr. Punjabrao Deshmukh Krishi Vidyapeeth, Akola (Maharashatra) and he was awarded the ICAR-PG-NTS for his M.Sc. (Agriculture) in Agronomy at college of post graduate studies, CAU, Imphal in 2015-17. He has qualified the ICAR-ASRB-NET in Agronomy and also qualified ICAR-PGS-SRF examination. He has published 4 research papers, 3 review papers in national and international journals and more than 16 popular articles in reputed international news-letter. He has author of book "Question Bank on general agriculture and agricultural Engineering".

Shivendu Pratap Singh Solanki Ph.D Scholar, Punjab Agricultural University, Ludhiana, born at village Lamkana, Katni District, Madhya Pradesh. He received his under graduate degree in Horticulture (2011-15) from College of Horticulture, Vasantrao Naik Marathwada Agricultural University, Parbhani (Maharashatra) and awarded with University Gold Medal and Best Student award for excellent academic performance. He was awarded the ICAR-JRF for his M.Sc. (Horticulture) in Fruit Science at Dr. Yaswant Singh Parmar University of Horticulture and Forestry, Nauni, Solan (Himachal Pradesh) in 2015-17. He has qualified the ICAR-ASRB-NET in Fruit Science and also qualified ICAR-PGS-SRF examination with AIR 2nd rank in year 2017. He is advisory board member and reviewer of International Journal of Agricultural Sciences and Assistant editor of International Journal of medicinal plant studies. He is also a life member of various reputed scientific societies. He has published 7 popular articles and 5 research articles in national and international journals and awarded with Excellence AIASA Cabinet Member Award-2017. He is mentor of popular educational website Horticulture Gyan (https://horticulturegyan.wordpress.com/). He has author of book "Question Bank on general agriculture and agricultural Engineering".

Mr. Kamal Kant, Assistant Professor, Jagannath University, Chaksu, Jaipur (Raj.), born at, Birthaliya wali, Sri Ganganagar District, Rajasthan. He received his under graduate degree in Agriculture (2011-15) from Mahatma Jyoti Rao Phoole University, Jaipur (Rajasthan) and he was awarded the ICAR-PG-NTS for his M.Sc. (Agriculture) in Agronomy at college of post graduate studies, CAU, Imphal in 2015-17. He has published 4 research papers, 2 review papers in national and international journals and more than 6 popular articles in reputed international news-letter.

Certified True Copy

Jagan Nath [illegible] Jaipur

0 27725 05 ₹ 160.00
ISBN: 978-93-272-9984-7
9 789327 299847

kalyani_delhi@kalyanipublishers.in
kalyani_delhi@yahoo.co.in
www.kalyanipublishers.co.in

Prediction of productivity of any crop in a season has very important economic importance for a country. For yield improvements in rice, information about suitable management practices is rapidly increasing. The generation of new data through agronomic research methods is insufficient and time-consuming to meet these needs. It is important for a country like India, where productivity of crops in any season may vary greatly depending on the prevailing weather conditions of that season. In recent years, several dynamic crop growth simulation models have been developed to help in such a predictive process. Model accuracy in prediction and their sensitivity also help in mid-course correction, so that farmer can adopt a measure to avoid any drop in potential production of any crops. The main goal of a crop simulation model is to estimate crop production, resource use and environmental impact as a function of local weather and soil conditions and crop management. Agricultural system models have untapped potential to help agricultural research and technology transfer in the 21st century.

Mr. Kamal Kant, Assistant Professor, Jagannath University, Jaipur (Raj.), born at Birthaliya wali, Sri Ganganagar District, Rajasthan. He completed his undergraduate (2011-2015) from Mahatma Jyoti Rao Phoole University, Jaipur. He completed his M.Sc. (Agriculture) in Agronomy at College of Postgraduate studies, CAU, Imphal (2015-2017).

978-620-2-05985-5

A Modelling approach (CERES-RICE Model)

Kant, Gogol, Telkar

Kamal Kant
Meghna Gogol
Shivkumar G. Telkar

Response of Lowland Rice Cultivars to Nitrogen Application

A Modelling approach (CERES - RICE Model)

LAP LAMBERT Academic Publishing

FOR AUTHOR USE ONLY

Certified True Copy
Jagan Nath University, Jaipur

Imprint

Any brand names and product names mentioned in this book are subject to trademark, brand or patent protection and are trademarks or registered trademarks of their respective holders. The use of brand names, product names, common names, trade names, product descriptions etc. even without a particular marking in this work is in no way to be construed to mean that such names may be regarded as unrestricted in respect of trademark and brand protection legislation and could thus be used by anyone.

Cover image: www.ingimage.com

Publisher:
LAP LAMBERT Academic Publishing
is a trademark of
International Book Market Service Ltd., member of OmniScriptum Publishing Group
17 Meldrum Street, Beau Bassin 71504, Mauritius

Printed at: see last page
ISBN: 978-620-2-05985-5

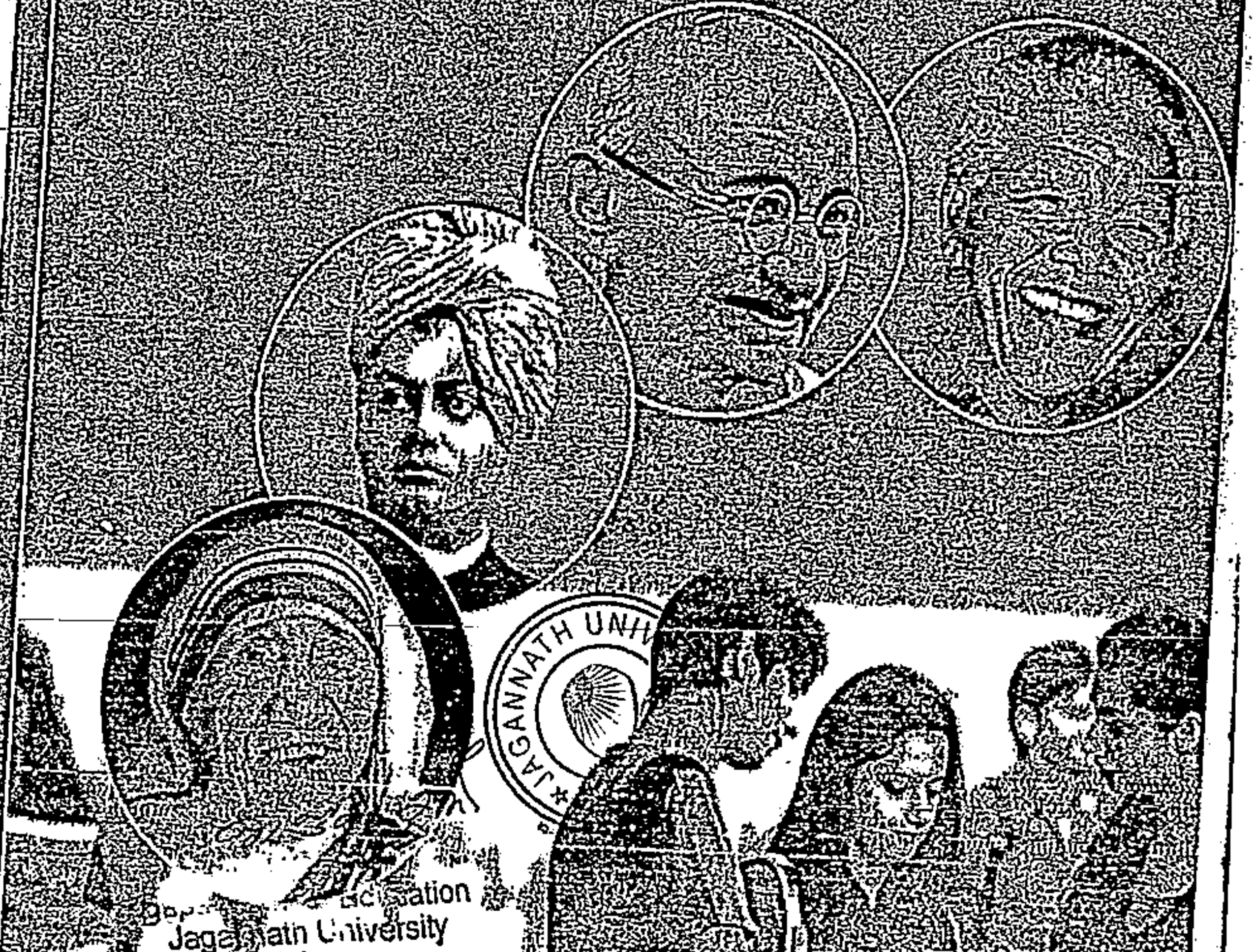
Copyright © Kamal Kant, Meghna Gogoi, Shivkumar G. Telkar
Copyright © 2019 International Book Market Service Ltd., member of OmniScriptum Publishing Group

FOR AUTHOR USE ONLY

80

शान्ति शिक्षा

Peace Education



डॉ. मंजु गुप्ता

मुकेश कुमार शर्मा

डॉ. नेहा [illegible]

Education
Jagannath University
Jaipur

Certified True Copy

Jagan Nath University, Jaipur

शान्ति शिक्षा

(Peace Education)

लेखक :

डॉ. मंजु गुप्ता
बी.ए., बी.एड., एम.ए. (हिन्दी, राजनीति विज्ञान,
मनोविज्ञान अर्थशास्त्र, दर्शन शास्त्र),
एम.एड., पीएच.डी. (शिक्षा) नेट (शिक्षा)
असिसटेन्ट प्रोफेसर, शिक्षा विभाग
जगन्नाथ विश्वविद्यालय, चाकसू (जयपुर)

मुकेश कुमार शर्मा
बी.एससी., बी.एड., एम.एससी. (भूगोल),
एम.ए. (शिक्षा, समाज शास्त्र), एम.एड.,
पी.जी.डी.सी.ए.
असिसटेन्ट प्रोफेसर, शिक्षा विभाग
जगन्नाथ विश्वविद्यालय, चाकसू (जयपुर)

डॉ. नेहा रावत
एम.ए. (अंग्रेजी), एम.सी.ए., एम.एड.,
पी.जी.डी.यी. ए.एच.आर.,
पीएच.डी. (शिक्षा) नेट (शिक्षा)
असिसटेन्ट प्रोफेसर, शिक्षा विभाग
जगन्नाथ विश्वविद्यालय, चाकसू (जयपुर)

HOD
Department of Education
Jagannath University
Jaipur

Certified True Copy
Jagan Nath University, Jaipur

राजस्थान प्रकाशन, जयपुर

ISBN : 978-93-80907-53-6

प्रकाशक : राजस्थान प्रकाशन
28, त्रिपोलिया बाजार, जयपुर
फोन : 0141-4052443

संस्करण : प्रथम, 2019

मूल्य : ₹ 250/- (दो सौ पचास रुपये मात्र)

पृष्ठ सज्जा : श्री ग्राफिक्स, जयपुर

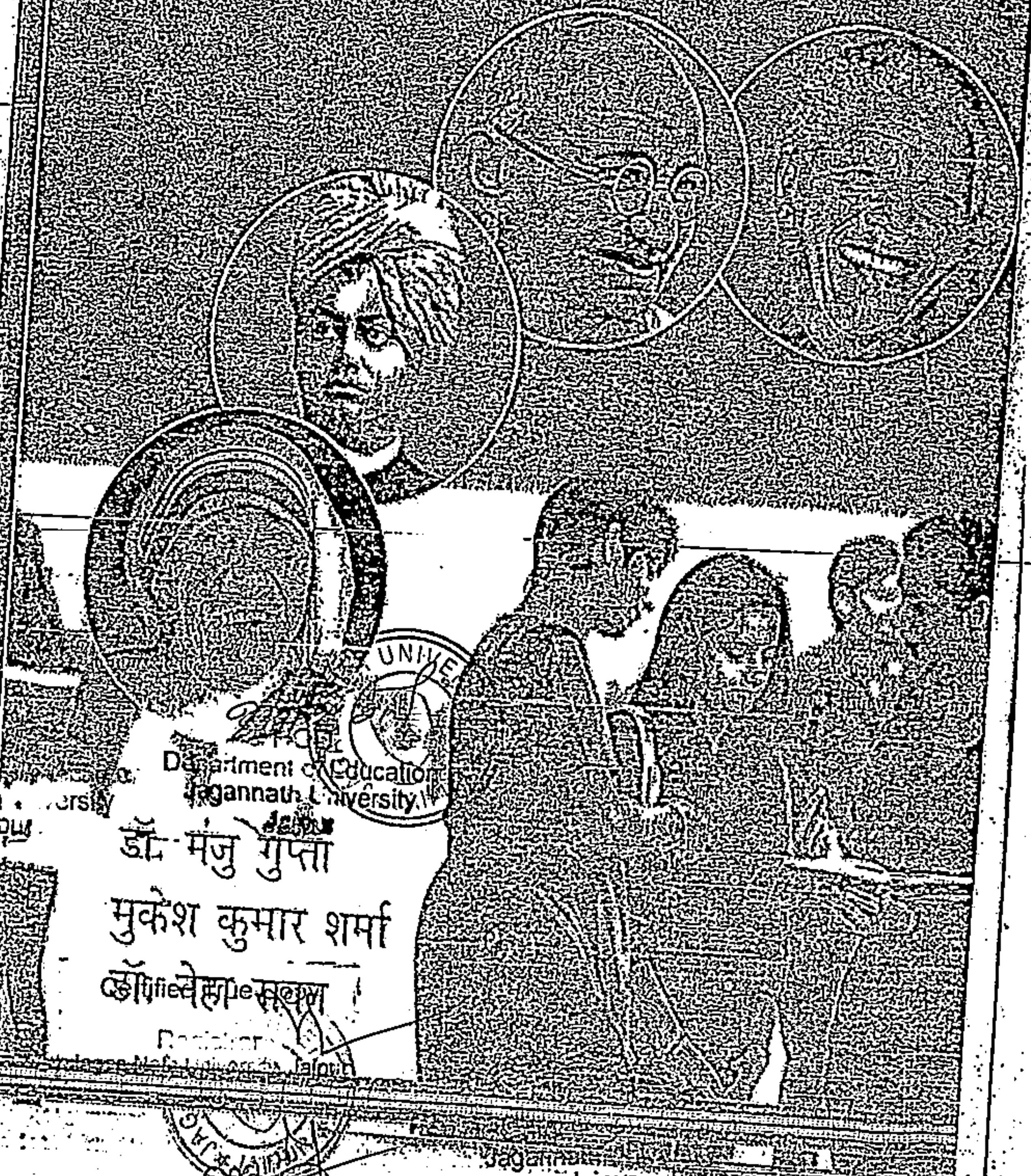
मुद्रक : शीतल ऑफसेट, जयपुर

81

84

शान्ति शिक्षा

Peace Education



डॉ. मंजु गुप्ता

मुकेश कुमार शर्मा

डॉ. [illegible]

Department of Education
Jagannath University
Jaipur

Certified true copy

Registrar
Jagannath University, Jaipur

Jaipur

शान्ति शिक्षा

(Peace Education)

लेखक :

डॉ. मंजु गुप्ता
बी.ए., बी.एड., एम.ए. (हिन्दी, राजनीति विज्ञान,
मनोविज्ञान अर्थशास्त्र, दर्शन शास्त्र),
एम.एड., पीएच.डी. (शिक्षा) नेट (शिक्षा)
असिसटेन्ट प्रोफेसर, शिक्षा विभाग
जगन्नाथ विश्वविद्यालय, चाकसू (जयपुर)

मुकेश कुमार शर्मा
बी.एससी., बी.एड., एम.एससी. (भूगोल),
एम.ए. (शिक्षा, समाज शास्त्र), एम.एड.,
पी.जी.डी.सी.ए.
असिसटेन्ट प्रोफेसर, शिक्षा विभाग
जगन्नाथ विश्वविद्यालय, चाकसू (जयपुर)

डॉ. नेहा रावत
एम.ए. (अंग्रेजी), एम.सी.ए., एम.एड.,
पी.जी.डी.वी. ए.एच.आर.,
पी.एच.डी. (हिंदी) नेट (शिक्षा)
असिसटेन्ट प्रोफेसर, शिक्षा विभाग
जगन्नाथ विश्वविद्यालय, चाकसू (जयपुर)

HOD
Department of Education
Jagannath University
Jaipur

Certified True Copy
Registrar
Jagan Nath University, Jaipur

राजस्थान प्रकाशन, जयपुर

ISBN : 978-93-80907-53-6

प्रकाशक : राजस्थान प्रकाशन
28, त्रिपोलिया बाजार, जयपुर
फोन : 0141-4052443

संस्करण : प्रथम, 2019

मूल्य : ₹ 250/- (दो सौ पचास रुपये मात्र)

पृष्ठ सज्जा : श्री ग्राफिक्स, जयपुर

मुद्रक : शीतल ऑफसेट, जयपुर

Certified True Copy
Jagan Nath University, Jaipur

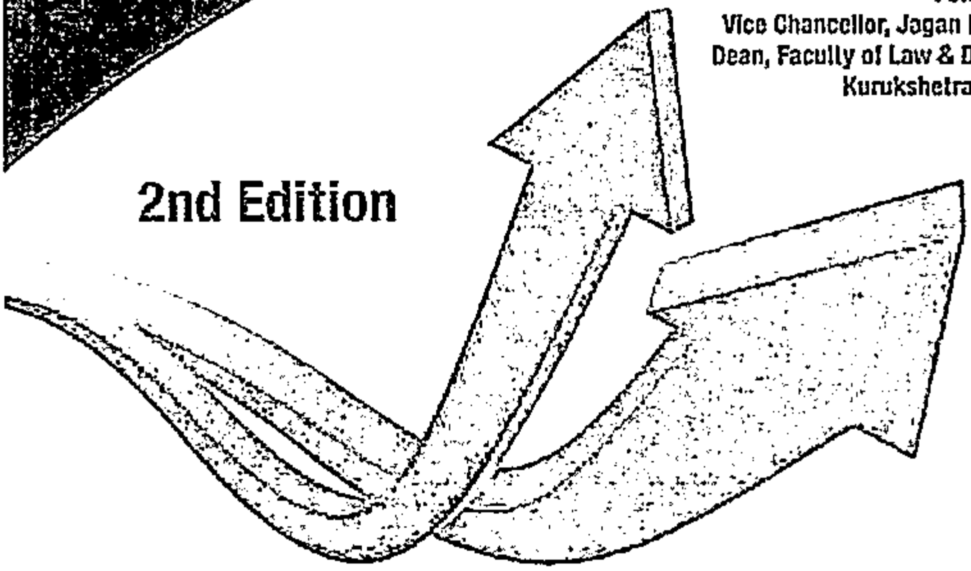
HOD
Department of Education
Jagannath University
Jaipur

Bharat's

COMPETITION ACT, 2002

Prof. (Dr.) V.K Agarwal
LL.M., Ph.D.
Pro Chancellor, Jagan Nath University, Jaipur
Formerly
Vice Chancellor, Jagan Nath University, Jaipur
Dean, Faculty of Law & Director Institute of Law
Kurukshetra University

2nd Edition



STUDENT EDITION

Bharat

Certified True Copy
[illegible]
Jagan Nath University, Jaipur

Springer Link

Information Retrieval from Search Engine Using Particle Swarm Optimization

Advances in Computing and Intelligent Systems pp 127-140 | Cite as

- Nainika Kaushik (1) Email author (Nainika.kaushik@jimsindia.org)
- Manjot Kaur Bhatia (1)

1. Jagan Institute of Management Studies, , Delhi, India

Conference paper
First Online: 03 January 2020

- 365 Downloads

Part of the Algorithms for Intelligent Systems book series (AIS)

Abstract

The World Wide Web provides an ample amount of information to the users, however, this leads to difficulty in the identification of relevant content. Web mining could be considered as a cure to this problem. It includes the application of machine learning and data mining techniques, which helps in the automatic extraction of meaningful patterns and relationships from a huge cluster of web data. Web mining is categorized into three areas: (i) web content mining, digging out knowledge from the content (i.e., text and graphics) of web pages, (ii) web structure mining, which extracts information from data describing the organization of web content, and (iii) web usage mining, in which we gather patterns by looking at the interactions of the users with the web. There is no sharply defined variation among these categories, and all the three mining tasks can be combined. So our paper focus on the very different type of technique for searching the web content, where we perform mining of the web content efficiently and give the fruitful results for the users. We planned to apply the support vector machine technique and the Particle Swarm Optimization (PSO) algorithm for searching the web content and giving the efficient and best results.

Keywords

Search engines Particle swarm optimization Support vector machine Stemming
Stop word removal

This is a preview of subscription content, log in to check access.

Certified True Copy
Jagan N[illegible] Jaipur

Chapter

Study of blockchains implementation prospects in manufacturing sector

By Sumit Kumar, Barkha Narang, Arun Pillai, Priya Kochar

Book Communication and Computing Systems (https://www.taylorfrancis.com/books/mono/10.1201/9780429444272/communication-computing-systems?refId=2ffce75f-4239-49d8-b76a-58c3706942b6)

Edition	1st Edition
First Published	2019
Imprint	CRC Press
Pages	6
eBook ISBN	9780429444272

ABSTRACT

< Previous Chapter (chapters/edit/10.1201/9780429444272-36/best-smart-green-manufacturing-practices-small-medium-enterprises-importance-performance-analysis-kushal-lalwani-manish-mishra-rajesh-mattoo)

Next Chapter > (chapters/edit/10.1201/9780429444272-38/24-7-work-culture-competitive-advantages-challenges-md-faiz-ranjeet-singh-siddharth-shuchi-mathur)

WorldCat®

Search WorldCat

Search

Advanced Search Find a Library

<$ Return to Search Results

Cite/Export Print E-mail Share Permalink

Add to list Add tags Write a review Rate this item 1 2 3 4 5

India's arrangements with other countries in civil matters : service of process/summons abroad, recording of evidence abroad, enforcement of judgments abroad, enforcement of maintenance orders abroad

Get a Copy

Find a copy in the library

Author:	V K Agarwal; B Agarwal
Publisher:	New Delhi, India : Pandect Publications, 2019.
Edition/Format:	Print book : English : 1st edition
Rating:	(not yet rated) 0 with reviews - Be the first.
Subjects	Civil procedure -- India. Diplomatic and consular service, East Indian. Civil procedure. View all subjects
More like this	Similar Items

Find a copy in the library

Enter your location: 302004 Find libraries

Submit a complete postal address for best results.

Displaying libraries 1-1 out of 1 (302004)

Show libraries holding just this edition

	Library	Held formats	Distance	
1.	Yale University Law School Library New Haven, CT 06520 United States	Book	7300 miles MAP IT	Library info Add to favorites

Details

Document Type:	Book
All Authors / Contributors:	V K Agarwal; B Agarwal Find more information about: V K Agarwal Go
OCLC Number:	1099977146
Notes:	Includes index.
Description:	viii, 312 pages ; 25 cm
Responsibility:	Dr. V.K. Agarwal, B. Agarwal.

Certified True Copy

Jagan Nath University, Jaipur

Reviews

User-contributed reviews

Add a review and share your thoughts with other readers.

Tags

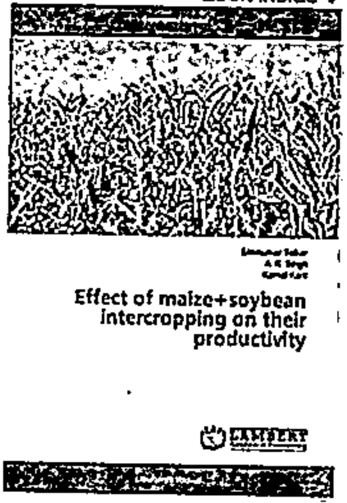
Add tags for "India's arrangements with other countries in civil matters : service of process/summons abroad, recording of evidence abroad, enforcement of judgments abroad, enforcement of maintenance orders abroad".

Similar Items

Related Subjects: (4)

- Civil procedure -- India.
- Diplomatic and consular service, East Indian.
- Civil procedure.
- India.

Look inside ↓



See all 2 images

Effect of maize+soybean intercropping on their productivity Paperback – July 30, 2019

by Shivkumar Telkar (Author), A. K. Singh (Author), Kamal Kant (Author)

See all formats and editions

Paperback
$69.00

1 Used from $75.84
1 New from $69.00

The greatest challenge of 21th century in many developing countries is to produce the basic demand of food, fodder, fuel and fibre for ever increasing population from decreasing availability of agricultural land due to continuous increase in demands for various non-agricultural purposes. Hence, one of the most important strategy to increase agricultural production through adoption of high intensity cropping systems including various form of intercrops.

Print length	Language
132 pages	English

Buy new: $69.00
+ $39.68 Shipping & Import Fees Deposit to India Details

Arrives: Sep 8 - 27

Deliver to India

In Stock.

Qty: 1

Add to Cart

Buy Now

Secure transaction

Ships from	Amazon.com
Sold by	Amazon.com

Return policy: Eligible for Return, Refund or Replacement

☐ Add a gift receipt for easy returns

Add to List

Share

amazon book clubs
early access

Add to book club

Not in a club? Learn more

Special offers and product promotions

- Amazon Business: Make the most of your Amazon Business account with exclusive tools and savings. Login now

Product details

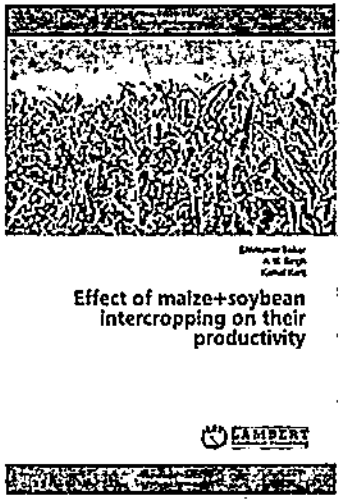
Publisher : LAP LAMBERT Academic Publishing (July 30, 2019)
Language : English
Paperback : 132 pages
ISBN-10 : 6200260087
ISBN-13 : 978-6200260086
Item Weight : 8.6 ounces
Dimensions : 5.91 x 0.3 x 8.66 inches

Sponsored

Videos

Certified True Copy
Jagan Nath University, Jaipur

Look inside ↓



See all 2 images

Effect of maize+soybean intercropping on their productivity Paperback – July 30, 2019

by Shivkumar Telkar (Author), A. K. Singh (Author), Kamal Kant (Author)

See all formats and editions

Paperback
$69.00

1 Used from $75.84
1 New from $69.00

The greatest challenge of 21th century in many developing countries is to produce the basic demand of food, fodder, fuel and fibre for ever increasing population from decreasing availability of agricultural land due to continuous increase in demands for various non-agricultural purposes. Hence, one of the most important strategy to increase agricultural production through adoption of high intensity cropping systems including various form of intercrops.

Print length	Language
132 pages	English

Buy new: $69.00
+ $39.68 Shipping & Import Fees Deposit to India Details

Arrives: Sep 8 - 27

Deliver to India

In Stock.

Qty: 1

Add to Cart

Buy Now

Secure transaction

Ships from Amazon.com
Sold by Amazon.com

Return policy: Eligible for Return, Refund or Replacement

☐ Add a gift receipt for easy returns

Add to List

Share

amazon book clubs
early access

Add to book club

Not in a club? Learn more

Special offers and product promotions

- Amazon Business: Make the most of your Amazon Business account with exclusive tools and savings. Login now

Product details

Publisher : LAP LAMBERT Academic Publishing (July 30, 2019)
Language : English
Paperback : 132 pages
ISBN-10 : 6200260087
ISBN-13 : 978-6200260086
Item Weight : 8.6 ounces
Dimensions : 5.91 x 0.3 x 8.66 inches

Sponsored

Certified True Copy
Registrar
Jagan Nath University, Jaipur

Videos

54

2017

Design of Low Pass Filter using Sun-Shaped Resonator

Malika Jain[1], Ramesh Bharti[2], Priyanka Jain[3]

[1] Ph.D student, JIMS University, Jaipur [2] HOD, Engineering and Technology Deptt., JIMS University, Jaipur [3] Deptt. of Electronics and Communication Engineering, Delhi Technological University
[1]jainmalika@gmail.com, [2]ramesh.bharti@jagannathuniversity.org, [3]priyajain2000@rediffmail.com

Abstract. A novel low pass filter using sun-shaped resonator is designed in this paper. The filter is designed by etching the sun shaped resonator on the ground plane and the stub loaded micro strip line on top of the surface. The new sun-shaped resonator is used for reduction in size of filter and to improve electrical performance. The design and simulation has been done using CST microwave studio. Also, the extraction of effective material parameters from the reflection and transmission coefficients is done using Nicolson Ross Weir (NRW) method. The designed filter is also fabricated on the FR-4 substrate with dielectric constant (ϵr) = 4.3, height h = 1.6mm and thick-ness of the micro strip conductor t = 0.035mm.The whole area of the proposed filter is 40x48mm^2. The low pass filter has a cut off frequency = 1.69 GHz with the insertion loss = -0.3dB. A low pass filter having low pass band insertion loss is proposed. Fabricated and simulated design results shows good agreement.

Keywords: Low pass filter, resonator, CST, metamaterial, NRW

I. INTRODUCTION

In the present scenario there is need for wireless communication and compact microwave devices in the communication and defense industries. For the wireless communication we require a microwave filter, which is a network having two port, used in a microwave system to control the frequency at a point. It provides frequency in the pass band of the filter and attenuates frequency in the stop band range. Depending upon the filter frequency response, the classification of the filter is as Low pass filter, High pass filter, Band pass filter and Band stop filter. Low pass filter is an important part in the RF circuit and microwave communication system as it avoids noise or interference of the surroundings. An ideal low pass filter should be compact and should have high electrical performance. To achieve this goal various methods were proposed in different papers [1] [2] [3] [4] [5] [6]. These methods include Stepped-impedance resonators; Deflected Ground Structures (DGS) and Metamaterials [7][8][9].

Review on Security Challenges of Cloud Computing

Manish Kumar Khandelwal[a] *Hukam Chand Saini*[b]

[illegible]

[illegible]

[illegible]

1. Introduction

[illegible]

Cerfified True Copy
R[illegible]
Jagan Nath U[illegible]y, Jaipur

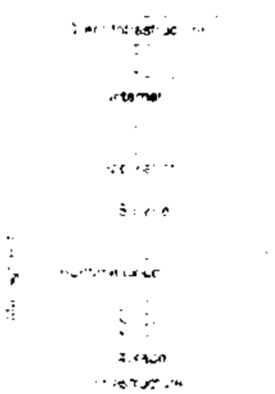


Fig. 1 Cloud architecture

2. Cloud Analysis

2.1. Definition of Cloud Computing

[illegible]

2.2. Types of Cloud

[illegible]

Public clouds [illegible]

Private cloud [illegible]

Community clouds [illegible]

Hybrid cloud [illegible]

Cerfified True Copy
Registrar
Jagan Nath University, Jaipur

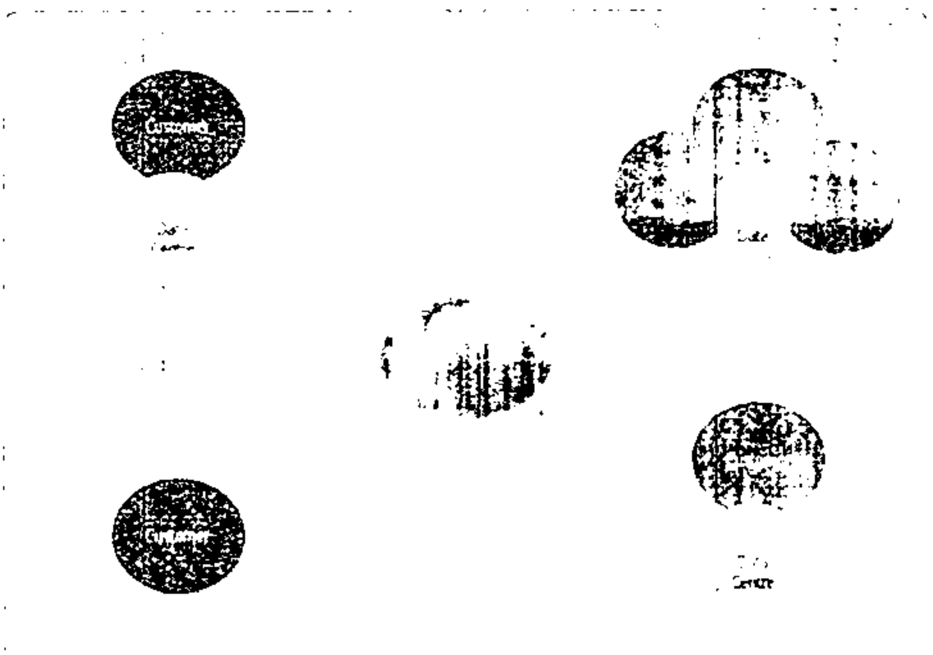


Fig. 3 Types of Cloud

2.3 Service Model

[illegible]

Infrastructure as a Service (IaaS): [illegible]

Platform as a Service (PaaS): [illegible]

Software as a Service (SaaS): [illegible]

Certified True Copy

Jagan Nath University, Jaipur

[illegible] which often uses multi-tenancy system architecture i.e. distinct cloud consumer apps are structured in a single logical [illegible] used to accomplish economies of scale and optimization in terms of velocity, safety, accessibility, disaster restoration and maintenance [illegible] emulates entire infrastructure such as servers, software, etc. and provides facilities for the use of consumer apps and [illegible] apps. In SaaS, there is Divided Cloud and Concurrence coherence mechanism whereby every data item is either the "Read Only" or "Write [illegible]". SaaS typically include a monthly or annual user fee so that cost can be scaled and adjusted if users are added or deleted at any stage [illegible] Some examples of SaaS include: Google Apps, Microsoft Office 365, GT Nexus, Marketo and Trade Card.

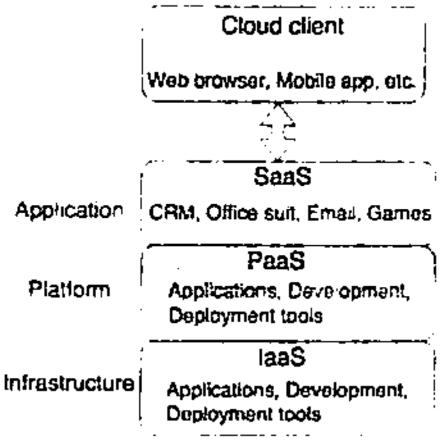

Cloud client
Web browser, Mobile app, etc.
SaaS
Application
CRM, Office suit, Email, Games
PaaS
Platform
Applications, Development, Deployment tools
IaaS
Infrastructure
Applications, Development, Deployment tools

Fig. 3- Service models in cloud computing

2.4. Security Challenges of Cloud Computing

Cloud computing has many advantages despite the fact that cloud computing has many difficulties. [illegible] businesses need to be conscious of cloud computing's advantages and challenges. Data security is the most [illegible] these difficulties. According to a survey carried out by Gartner [7], over 72 % of Chief Technical Officers thought that the main [illegible] computing services were not used was information security and privacy issues. Cloud is now particularly [illegible] organizations about safety [illegible] they are not prepared to move their infrastructure back into the cloud. Most organizations are watching this movement [illegible] premature to move to cloud storage, which is the primary reason why cloud computing lacks maturity level. Below are some of the security challenges mentioned:

Privacy of data: Data privacy is critical to cloud computing. Most organizations feel more comfortable when they place precious [illegible] cloud. Consumers have no concept about the place of information, data transfer, cloud activities, etc. Many [illegible] arising [illegible]

- Where are the other organizations sharing services
- How files are created and deleted
- What about information backup
- Which sort of user can access information?
- Location of data
- etc.

Confidentiality of data: Confidentiality is data privacy-related [illegible] that only approved consumers can see the information [illegible] tenancy properties make it very difficult for multiple consumers to share the hardware, software in a distributed network [illegible] the service provider to provide confidentiality. Confidentiality's common alternative is encryption. There are many symmetric and asymmetric [illegible] accessible for data confidentiality. Although the alternative to confidentiality is encryption and decryption, many issues arise in connection with this:

- Where they are encrypted and decrypted (client side or cloud side)

Certified True Copy
Jagan Nath University, Jaipur

- [illegible]
- [illegible]
- [illegible]
- [illegible]
-

Data Remanence: [illegible]

Data integrity [illegible] Data as a Service, Software as a Service, Platform as a Service [illegible] data integrity [illegible]

Transmission of data: [illegible]

Data Breaches: [illegible]

Availability: [illegible]

Malicious Insiders: [illegible]

API issues: [illegible] API [illegible]

- [illegible]
- [illegible]
- [illegible]

Data location: [illegible]

Certified True Copy
Registrar
Jagan Nath University, Jaipur

[illegible]

Data Relocation: [illegible]

Account or Service Hijacking: [illegible]

- [illegible]
- [illegible]
- [illegible]

Interoperability: [illegible]

3. Conclusion

[illegible]

4. [illegible]

[illegible]

Certified True Copy
Registrar
Jagan Nath University, Jaipur

[illegible] "Study on advantages and disadvantages of Cloud Computing – the advantages of Telemetry Applications in the Cloud", Recent Advances in Applied Computer Science and Digital Services

Chen [illegible], Huang J., Wu Z. (2010). "SaaAS – The Mobile Agent based Service for Cloud Computing in Internet Environment", [illegible] Natural Computation, pp. 2435-2439, IEEE, Yantai, Shandong, China, 2010. ISBN: 978-1-4244-5958-2

Cloud Computing Building a Framework for Successful Transition. http://www.gtsi.com/cms/documents/White-Paper/Cloud-Computing.pdf

[illegible] A., [illegible] A., Hemalatha M. (2012). "A Brief Survey on Architecture, Challenges & Security Benefit in Cloud Computing", [illegible] Information and Communication Technology Research [illegible]

[illegible] (2013) "Cloud Computing: An Overview", Journal of Theoretical and Applied Information Technology

https://www.ibm.com/developerworks/mydeveloperworks/groups/service/html/communityview?communityUuid=[illegible]
[illegible] 491dc157-15c0-48c5-b01a-21872b13658

Qwest Technology Management for Business, "The Benefits and Challenges of Cloud Computing", www.qwest[illegible]

Cloud Computing Building a Framework for Successful Transition. http://www.gtsi.com/cms/documents/White-Paper/Cloud-Computing.pdf

Cloud computing security. https://en.wikipedia.org/wiki/Cloud_computing_security

Data Remanence. https://en.wikipedia.org/wiki/Data_remanence

[illegible] (2016) "Brief Review on Cloud Computing [illegible]"

CSA "The notorious nine cloud computing top threats in 2013", The Notorious Nine Cloud Computing [illegible]

Baker W. M. (2011) "Data breach investigations report" [Online]. Available: http://www.wired.com/images_blogs/threatlevel/2011/04/Verizon-2011-DBIR04-13-11.pdf

Hubbard D., Sutton M. (2010) "Top threats to cloud computing v1.0", Cloud Security Alliance

Kumar P., Singh B., Arya (2013) "Data Location in Cloud Computing", International Journal for Science and Emerging Technologies with Latest Trends

[illegible] "Security Challenges in Cloud Computing"

Reese G. (2009) "Cloud Application Architectures", First edition, O'Reilly Media, ISBN [illegible]

Rittinghouse J. W., Ransome J. F. (2009) "Cloud Computing Implementation, Management, and Security", CRC Press, ISBN [illegible]

Amazon White Paper "Introduction to Amazon Virtual Private Cloud", Available: http://aws.amazon.com/about-aws/whats-new/2009/[illegible] virtual-private-cloud

Certified True Copy
Jagan Nath [illegible] Jaipur

Review on Security Challenges of Cloud Computing

***Manish Kumar Khandelwal*[a], *Hukam Chand Saini*[b]**

Jagan Nath University, Jaipur

ARTICLE INFO

Article history:
Received [illegible] March [illegible]
Received in revised form 28 M[illegible]
Accepted [illegible]

Keywords:
Cloud Computing
[illegible]
Security Challenges
Service Models
Types of Cloud
Review

ABSTRACT

[illegible]

[illegible]

1. Introduction

[illegible]

Certified True Copy

Registrar
Jagan Nath University, Jaipur

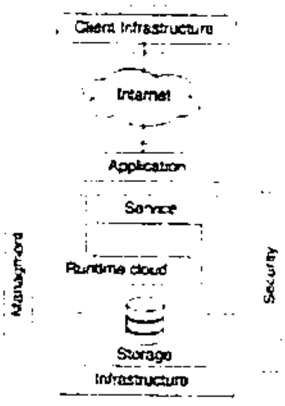


Fig. 1-cloud architecture

2. Cloud Analysis

2.1. Definition of Cloud Computing

Definition of cloud computing is "it is the use of different services such as software development platform, servers, storage and software [illegible] internet referred as the cloud computing" a Significant distributed computing model guided by economic [illegible] of equilibrium in which [illegible] computing stack, platform in which installations are provided through the internet as requested by overseas customers [1]. [illegible] are Amazon, Google, IBM, Microsoft and Salesforce.com

2.2. Types of Cloud

Based on deployment model we can classify cloud as four types.

Public cloud:public cloud means that the whole computing infrastructure is located on the premises of a cloud computing company that offers the cloud computing services. The location remains, thus separate from the customer and he has no physical control over the infrastructure.

Private cloud: Private cloud utilizes dedicated and private hardware as it is, by definition, a single tenant atmosphere in which hard[illegible] network are purchased and devoted to a customer or business. Organizations also have an alternative to select a private cloud assumption that [illegible] costly but they have physical control over the resources.

Community cloud: model is like a private one to a large extent the only difference is the set of users. While in private cloud type [illegible] [illegible] the server, in the case of community type multiple organizations with similar background share the infrastructure and resources.

Hybrid cloud: is a cloud computing environment that uses a mix of on-premises, private cloud and third-party, public cloud service. [illegible] have an alternative to select a private cloud assumption that is more costly, but they have physical control over the resources.

Certified True Copy
Registrar
Jagan Nath University, Jaipur

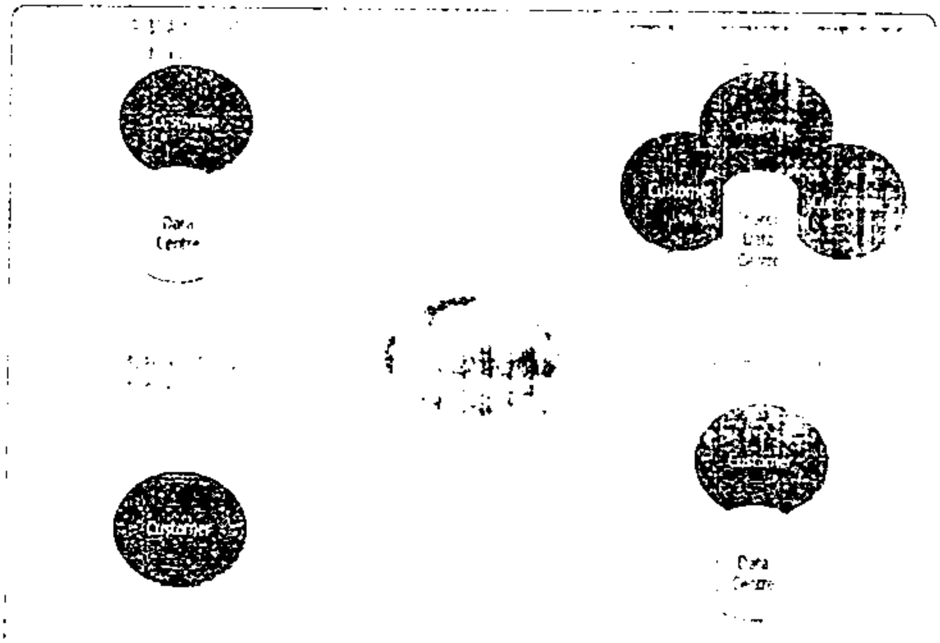

Customer
Data Centre
Customer
Customer
Customer
Data Centre
Customer
Customer
Data Centre

Fig. 2: Types of Cloud

2.3. *Service Model*

Cloud computing services [illegible] [illegible] services [illegible]

Infrastructure as a Service (IaaS): It [illegible] by cloud [illegible] hardware [illegible] Monitors, Storage, Network devices etc. Rather than [illegible] infrastructure, it can be leased [illegible] [illegible] bandwidth etc. [illegible] infrastructure [illegible] customers [illegible] manage and control [illegible] EC2, Microsoft [illegible]

Platform as a Service (PaaS): [illegible] C, C++, .NET, JAVA [illegible] database [illegible] Azure, Google App Engine [illegible]

Software as a Service (SaaS): SaaS [illegible] Internet [illegible]

Certified True Copy
Jagan Nath University, Jaipur

infrastructure, which often uses multi-tenancy system architecture i.e. distinct cloud consumer apps are structured in a single logical [illegible] in the SaaS cloud to accomplish economies of scale and optimization in terms of velocity, safety, accessibility, disaster restoration and maintenance [5]. SaaS [illegible] manages entire infrastructure such as servers, software etc. and provides facilities for the use of consumer apps and [illegible] settings for apps. In SaaS, there is Divided Cloud and Convergence coherence mechanism whereby every data item has either the 'Read Lock' or 'Write Lock' [4]. SaaS typically includes a monthly or annual user fee so that cost can be scaled and adjusted if users are added or deleted at any stage [6]. Some examples of SaaS include - Google Apps, Microsoft office 365, [illegible] Nexus, Marketo and Trade Card.

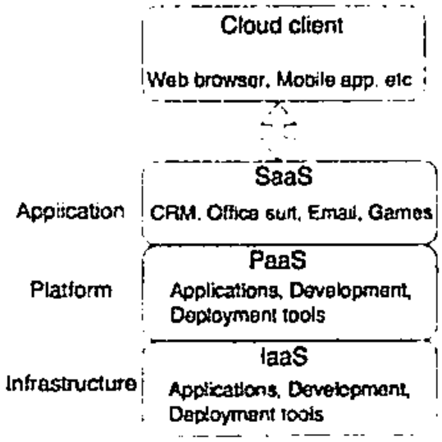

Cloud client
Web browser, Mobile app, etc
SaaS
Application
CRM, Office suit, Email, Games
PaaS
Platform
Applications, Development, Deployment tools
IaaS
Infrastructure
Applications, Development, Deployment tools

Fig. 3- Service models in cloud computing

2.4. Security Challenges of Cloud Computing

Cloud computing has many advantages despite the fact that cloud computing has many difficulties. While moving from site owned [illegible] businesses need to be conscious of cloud computing's advantages and challenges. Data security is the most serious [illegible] cloud [illegible] these difficulties. According to a survey carried out by Gartner [illegible] over [illegible] of Chief Technical Officers thought that [illegible] computing services were not used was information security and privacy issues. Convincing particularly tiny organizations about safety concerns is a tedious task; they are not prepared to move their infrastructure back into the cloud. Most organizations are scared [illegible] prepared to move to cloud storage, which is the primary reason why cloud computing lacks maturity level. Below are some of [illegible] encountered.

Privacy of data: Data privacy is crucial to cloud computing. Most organizations feel more comfortable when they place precious information [illegible] than cloud. Consumers have no concept about the place of information, data transfer, cloud activities, etc. Many questions are arising by consumers such as

- Which are the other organizations sharing services
- How files are created and deleted
- What about information backup
- Which sort of user can access information?
- Location of data
- Etc.

Confidentiality of data: Confidentiality is data privacy-related, ensuring that only approved consumers can see the information. Virtualization and [illegible] properties make it very difficult for multiple consumers to share the hardware, software in a distributed network at the same time. [illegible] provide confidentiality [illegible] encryption. There are many symmetric and asymmetric [illegible] accessible for data confidentiality. Through the alternative of confidentiality of encryption and decryption, many issues arise in connection with this:

- Where they are encrypted and decrypted, i.e. [illegible] site or cloud side?

Certified True Copy
Jagan Nath University, Jaipur

- [illegible] information be [illegible] encrypted form
- What are threats when [illegible] information
- [illegible] by service provider of information
- [illegible] of keys by service provider
- Etc

Data Remanence: Data stored in the cloud must also be erased after its life cycle or [illegible] The [illegible] uses not remove previously published information from the media that can subsequently be accessed [illegible] standard for storage media recovery. This data remanence makes the cloud hardware resources [illegible] Most [illegible] allocated resources and storage space because of this [illegible] are locked [illegible] These techniques are [illegible] purging [illegible] destruction of media [illegible]

Data integrity: [illegible] alteration [illegible] Multiple [illegible] can share information [illegible] platform in the cloud [illegible] a failure in integrity. Because [illegible] Data as a Service, Software as a Service, Platform as a Service data integrity is a basic task [illegible]

Transmission of data: Most [illegible] between the cloud [illegible] Data [illegible] Encryption is used [illegible] data is transmitted without encryption because it takes a lot of time to encrypt and decrypt [illegible] the transfer of information, misuse of [illegible] interrupting information transfer, changing information transfer, other issue

Data Breaches: As mentioned above, malicious users and organizations from different parts [illegible] that is stored at one location. Any leak or problem on cloud may expose these sensitive data to the users of [illegible] Because of multi-tenancy, customers using different applications on virtual machines could share same database and [illegible] happens, it is going to affect others sharing the same database [illegible] In [22] it was reported [illegible] Data Breach [illegible] are the common causes of data breaches with [illegible] hacking and 44 percent [illegible]

Availability: The cloud computing system's availability from anywhere for all time is very important for cloud computing [illegible] services at all times because of the critical services they provide, any service interruption can lead to loss [illegible] attacks such as denial of service are used to deny data availability. If an attacker uses all the [illegible] denial of service and slow access to those resources [illegible] Also, Customers who use the cloud service and who are affected by the notice may [illegible] other cloud providers availability [illegible] and redundancy [illegible]

Malicious Insiders: [illegible] employees who are [illegible] cloud service providers [illegible] the data in the cloud and pass the sensitive information [illegible] Service [illegible]

API issues: [illegible] Application Program Interface (API) is used to connect the cloud services [illegible] API [illegible] security issues. If they are weak and [illegible] privileged user [illegible] API related issues can [illegible] There are many solutions proposed [illegible] of APIs.

- [illegible] of the cloud [illegible] interfaces
- Making a strong access control and [illegible] when data is transmitted
- Understanding dependency on API

Data location: Cloud computing provides high mobility of data. Most consumers don't know where their data is located. [illegible]

Certified True Copy
Jagan Nath University, Jaipur

[illegible]

Data Relocation [illegible]

Account or Service Hijacking [illegible]

- [illegible]
- [illegible]
- [illegible]

Interoperability [illegible]

3. Conclusion

[illegible]

[illegible]

[illegible]

Certified True Copy

Jagan Nath [illegible] Jaipur

Apostu A., Puican F., Ularu G., Suciu G., Todoran G. Study on advantages and disadvantages of Cloud Computing – the advantages of [illegible]
the Cloud. Recent Advances in Applied Computer Science and Digital Services
Chen G., Lu J., Huang J., Wu Z. (2010). SaaAS – The Mobile Agent based Service for Cloud Computing in Internet Environment". Sixth International Conference on Natural Computation, pp. 2935-2939, IEEE, Yantai, Shandong, China, 2010. ISBN: 978-1-4244-5958-2
Cloud Computing: Building a Framework for Successful Transition. http://www.gtsi.com/cms/documents/White-Papers/Cloud-Computing.pdf
Sajid N., Vanitha A., Hemalatha M. (2012). A Brief Survey on Architecture, Challenges & Security Benefit in Cloud Computing. International Journal of Information and Communication [illegible]
[illegible] Cloud Computing: An Overview. Journal of Theoretical and Applied Information Technology
[illegible] .com/developerworks/[illegible] computing [illegible]
[illegible]
[illegible] Management for Business: The Benefits and Challenges of Cloud Computing. www.[illegible]
[illegible] Building a Framework for [illegible] www.gtsi.com/cms/documents/White-Papers/Cloud-Computing.pdf
[illegible] http://[illegible] security
[illegible]
[illegible] (2016) Brief Review [illegible] Journal of Computer Science and Mobile Computing [illegible]
CSA [illegible] cloud [illegible] pdf
Baker W. M. (2011). data breach investigations report [illegible] Available http://www.[illegible]
verizon [illegible] 2011 DBIR04 [illegible] pdf
Hubbard D., Sutton M. (2010). "Top threats to cloud computing v1.0", Cloud Security Alliance
Kaur P., Sood H., Arora (2013) "Data Location in Cloud Computing" International Journal [illegible]
[illegible] Sharma S., Sadamin G. "Security Challenges in Cloud Computing"
Reese G. (2009). "Cloud Application Architectures", First edition, O'Reilly Media, ISBN: [illegible]
Rittinghouse J. W., Ransome J. F. (2009). "Cloud Computing: Implementation, Management and Security", CRC Press, ISBN: [illegible]
Amazon White Paper: Introduction to Amazon Virtual Private Cloud. Available: http://[illegible]
[illegible]

Certified True Copy
Jagan N[illegible] Jaipur

ISSN NO. 1557-5068 Dr Shilpi (6)

(63)

Prerequisites of Quality Assurance in Health Sector: A Literary Review

Shilpi Khandelwal, Paras Mal Soni

Jagannath University, Jaipur, India

ARTICLE INFO

Article history:
Received 30 January19
Received in revised form 16 March19
Accepted 04 April 19

Keywords:

Total Quality Management,
Quality Assurance, Quality
measurement.

ABSTRACT

Healthcare could be an extremely competitive world business. Individuals settle for to visit remote components of the globe so as to receive the service quality they hope for. Patients sometimes favor to visit personal hospitals, hoping to receive high service quality. Issues regarding the standard of health care have up high on the international agenda in recent years, as countries attempt to strengthen their health systems and deliver universal health coverage. Due to demand of quality assurance in health care, this study was conducted to spot the conditions of quality assurance for victorious implementation of tending establishments through a scientific review of literature.

This study identifies the service quality factors that are important patient satisfaction in the context quality assurance prerequisites such as Continuous process ,Systematic process, Plan-Do-Check-Act cycle (PDCA-cycle), patient-centeredness, process improvement in health care, Cooperation between professional, Quality assurance level (a) the structural level (b) indicators that are associated with processes of care (c) clinical outcomes, Dedicated Top management leadership that is Commitment to Quality Improvement, Five broad attributes as Reliability, Assurance, Tangibles, Empathy, Responsiveness, Transformation of organisational culture, Employee education and training, Quality measurement and statistical analysis at all levels, Bench marking ,Employee empowerment, Affordability and convenience ,TQM model Six Sigma were identified as factors essential for quality assurance of any health care setting.

© 2019ICACM. Hosting by SSRN. All rights reserved.
Peer review under responsibility of International Conference on Advancements in Computing & Management.

1. Introduction

1.1. Total quality management

Total quality management is a management strategy that involves all organizational functions to satisfying customers and achieving the vision and mission of the organization. Total quality management implementation ensures that the employees and management collectively engage in the production of goods and services. Previously total quality management activities were practiced in manufacturing operations but it is now being used in the public sector and service organizations. Total quality management involve activities such as: fulfilling customer needs, reduction of services costs, engagement of both the employers and employees, team improvement, reducing the time for change to have occurred, focus on improvement the businesses plans, ownership of management, systems to facilitate improvement, challenging the already achieved goals and benchmarking by brainstorming among teams. (Ahmad A, 2015)

Quality management has become a vital a part of health care organizations (hospitals) throughout the last 3 decades. The multiplied attention to quality is due to governmental rules, influence of consumers, and management initiatives. So, the role of state because the main health care service supplier has modified. to boot, the health care is ever-changing from a producer-oriented to a customer-oriented because of the influence of consumers and public pressures. As a result, the patient—is turning into a client for the health care organizations, or a lot of seemingly an instantaneous strategic partner that participates in an exceedingly method process. The changes in society, surroundings, and political policies have important impacts on management in health establishments furthermore. TQM 'Total Quality Management' is practiced wide at totally different organizations and Hospitals aren't any exception to the present. (M. Balasubramanian, 2016)

Definition of total quality management

There are two definitions in healthcare services distinguished TQM from other approaches:

Optimization ofa Multi-Server Stochastic Financial Queue

Bhupender Kumar Som[a], *Shweta Bhatia*[b], *Kirti Sharma*[c]

[a]*Professor, JagannathInstitute of Management Studies, New Delhi 110085, India*
[b]*Associate Professor, Jagannath University Jaipur 302022, India*
[c]*Research Scholar, Jagannath University Jaipur 302022, India*

ARTICLE INFO

Article history:
Received 29 January19
Received in revised form 02 March19
Accepted 03 April 19

Keywords:
Stochastic financial models
Optimization
Insurance
MATLAB

ABSTRACT

Profit optimization imperative for any business. The businesses that are dealing with lots of stochastic variables he challenges become severe. Almost all of the business situations can be presented through a mathematical model. In this paper, the functioning of a financial institution such as the insurance firm is modelled as a stochastic queue. The cost model for the queue is developed and optimized for different stochastic parameters using pattern search and classical optimization techniques. An algorithm is written in MATLAB for the purpose. The paper can be referred by firms for practical implementation in order to maximize their profit

© 2019ICACM. Hosting by SSRN. All rights reserved.
Peer review under responsibility of International Conference on Advancements in Computing & Management.

1. Introduction

Here introduce the paper, and put a nomenclature if necessary, in a box with the same font size as the rest of the paper. The paragraphs continue from here and are only separated by headings, subheadings, images and formulae. The section headings are arranged by numbers, bold and 9.5 pt. Here follow further instructions for authors.Investment is a sensitive business. People wish to analyze the risk before investing in a firm. The insurance business is one of the leading sectors of financial investments. As the customers wish to invest their money at low risk, they become very selective in choosing a firm for investment. It pushes firms to make strategies that are appreciated by customers. Hence, for firms knowing their performance in advance with some probability is very important as they can plan a better strategy. In this paper we consider a company operating in life insurance, the customer arrives one by one in accordance with Poisson process to the firm for purchasing the policy, their claims are processed through multiple servers one by one. The service times are exponentially distributed. The firm has limited capacity to accommodate the customers, ', i.e. the capacity of the system is considered as finite. It is evident that the customer does not wish to wait for longer period of time in the queue for getting the service, hence if they observe a long queue of customers that are to be served they decide not to join the queue. This behaviour in the queuing system is termed as *Balking*. Further, if a customer has joined the queue, and he is not willing to stand the queue above a threshold limit of time, the customer decides to quit in between and abandons the queue without completion of service. This behaviour of customers is known as reneging in the *queuing literature* studied by Ancker and Gaffarian in 1969. For customer who decides to abandon the queue, firms try to retain them by introducing some retention policies such as a discount on premiums or else. Further, all the customers are not satisfied with the service, and some of them retire to the system for completion of their dissatisfactory service. These customers are termed as feedback customers in *queuing literature*.

In this paper, a stochastic queuing model studying all the challenges mentioned above is optimized after developing a cost model. The cost model is developed with three functions, namely; total expected revenue, total expected cost and total expected profit. The optimization of the newly developed model is performed by using the pattern search algorithm and the classical optimization technique of calculus. An algorithm for both the techniques is developed in MATLAB, and the results are obtained. The results obtained in this paper of immense use for the firms to optimize the number of servers, capacity and other components.

ISSN No. 1552-5068 Dr. Shilpi ~~8~~ 61

Localization Technology in Health Sector: A study of PCTS in Rajasthan

Shilpi Khandelwal, Paras Mal Soni

Jagannath University, Jaipur,India

ARTICLE INFO

Article history:
Received 25 January 19
Received in revised form 02 February 19
Accepted 24 February 19

Keywords:
HIMS :- Health information management system
ANM :- Auxiliary nurse midwife
ASHA:-Accredited social health activist
BPM:- Block program manager

8

ABSTRACT

In any society the most susceptible and at risk sections are woman and children and when it comes to health services perspective the problem becomes severe especially in the case of pregnant woman and infants health. The advancement in technology doesn't fulfil its purpose till it caters to the need of this section in terms of improvement in their lives and better access to services. The pregnancy and child immunization is key of any health system and it is necessary to ensure the time specific and quality services in this context. For this purpose only, Government of Rajasthan developed a tracking system known as pregnancy child tracking and health services management system (PCTS). PCTS was built, designed and developed by the National Informatics Centre as an Integrated system for Health information management system (HIMS). This is a name based tracking system through which a pregnant woman and child will be tracked for ANCs and immunization. The thought behind this is to improve service delivery to the rural areas in the state of Rajasthan, India. This study was conducted to analyse the different tools and techniques used in tracking the mother and child from child tracking and health services management system (PCTS). Main objective of the study was to study and analyse the issues and challenges in the application of PCTS in Rajasthan. The study shows that PCTS has been successful to an extent in providing basic health care services to pregnant woman and child but still there are many issues which need to be addressed to make it more prompt and more comprehensive in approach.

© 2019SUSCOM. Hosting by Elsevier SSRN. All rights reserved.

Peer review under responsibility of International Conference on Sustainable Computing in Science, Technology and Management.

1. Introduction

3

Health information systems are composed of subsystems that include information on demography, vital events, health status, environmental health statistics, health resources, health services utilization, health outcomes, and health development financial statistics. Information management systems through computers have facilitated timely reporting of maternal and child health barometers and thus improved service delivery to the rural areas in the state of Rajasthan, India (Samal & Dehury, 2016, MCTS, 2010).

In the health sector to improve the quality of health services and to reduce maternal mortality the Govt. of India launched National Rural health mission (NRHM) in year 2005 with the five goals of millennium development and their key issue to improve maternal health. Those are centred on good communication network, satisfactory and flexible financing monitoring against a quality standard and provide adequate human resources and capacity building at all health care levels (Krishnan et al. 2010, Dehury, 2018).

As a result of digital revolution the Govt. of India has launched the Health Management Information System (HMIS) which is data based, an online portal that facilitates information about health indicators and compute data from village to national level. This includes data collection, processing, reporting and use of information for improvement of health services (WHO, 2004, GOI, 2011).

The pregnancy and child tracking and health services management-system (PCTS) is a unique e-governance project of state government that is implemented in health sector as an integrated system for HMIS, since HMIS was falling short in fulfilling service delivery needs of the health worker. With collaboration of National Information Centre (NIC) the government of Rajasthan started various information technology driven projects, PCTS being one of them. Through the PCTS; every single pregnant woman can be tracked for imparting health services till the delivery and then subsequently for every child. This project is based on detailed data that is captured for every beneficiary who is availing these services provided by the health department. The system is targeted to improve health services right up to lowest level of health sector in the state viz. health sub-centre at village level. There are three components in PCTS primarily,

Certified True Copy
Jagan... Jaipur

60

Intrusion Detection System Based on Genetic Algorithm for Detection of Distribution Denial of Service Attacks in MANETs

Alka Chaudhary[a], *Gajendra Shrimal*[b]

[a]*Manipal University Jaipur, Jaipur, India*
[b]*Jagannath University, Jaipur, India*

ARTICLE INFO

Article history:
Received 04 January 19
Received in revised form 15 January 19
Accepted 23 February 19

Keywords:
Genetic Algorithm
Mobile Ad Hoc Networks
Distributed Denial of Service Attack
Intrusion Detection System

ABSTRACT

Mobile ad hoc networks (MANETs) are more susceptible towards security attacks because of its complicated characteristics i.e. lack of clear boundary of defense, no centralized points and dynamic topologies. Due to MANET characteristics, detection of attacks are more difficult than the traditional networks. One of very significant attack is distributed denial of service attack (DDoS) in MANETs. This attack may restrict the availability of the network resources. This paper focuses to develop an intrusion detection system using genetic algorithm for DDoS attacks in MANETs. The implementation results present that the proposed intrusion detection system which is based on genetic algorithm can able to detect the DDoS attacks on MANETs with a good detection rates.

© 2019SUSCOM. Hosting by Elsevier SSRN. All rights reserved.

Peer review under responsibility of International Conference on Sustainable Computing in Science, Technology and Management.

1. INTRODUCTION

MANETs are popular in respect of their self-configuring nature means during communication between nodes there is no need of any pre-defined infrastructure. Furthermore, every node connects through a wireless link and configures an arbitrary network topology. MANET has dynamic network topology because every node can join and leave the network at any time due to the node mobility (Singh, Poonia, Raja, Sharma, & Trivedi, 2019). Nodes in MANETs can communicate with their neighbour nodes directly via the wireless links that are within the radio range of each other otherwise nodes follow the multihop communication in MANETs (Chaudhary, A., Tiwari, V., & Kumar, A., 2014) (Dhaka, V. S., Poonia, R. C., & Raja, L., 2014).

2. GENETIC ALGORITHM

This section starts with an introduction to the working of genetic algorithms when applied to attack detection and an overview of attack detection algorithm implemented by using genetic algorithm technique. The genetic algorithm working when applied to attack detection can be presented as a sequence of following steps. i) The packet collecting module present in the intrusion detection system gathers the information about the logs or network traffic. ii) The intrusion detection system uses genetic algorithms to the captured data. The genetic algorithm responsible at this stage for learning classification rules from collected information (Sujatha, K. S., Dharmar, V., and Bhuvaneswaran, R. S., 2012) (Shaveta, E., Bhandari, A., and Saluja, K.K., 2014). iii) At this stage trained intrusion detection system with rules applies on the upcoming traffic for initializing population and creating good qualities new population and after that genetic operators applies on the newly generation till to get the utmost result. The steps of genetic algorithms is mentioned below (Kumar, Jain & Sharma, 2018):

2.1. Steps of basic genetic algorithm

The steps of genetic algorithm are mentioned below (Moraveji Hashemi, V., Muda, Z., and Yassin, 2013) (Poonia, R. C., 2018) (Chaudhary, A., Tiwari, V. N., & Kumar, A., 2016) and the overall flow chart is depicted in Figure 1:

Step 1: Create arbitrary population of 'n' chromosomes each specifying a difference answer for the problem.

Step 2: Assess fitness of every chromosome 'x'.

Step 3: Produce new population till the point when the new population is finished.

Certified True Copy
Jagan Nath University, Jaipur

a. [Selection] Choose higher fitness value based two parents chromosomes.

b. [Crossover] for creating new offspring to cross over the parents. It can be one point or multi point.

c. [Mutation] in respect of mutation, haphazardly flip a few bits for transforming new offspring.

d. In the accepting phase place recent population in the new population.

Step 4: In the replacing phase, utilize new population in respect to keep running of the calculation.

Step 5: In the testing phase if the last condition is fulfilled, stop the phase and restore the optimum arrangement in the recent population.

Step 6: In the looping phase go to step2.

3. PROPOSED GA BASED IDS

We used genetic algorithm (GA) for the detection of DDoS attacks. Basically, Genetic Algorithm (GA) is a very significant method for searching which is based on natural genetics. There are many problem areas (i.e. engineering, business etc.) where GA can be used effectively. Three popular operators i.e. selection, crossover and mutation are utilized by GA. Selection distinguishes individuals which are fittest with in the available population. Crossover consolidates the primary record second half with the second record first half. Mutation haphazardly exchanges the bits i.e. 0 to 1 and the other way around. In this research, we will follow the below steps and Figure 1 shows the flowchart of proposed work (Moraveji Hashmei, V., Muda, Z., and Yassin, 2013).

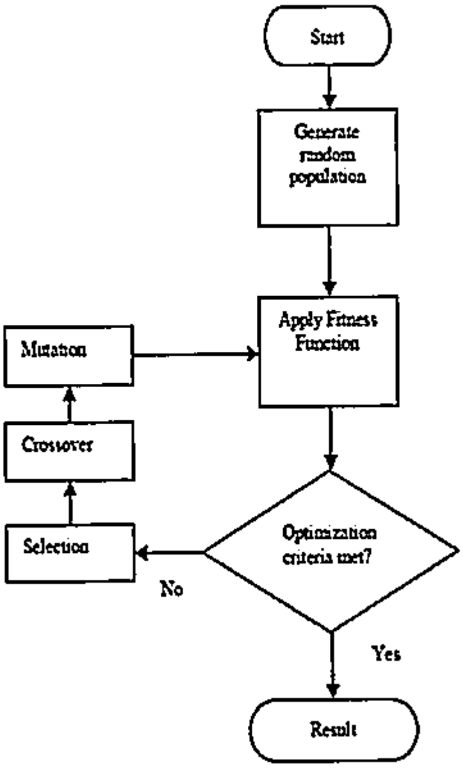


Fig. 1 Overall Flow of GA (Moraveji Hashmei, V., Muda, Z., and Yassin (2013).

- Collection of DDoS attacks data though Qualnet simulator 6.1 in respect of AODV routing protocol.
- Apply Genetic Algorithm with a suitable fitness function on data (rules) that can able to detect the DDoS attacks.

Certified True Copy

Jagan N [illegible] Jaipur

The proposed approach includes two stages. At the training stage, to generate the rules using network audit data and those rules are having high fitness value, are used for intrusion detection. We have selected very effective features to detect the DDoS attacks. The selected features and their explanations are mentioned in Table 1. Each feature shows a gene of the chromosome. Each rule is mentioned in if-then clause for intrusion detection. The specifying fitness function is evolved for determining a fitness of every rule.

$$\text{Fitness} = a / A - b / B \qquad (1)$$

Where

a = No. of correctly detected attacks
A = The whole no. of attacks in dataset used in training phase
b = No. of false-positive
B = No. of normal connections in used dataset

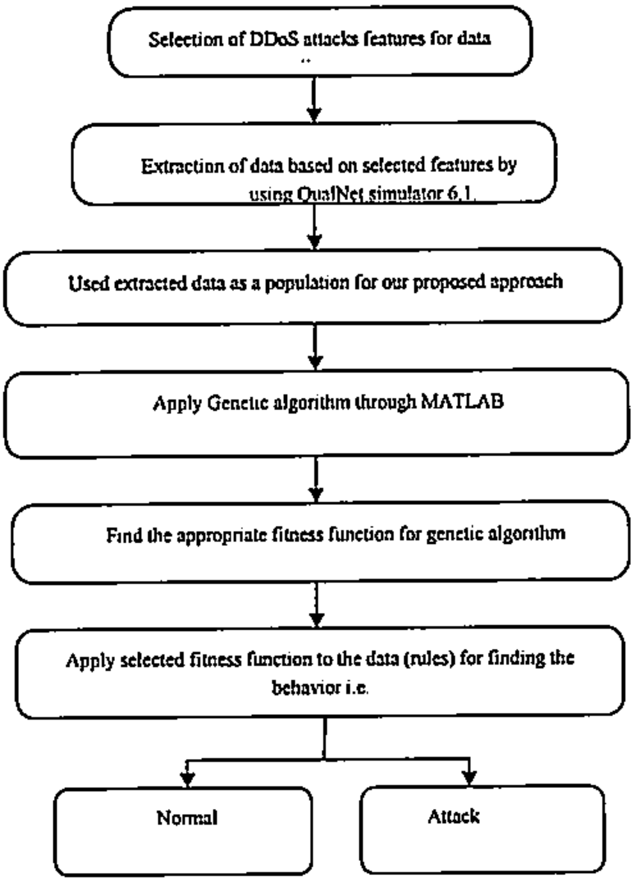

Selection of DDoS attacks features for data
Extraction of data based on selected features by using QualNet simulator 6.1
Used extracted data as a population for our proposed approach
Apply Genetic algorithm through MATLAB
Find the appropriate fitness function for genetic algorithm
Apply selected fitness function to the data (rules) for finding the behavior i.e.
Normal
Attack

Fig. 2 Work flow for developing our proposed.

Fitness values are measured on the scale of [-1, 1] in which 1 represents the minimum value and 1 represents the maximum value. High detection rate and low false-positives rate give to a maximum fitness value. On other way low detection rate and high false-positives rate realize a minimum fitness value. The proposed GA based intrusion detection system is implemented for detecting DDoS attacks in MANETs. For this purpose, Qualnet simulator is used to carry out simulations and MATLAB toolbox is used to implement the genetic algorithm based solution (Moraveji Hashmei, V., Muda, Z., and Yassin, 2013).

Certified True Copy
Jagan ... Jaipur

Table 1: List of selected features.

Features	Explanation
num_req_ initd	no. of RREQ packets initiates by this node
num_req_receivd	no. of RREQ packets received to this node
num_req_receivd	no. of RREP packets received by this node
num_rep_fwrd	no. of RREP packets forwarded by intermediate nodes
num_err_ fwrd	no of RERR packets forwarded by this node
num_err_ recvd	no. of RERR packets received by this node
num_dataPks_Initd	Data packets sent as source of the data by this node
consumed_battery	calculates the consumed battery to perform any operation by this node
dropped_datapkts	calculates not forwarded data packets by this next node

4. RESULTS

In this research simulation is carried out by using QualNet simulator 6.1 (http://www.scalablenetworks.com) for collecting the normal and DDoS attacks related data under AODV routing protocol. The data collection is based on the selected features (i.e. mentioned in Table 1) of each node. To analyze the performance of the proposed GA Based IDS through MATLAB, two datasets which are derived from simulation to 500s for training and testing. Both datasets include the normal and attack data. The fitness function which is defined in formula 1 is used to train the proposed system under the following GA parameters: selection rate 0.01, crossover "one-point", "tournament 2" and mutation rate 0.01. High detection rates and low false positive rates are good performance metrics for assessing the performance of an intrusion detection system. These metrics can be evaluated as follows

$$\text{Detection Rate} = \frac{\text{Correctly detected attacks}}{\text{Total number of attacks}}$$

$$\text{False Positive Rate} = \frac{\text{Number of normal instances detected as attacks}}{\text{Total number of normal instances}}$$

As per our proposed solution, detection rate is 85% and false positive rate is 18%. Our proposed approach shows the better result in respect to the false positive rate than the solution given in (Nadeem, A., and Michael, H., 2009). The work flow of our research is given in Figure 2.

During implementation of genetic algorithm based intrusion detection system, we have analyzed some graphs (Figures 3(a, b, c, d, e, f) based on steps of genetic algorithm that are given below:

Certified True Copy
Jagan [illegible] Jaipur

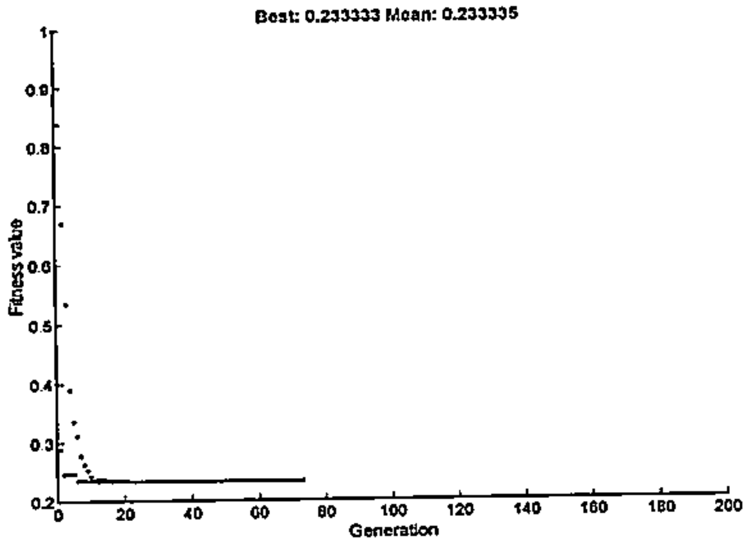


Fig. 3(a) Plot between fitness value and generation.

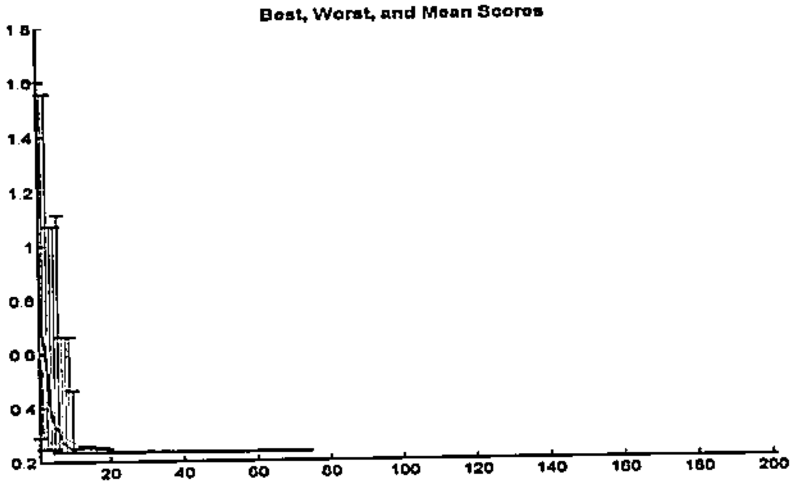


Figure 3 (b) Plot generation in respect of best, worst and mean score.

Certified True Copy
Jagan [illegible] Jaipur

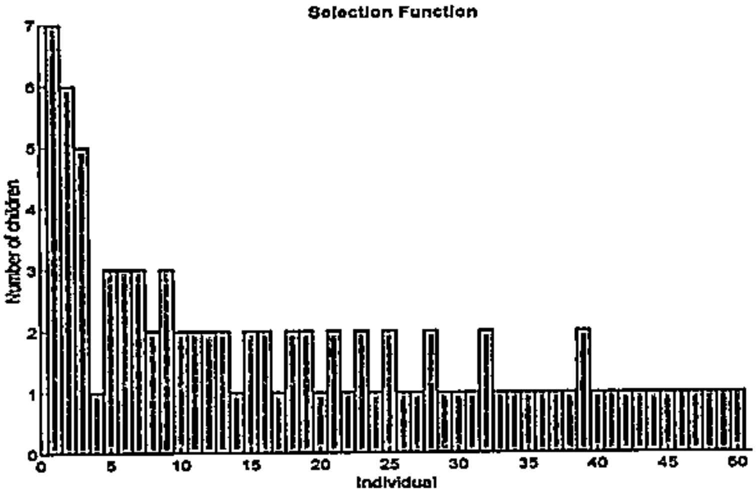


Fig. 3(c) Plot between individual value and number of children.

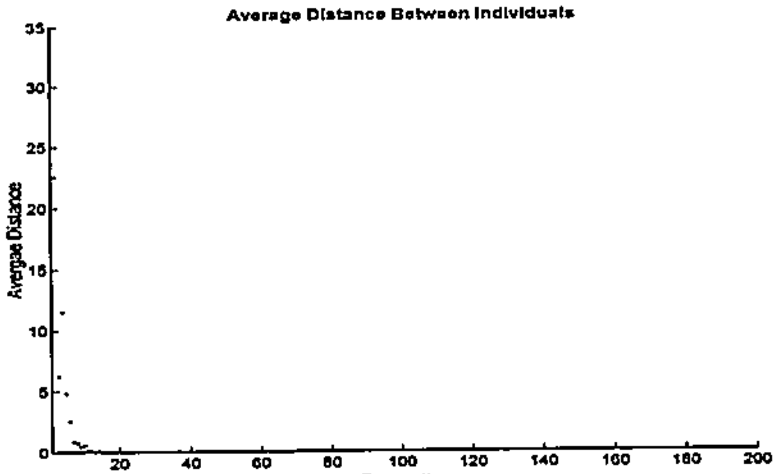


Fig. 3 (d) Plot between generation and average distance.

Certified True Copy
Jagan [illegible] Jaipur

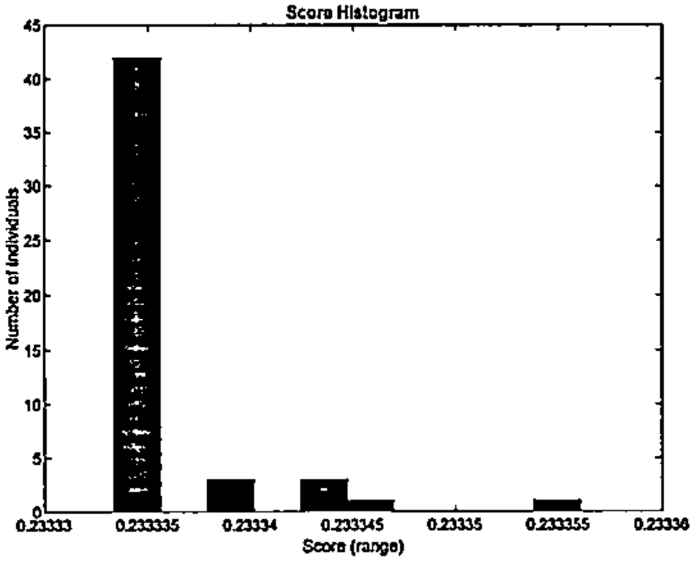


Fig. 3 (e) Plot between number of individuals and their range.

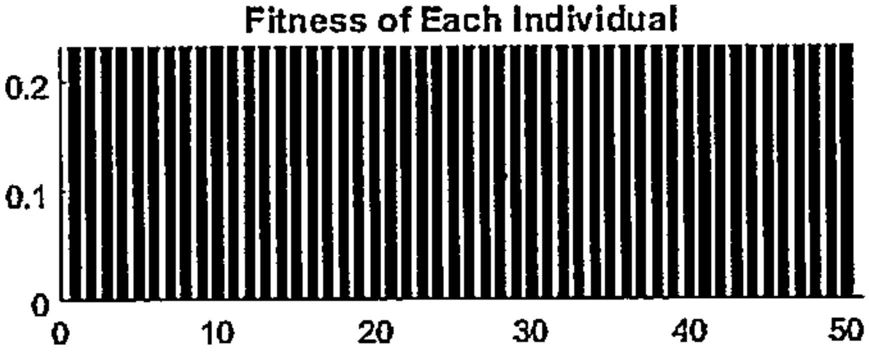


Fig. 3 (f) Plot between number of individuals and their range.

Certified True Copy
Jagan N... Jaipur

5. CONCLUSION

This paper proposes a new GA based intrusion detection system for MANETs. Whatever scheme proposed in this work can able to detect distributed denial of service related attacks. Furthermore, Mobile nodes in MANETs, cooperatively accomplish the requirement of data services and routing due to the absence of infrastructure such as routers and the like. Due to the wireless links and open architecture of MANETs, anyone can leave and join the network, so that a malicious node also can connect with the network for affecting it. MANETs are a modern form of distributed network whose characteristics are more complicated in nature so that many types of can able to target to breach the MANETs security. In future we will develop a solution that can be able to detect many types of attacks in MANETs.

REFERENCES

Chaudhary, A., Tiwari, V. N., & Kumar, A. (2016). Design an anomaly-based intrusion detection system using soft computing for mobile ad hoc networks, International Journal of Soft Computing and Networking, 1(1), pp. 17-34.

Chaudhary, A., Tiwari, V., & Kumar, A. (2014). A novel intrusion detection system for ad hoc flooding attack using fuzzy logic in mobile ad hoc networks, In Recent Advances and Innovations in Engineering (ICRAIE), 2014 (pp. 1-4). IEEE.

Kumar, S., Jain, S., & Sharma, H. (2018). Genetic Algorithms.In Advances in Swarm Intelligence for Optimizing Problems in Computer Science, pp. 27-52, Chapman and Hall/CRC.

Moraveji Hashmei, V., Muda, Z., and Yassin (2013). Improving Intrusion Detection using Genetic Algorithm, International Technology journal 12(11) pp. 2167-2173.

Dhaka, V. S., Poonia, R. C., & Raja, L. (2014). The Realistic Mobility Evaluation of Vehicular Ad-Hoc Network for Indian Automotive Networks. International Journal of Ad hoc, Sensor & Ubiquitous Computing, 5(2), 1.

Poonia, R. C. (2018). A performance evaluation of routing protocols for vehicular ad hoc networks with swarm intelligence. International Journal of System Assurance Engineering and Management, 9(4), 830-835.

Nadeem, A., and Michael, H., (2009). Adaptive intrusion detection & prevention of denial of service attacks in MANETs, International conference on wireless communications and mobile computing: Connecting the world wirelessly. ACM.

QualNet Network Simulator Available: http://www.scalablenetworks.com.

Shaveta, E., Bhandari, A., and Saluja, K.K., (2014). Applying Genetic Algorithm in Intrusion Detection System: A Comprehensive Review, Association of Computer Electronics and Electrical Engineers.

Singh, V., & Dadhich, R. (2017, December). Routing optimization by minimizing one-way delay in delay tolerant enabled vehicular ad-hoc networks using ferry selection approach. In 2017 International Conference on Infocom Technologies and Unmanned Systems (Trends and Future Directions)(ICTUS) (pp. 607-610). IEEE.

Singh, V., Poonia, R.C., Raja, L., Sharma, G and Trivedi, N.K., (2019) "Source Redundancy Management and Host Intrusion Detection in Wireless Sensor Networks", Recent Patents on Computer Science, 12: 1. https://doi.org/10.2174/2213275912666181207154754

Sujatha, K. S., Dharmar, V., and Bhuvaneswaran, R. S.(2012).Design of Genetic Algorithm based IDS for MANET, International Conference in recent trends in information technology (ICRTIT), pp. 28-33. IEEE.

II
58

Improving the MANET Routing algorithm by GC-Efficient Neighbor Selection Algorithm

Ankur Goyal[a], *Vivek Kumar Sharma*[a]

[a] *Ph.D. Scholar, Jagannath University, Jaipur, Rajasthan, INDIA*

ARTICLE INFO

Article history:
Received 02 March19
Received in revised form 01 April 19
Accepted 05 April 19

Keywords:
MANET
AODV
GBR
GBR-CNR
GBR-CNR-LN
GC-ENS algorithm

ABSTRACT

Today Mobile Ad hoc Network (MANET) is one of the most popularly used networks technology in the world. A mobile ad-hoc network is simply a collection of different kind of mobile nodes that are creating an ad-hoc network without having any centralized communication structures. MANET is having different features such as limited energy resources, limited bandwidth, and security weaknesses due to absence of a central infrastructure. Safe and reliable routing is one of the research aspects of MANET. MANET shows a different method of network design, establishment and these are more suitable for an environment in which the network infrastructure is either lost or where establishing an infrastructure is very costly. In this research paper a new routing algorithm is proposed to improve the routing in the MANET. The proposed algorithm designed on the basis of number of neighbors in the network. The algorithm is implemented and results are analyzed.

© 2019ICACM. Hosting by SSRN. All rights reserved.
Peer review under responsibility of International Conference on Advancements in Computing & Management.

1. Introduction

transmission. The Ad-hoc Wireless networks can also be classified into three subcategories [1]: Wireless Mesh Networks (WMNs), Wireless Sensor Networks (WSN), Mobile Ad-hoc Networks (MANETs).
MANETs are very flexible and suitable that are used in many situations due to the infrastructure-less and self-organized personality [2]. Mobile Ad hoc Networks can be imagined in the form of a Graph G = (N, L) where N is a collection of wireless devices in the network that are moving freely and changing their position vigorously and L is a set of bidirectional relations between the two nodes. Due to innovative development in wireless communications technologies, advanced mobile wireless computing is expecting increasingly widespread use and application, much of which uses the Internet Protocol (IP) suite [3].
The primary challenge for developing a MANET atmosphere is to properly sustain the information that is required to route the traffic effectively. MANETs can connect every node themselves to the network. Nodes are having more than one transceivers. This results in a extremely dynamic and self-directed topology [4].
MANET has an atmosphere that processes the interchange of data from one device to another device. There are many protocols invented for finding out the packet drop rate, the routing overhead initiate by the routing protocol, end-to-end delay, load on Network, network throughput, efficiency transmission time etc
The routing protocols in MANET can be sub divided into three groups Proactive (table-driven), reactive (on-demand) protocol and hybrid protocol (table-driven). In Proactive routing protocols, devices will exchange routing packets through route table from time to time and find out the routes between sender and receiver in the network, despite of using the routes or not [2]. So, the Proactive Routing Algorithm can consume huge amount of network resources like energy, power consumption and bandwidth, which is not acceptable in MANETs, where the resources are limited [2, 8]. Destination Sequence Distance Vector (DSDV) and Wireless Routing Protocol are the examples of Proactive routing Protocol. In Reactive Routing protocols, as a node needs to interconnect to another node then only it will discover routes. Hence such type of protocols will not waste network resources by sending or receiving routing information periodically i.e. Ad Hoc On-demand Distance Vector and Dynamic Source Routing. Proactive protocols consume more power than the reactive protocols. Other than proactive and reactive there is one more protocol which is known as hybrid routing protocols which consists of the common features of both proactive and reactive routing protocols. There are two steps in the protocol, first step is route discovery process to find out the routes between two nodes which follow the basic features of reactive routing protocol and second step is route maintenance process to maintain the route

Certified [illegible] Copy
[illegible] Jaipur
Jagan Nath [illegible]

between nodes which follow the features of proactive protocols. Zone Routing Protocol and Hierarchical Routing Protocols are under the category of hybrid routing protocol. [3, 4, 5]

The routing plays an important role in the MANET. A routing technique affects the quality of the network as well as the power consumption of the device. A properly designed routing improves the quality of network. The present work is concern with the development of new routing algorithm to enhance the network quality.

We are dividing this paper in five segments. First segment gives the introduction of the MANETs. The second segment gives the literature review in which the work performed by different authors is given. The third segment describes about proposed work. The basic description of the proposed algorithm is given. In fourth segment, the results are discussed. In fifth segment, the conclusion is given.

2. Literature Survey

Many routing protocols have been proposed by different researchers to improve the routing efficiency in MANETs. The work performed by different authors is as following -

Pyun et al. [6] designed a distributed topology organize system for MANETs. In this work, the transmission power of every moving device was attuned depend on the amount of its neighbor devices and the quantity of interference which was created by the devices for its neighbors. The mobile node can modify its transmission power accordingly to its neighbors to sustain the quantity of objected neighbors. This saves the power at the mobile node.

De Rango et al. [7] designed a procedure that was established the idea of interference to look up the wireless network efficiency. Two different metrics were projected: the first was based upon the Universal interference apparent by devices which were occupied in the communication and the second was based on the interference apparent only on the links fit in to the path from the origin to the end. The Originality of the Suggestion was to accept mentioned two metrics for the process to choose the best possible path from the origin to the end and for the route maintenance process. This designed work was not dependent on the minimum hop count but based on the Universal interference apparent by nodes and on the interference affecting the link which was concerned in the transmission.

C. Gu et al. [8] proposed the Interference Aware Cross-Layer Routing protocol (IA-CLR). This protocol was an interference aware routing protocol which was depended upon sending and receiving ability of a node. IA-CLR constructs the path by using the new routing metric that can widely imitate the network situation.

M. Khabbazian et al. [9] proposed an iterative approximation algorithm in which they have given a set of locations for wireless devices. The interference minimization problem is to allot a communication radius of every device such that the resultant communications graph would be connected and reducing the maximum count of overlaps broadcast range of a node.

R. Hekmat et al. [10] projected a model to calculate the capacity and interference in wireless ad-hoc networks and this calculation will depend upon the number of devices, device's density, multi-hop uniqueness of the network, and transmit traffic. The calculation, which was proposed in this paper, was depending on the pathless power law model for radio propagation.

Y. Zhou et al. [11] proposed a solution of localized link scheduling created by difficult physical interference limitation. By incorporate the dividing and shifting approach into the pick-and-compare scheme, they offered a class of localized scheduling algorithm with verifiable throughput guarantee subject to physical interference limitation.

W. Yang et al. [12] offered a Greedy-based Backup Routing Protocol (GBR). This proposed algorithm was developed to arrive at high route permanence by considering the route length and linkage life time. It was used to build the main pathway such that every device believes the neighboring node to the destination inside its broadcast range as its next hop. To maintain local link stability in the network, GBR locally build backup pathway. As the greedy behavior of GPSR, it may possible that before sending the next HELLO signal, a node can go outside of the broadcast range of the node. Due to this there is no more signal or message transmitted.

A. Zadin et al. [13] proposed a Greedy-based Backup Routing Protocol with Conservative Neighborhood Range (GBR-CNR) algorithm by modifying the GBR algorithm. Authors introduced a Conservative Neighborhood Range (CNR) and suggested that sending node will choose the next hop node that will not go outside the range of sender node before receiving the hello message and it is the closest node to the destination Node. [13,14] The CNR is identified by the conservative neighborhood transmission range Rc which depends on the node's velocity, the time interval between the HELLO message transmitted, and the actual transmission range value. Rc is calculated as –

$Rc = R - (Vmax)*t$ where R is the real transmission range, Vmax the maximum velocity of the device, and t is the time gap between two consecutive HELLO message transmitted. There is not as such a requirement to take the back-up of the primary path

A. Zadin et al. [14] proposed two new routing algorithms based on neighbors and the use of nodes. The basic idea behind the proposed algorithm is that when a node wants to send the data to another node, the node will prefer to select the next hop or receiving node that has less neighbors of surrounding. If we select the node with fewer neighbors then it will decrease the probability of corrupt data due to low traffic, low consumption of network resources and it will increase the throughput of the network. The algorithm is GBR-CNR with less number of neighbors (GBR-CNR-LN). Second variation was based on the approach that sender will select the next hop or receiving node who is involving less communication than other neighbor nodes even though node is far away to the destination. Less used node forwards the packet fast. This algorithm is GBR-CNR with the less used (GBR-CNR-LU) [15-19]. These two mentioned algorithms provide the minimization of interference

3. Proposed Work

In [14], the authors proposed the GBR-CNR with less neighbors (GBR-CNR-LN). This routing algorithm has different drawbacks, which are as following –

1. The node with the less neighbour is selected from the neighbours.
2. If contact time of the transmitting node and receiving node is less than the packet transmission time then the packet cannot be transmitted properly. It causes loss of packet.
3. There is no discussion about the stay time of the receiving node in the transmission range of the transmitting node.

These drawbacks pull the present algorithm in doubts. These drawbacks not only create the packet loss but also degrade the network efficiency.

To overcome the drawbacks of the GBR-CNR-LN algorithm a new algorithm is proposed that is called the GBR-CNR with Efficient Neighbor Selection Algorithm (GC-ENS Algorithm).

In the GC-ENS Algorithm Each mobile node in the MANET is moving in the network with V_{speed}. Due to the variation in the velocities, the maximum velocity is taken V_{max}. Each node has its location coordinate (x,y) in the simulation area. Each moving node has transceiver with a range. It is taken T_{Range} in which the node can receive and transmit the messages.

When the transmitting node wants to transmit the packet, then it first checks the entire neighbors which are connected with it. Now from all of the neighbors, neighbors are selected that are in the transmission range T_{Range} of the transmitting node. The packets have the packet transfer time T_{PkTr}. Now the neighbor is selected from the several neighbors that are in transmission range called minimum neighbors node (MinNbsNode) which has the minimum neighbors. Now the stay time (T_{Stay}) is calculated between the selected neighbor node (MinNbsNode) and transmitting node.

If the T_{Stay} is more than the T_{PkTr} time than the selected node is efficient node and the packet can be transmitted, otherwise next minimum neighbors node is selected from the neighbors in the transmission range. The Efficient Neighbor Node is selected.

The GC-ENS algorithm provides the better way to select the efficient neighbor so that the packets can be properly transmitted. The proposed algorithm not only reduces the packet loss but also improve the MANET. The packets are not blindly forwarded to any minimum neighbor node. The node is checked on the time parameters.

Algorithm –

```
1. START
2. Moving node has Speed, location coordinate (x,y) and TRange.
3. Network has the simulation area and $V_{max}$.
4. Node has packets transmission time $T_{PkTr}$.
5. The minimum neighbour node (MinNbsNode) is selected from the neighbours who are in transmission range.
6. Calculate stay time ($T_{Stay}$) between the selected neighbour node (MinNbsNode) and transmitting node.
7. If $T_{Stay} > T_{PkTr}$
        Efficient Neighbour-Node-selected.
    Else
        Again select the minimum neighbour node (MinNbsNode).
8. Transfer the packets.
9. END
```

4. Results

The GBR-CNR with Efficient Neighbor Selection Algorithm (GC-ENS Algorithm) is implemented. The results are obtained for the different node value 50, 100, 150, 200, 250 and 300. The number of neighbor selected is obtained for number of nodes present in the network.

The results are given in table 1. As the number of nodes increases in the network, the selected neighbors increases which is shown in table 1. The number of selected nodes in GC-ENS algorithm is shown in fig. 1. The new GC-ENS Algorithm reduces the number of neighbors.

Table 1.Number of Neighbor Selected in GC-ENS Algorithm.

Node	Neighbor Nodes Selected in GC-ENS Algorithm
50	1
100	2
150	4
200	4
250	7
300	10

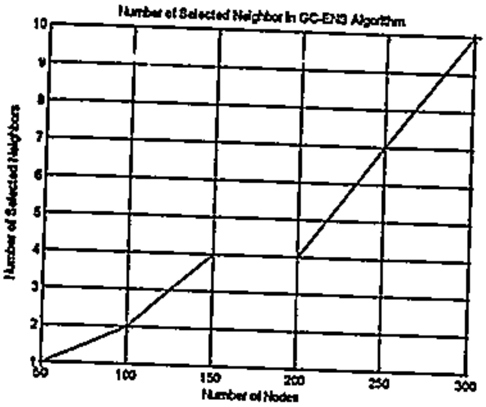


Fig.1. Number of Selected Neighbor in GC-ENS Algorithm

The comparison of number of nodes selected in GC-ENS Algorithm with the GBR-CNR Algorithm and GBR-CNR-LN Algorithm are shown in table 2. The neighbors selected in the GC-ENS algorithm are very less than the neighbors selected in the GBR-CNR and GBR-CNR-LN Algorithm. This shows that when there is less number of neighbors, than the packets will be transmitted to less number of nodes and it will decrease the duplicate packets in the network. The neighbors are selected efficiently.

Table 2. Number of Neighbor Selected in GBR-CNR, GBR-CNR-LN and GC-ENS Algorithm.

Node	Neighbor Nodes Selected in GBR-CNR Algorithm	Neighbor Nodes Selected in GBR-CNR-LN Algorithm	Neighbor Nodes Selected in GC-ENS Algorithm
50	8	2	1
100	7	3	2
150	10	5	4
200	19	6	4
250	22	13	7
300	27	16	10

The comparison graphs are shown in fig. 2 and fig. 3 respectively. The results shows that the GC-ENS Algorithm gives the better results by giving the less

Certified True Copy
Jagan Nath [illegible] Jaipur

number of neighbor nodes so that the proper route can be selected.

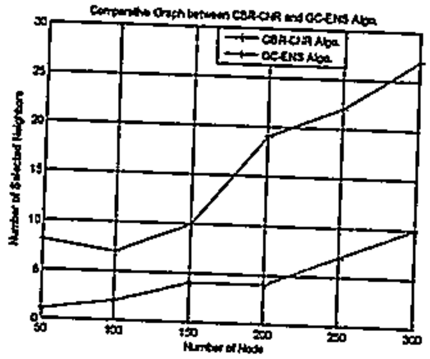


Fig.2. Comparative Graph between CBR-CNR and GC-ENS Algorithm

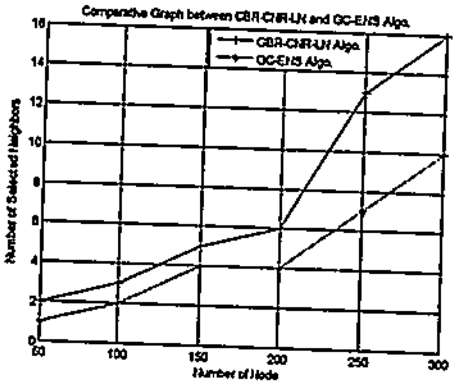


Fig.3. Comparative Graph between CBR-CNR-LN and GC-ENS Algorithm

5. Conclusion

A routing protocol plays an important role in networks. The properly designed algorithm not only improves the quality of services but also becomes more popular among the network providers. This work considers the problem of the selection of neighbor in the AODV routing protocol. The new method for selection of neighbor is proposed. The new proposed algorithm is GBR-CNR with Efficient Neighbor Selection Algorithm (GC-ENS Algorithm). The oretical model of the proposed algorithm is given in this work. The proposed algorithm for neighbor selection is implemented and the results are obtained. The results compared with the previous algorithms. The results show that the proposed algorithm can select better neighbors than the previous algorithms. In future the new method based on the node information can be developed that will further enhance the MANET performance.

REFERENCES

1. J. Kaur, G.Singh: MANET Routing Protocols: A Review, International Journal of Computer Sciences and Engineering, Volume-5, Issue-3, (2017).
2. Wilder E.Castellanos, Juan C. Guerri, Pau Arce: AQoS-aware routing protocol with adaptive feedback scheme for video streaming for mobile networks, Computer Communications 77, 10-25 (2016).
3. Shobha Tyagi, Subhranil Som, Q. P. Rana: A Reliability Based Variant of AODV In MANETs: Proposal, Analysis And Comparison, 7th International Conference on Communication, Computing and Virtualization 2016, Procedia Computer Science 79, 903 – 91 (2016).

Certified True Copy
Jagan N... Jaipur

4. K. Sumathia, A. Priyadharshinib: Energy Optimization in MANETs using On Demand Routing Protocol, Procedia Computer Science 47, 460 – 470 (2015).
5. Esubalew Yitayal, Jean-Marc Pierson, Dejene Ejigu: A Balanced Battery Usage Routing Protocol to Maximize Network Lifetime of MANET Based on AODV, Springer. 7th Conference on Internet of Things and Smart Spaces (ruSMART 2014) co-located with 15th International Conference on Next Generation Wired/Wireless Advanced Networks and System NEW2AN, Aug 2014, St. Petersbourg, Russia. Lecture Notes in Computer Science, pp.266-279 (2014).
6. S.-Y. Pyun, D.-H. Cho: Interference-aware topology control in wireless mobile ad-hoc networks, in Consumer Communications and Networking Conference (CCNC), IEEE, 2012, pp. 376–377 (2012).
7. F. De Rango, F. Veltri, P. Fazio: Interference aware-based ad-hoc on demand distance vector (IA-AODV) ultra wideband system routing protocol, Comput. Commun., 34 (12), 1475–1483 (2011).
8. C. Gu, Q. Zhu: Interference aware routing for mobile ad hoc networks based on node's sending and receiving capabilities, J. China Univ. Posts Telecommun., 20(4), 73–79 (2013).
9. M. Khabbazian, S. Durocher, A. Haghnegahdar: Bounding interference in wireless ad hoc networks with nodes in random position, in: G. Even, M.M. Halldórsson (Eds.), Structural Information and Communication Complexity, in: Lecture Notes in Computer Science, vol. 7355, Springer, Berlin, Heidelberg, pp. 85–98 (2012).
10. R. Hekmat, P. Van Mieghem: Interference in wireless multi-hop ad-hoc networks and its effect on network capacity, Wireless Network, 10 (4), 389–399 (2004).
11. Y. Zhou, X.-Y. Li, M. Liu, X. Mao, S. Tang, Z. Li: Throughput optimizing localized link scheduling for multihop wireless networks under physical interference model, IEEE Trans. Parallel Distrib. System, 25 (10), 2708–2720 (2014).
12. W. Yang, X. Yang, S. Yang, D. Yang: A greedy-based stable multi-path routing protocol in mobile ad hoc networks, Ad Hoc Networks 9, 662–674 (2011).
13. Zadin, T. Fevens: Stable connections using multi-paths and conservative neighborhood ranges in mobile ad hoc networks, in: 26th Annual IEEE Canadian Conference on Electrical and Computer Engineering, CCECE, 2013, pp. 1–4 (2013).
14. Zadin, T. Fevens: Minimizing communication interference for stable position-based routing in mobile ad hoc networks, Procedia Computer Sci. 52 The 6th International Conference on Ambient Systems, Networks and Technologies (ANT-2015), the 5th International Conference on Sustainable Energy Information Technology (SEIT-2015), 460–467 (2015).
15. Kumar, S., Goyal, M., Goyal, D., & Poonia, R. C. (2017, December). Routing protocols and security issues in MANET. In 2017 International Conference on Infocom Technologies and Unmanned Systems (Trends and Future Directions)(ICTUS) (pp. 818-824). IEEE.
16. Sagtani, V. K., & Kumar, S. (2014). Modern Approach to Enhance Routing Recitation in MANET. International Journal of Emerging Technology and Advanced Engineering, 4(7), 265-270.
17. Goyal, M., Poonia, S. K., & Goyal, D. (2017). Attacks Finding and Prevention Techniques in MANET: A Survey. Advances in Wireless and Mobile Communications, 10(5), 1185-1195.
18. Saini, A., & Singh, V. (2013). Implementation and Performance Analysis of Improved DSR Routing Protocol to Detect an Inimical Node in MANETs Using NS-2. *International Journal for Research and Development in Engineering (IJRDE)*, 2, 33-44.
19. Bhushan, S., Saroliya, A., & Singh, V. (2013). Implementation and Evaluation of Wireless Mesh Networks on MANET Routing Protocols. *International Journal of Advanced Research in Computer and Communication Engineering*, 2(6).

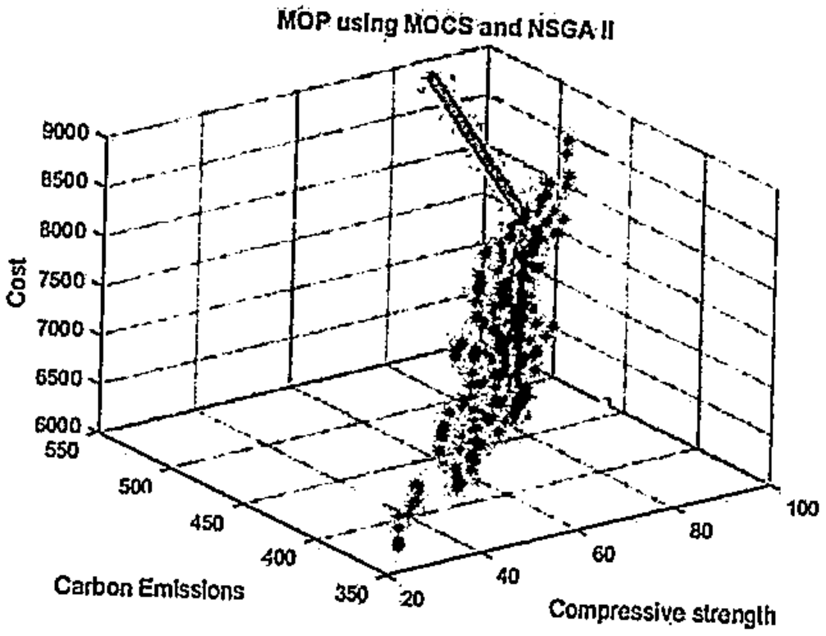


Fig. 4 Comparison of NSGA-II (Red) and multi-objective cuckoo search (Blue)

solving multi objective optimization algorithms. For the establishment of the Multiple linear relationships and Non-linear relationship between mix-proportions and compressive strength, the single objective cuckoo search is used objective being maximizing R^2 value. The final values of R^2 obtained after 3000 iterations are 0.82 and 0.78 respectively. The improvement in R^2 values with increase in the iterations is depicted in Fig. 1. After running the program for 1000 iterations using 350 nests as initial population with beta value 3/2 and alpha levy 0.01 in an I-5 3rd generation 2.5 GHz computer with 8 Gb ram, spread of mix designs (Fig. 3) was obtained with compressive strengths ranging from 20 to 90 MPa and carbon emissions of 360–500 kg of CO_2/m^3 of concrete.

6 Conclusions

- For the establishment of non-linear relationship for any kind of problem, the methodology adopted in this paper may be replicated for similar study.
- Based on the comparison of obtained R^2 values for linear and non-linear relationship, it can be concluded that mix-proportions and compressive strength have linear relationship.
- The results conclude that MOCS have a wider spread compared to NSGA-II and thereby state that MOCS is a good alternative Multi-objective optimization algorithm for solving such similar problems.

References

1. Duan, Z.H., Kou, S.C., Poon, C.S.: Prediction of compressive strength of recycled aggregate concrete using artificial neural networks. Constr. Build. Mater. 40, 1200–1206 (2013)
2. Diab, A.M., Elyamany, H.E., Abd Elmoaty, A.E.M., Shalan, A.H.: Prediction of concrete compressive strength due to long term sulfate attack using neural network. Alexandria Eng. J. 53(3), 627–642 (2014)
3. Kewalramani, M.A., Gupta, R.: Concrete compressive strength prediction using ultrasonic pulse velocity through artificial neural networks. Autom. Constr. 15(3), 374–379 (2006)
4. Öztaş, A., Pala, M., Özbay, E., Kanca, E., Çağlar, N., Bhatti, M.A.: Predicting the compressive strength and slump of high strength concrete using neural network. Constr. Build. Mater. 20(9), 769–775 (2006)
5. Chithra, S., Kumar, S.S., Chinnaraju, K., Ashmita, F.A.: A comparative study on the compressive strength prediction models for high performance concrete containing nano silica and copper slag using regression analysis and artificial neural networks. Constr. Build. Mater. 114, 528–535 (2016)
6. Dantas, A.T.A., Leite, M.B., de Jesus Nagahama, K.: Prediction of compressive strength of concrete containing construction and demolition waste using artificial neural networks. Constr. Build. Mater. 38, 717–722 (2013)
7. Ni, H.-G., Wang, J.-Z.: Prediction of compressive strength of concrete by neural networks. Cem. Concr. Res. 30(8), 1245–1250 (2000)
8. Purnell, P., Black, L.: Embodied carbon dioxide in concrete: Variation with common mix design parameters. Cem. Concr. Res. 42(6), 874–877 (2012)
9. Camp, C.V., Huq, F.: CO_2 and cost optimization of reinforced concrete frames using a big bang-big crunch algorithm. Eng. Struct. 48, 363–372 (2013)
10. Chiang, Y.H., Zhou, L., Li, J., Lam, P.T.I., Wong, K.W.: Achieving sustainable building maintenance through optimizing life-cycle carbon, cost, and labor: case in Hong Kong. J. Constr. Eng. Manage. 140(3), 05014001 (2014)
11. Kaveh, A., Bakhshpoori, T.: An efficient multi—objective cuckoo search algorithm for design optimization. 1(1), 87–103 (2016)
12. Maruyama, I., Noguchi, T., Kanematsu, M.: Optimization of the concrete mix proportions centered on fresh properties through the genetic algorithm (2002)
13. Yang, X.S., Deb, S.: Cuckoo search via levy flights. In: 2009 World Congress on Nature and Biologically Inspired Computing (NaBIC) 2009—Proceedings. pp. 210–214 (2009)
14. Gandomi, A.H., Yang, X.S., Alavi, A.H.: Cuckoo search algorithm: a metaheuristic approach to solve structural optimization problems. Eng. Comput. 29(1), 17–35 (2013)
15. Walton, S., Hassan, O., Morgan, K., Brown, M.R.: Modified cuckoo search: A new gradient free optimisation algorithm. Chaos, Solitons Fractals 44(9), 710–718 (2011)
16. Valian, E., Mohanna, S., Tavakoli, S.: Improved cuckoo search algorithm for feed forward neural network training. Artif. Intell. 2(3), 36–43 (2011)
17. Yang, X.: Nature-inspired optimization algorithms (2014)
18. Deb, K.: Multi-Objective Optimization Using Evolutionary Algorithms. Wiley. p. 497 (2001)
19. Srinivas, N., Deb, K.: Muiltiobjective optimization using nondominated sorting in genetic algorithms. Evol. Comput. 2(3), 221–248 (1995)
20. Hammond, G., Jones, C., Ice V2. (2011)
21. N. P. Number.: Concrete CO_2 Fact Sheet. Concrete, no. 2 (2008)
22. MPA, "Fact Sheet 18 Embodied CO 2 e of UK cement, additions and cementitious material," 2011
23. EFNARC.: Specification and guidelines for self-compacting concrete. Rep. EFNARC. 44, 32 (2002)
24. EFNARC.: European specification for sprayed concrete (1999)
25. The European Project Group.: The European guidelines for self-compacting concrete. Eur. Guidel. Self Compact. Concr. 63 (2005)

57

International Conference on Advancements in Computing & Management (ICACM-2019)

Improvement in K-Means Clustering Using Variant Techniques

Anupama Archana, Gajendra Srimal, Arbind Kumar Modi

Jagan Nath University, Jaipur and 303901, India

ARTICLE INFO

Article history:
Received 20 February 19
Received in revised form 25 March19
Accepted 08 March 19

Keywords:
Clustering
K-mean
Min-Max

ABSTRACT

An algorithm that is applied to discover the clusters that can possibly be generated in a dataset is known as k-means clustering algorithm. The overview of improvements made in k-means clustering algorithm over the years is presented in this research. The results achieved as output from this algorithm in the form of number of clusters identified and their centroids are largely affected as per the selection of initial point. Several new methods have been designed to improve the performance of k-means clustering algorithm in terms of the computational time, performance and accuracy. Most of the improved techniques aim to reduce the computation time by minimizing the number of iterations being performed. It is seen through the studies that this algorithm is used commonly in several scenarios. A new hybrid algorithm that is highly efficient, accurate and consumes the least amount of time can be designed with the help of using previously proposed improvements in k-means algorithm.

© 2019ICACM. Hosting by SSRN. All rights reserved.
Peer review under responsibility of International Conference on Advancements in Computing & Management.

1. Introduction

The evolution of information technology to large scale has resulted in introducing data mining technology. There are certain important functionalities to be performed in applications that include database and data management. Collecting the data, designing database, management of data and performing advanced data analysis are some of these functionalities. Effective methods could be generated in future using the previously designed data collection and database designing approaches. The data storage, retrieval, query and transaction processing are few of the tasks that can be provided through such effective methods. Data warehouse is the new emerging data repository architecture in which a unified scheme is applied to organize the heterogeneous data sources such that efficient management decision making can be performed [1]. Data cleaning, data integration and Online Analytical Processing (OLAP) are some of the operations of data warehouse technology. Certain functionalities like consolidation, aggregation, summarization and the property of viewing information from various angles are provided in the analysis techniques of data warehouse technology. It is very challenging to perform an effective and efficient analysis of data from various kinds of data by only integrating the information retrieval, data mining and information network analysis methods [2]. The different steps to be performed in KDD process are explained in the following section. The method through which knowledge is discovered from the data is known as KDD. The "high-level" application of specific data mining methods is the major emphasis of this technology. In several fields like the market basket and classification the role of KDD is considered to be important. For finding out the correlation among different fields displayed in database, the frequent object set plays the most important role in data mining. Association rule is used to discover the frequent item set. For managing the market and advertising facilities, the concept of association rule is used in the retail stores. Also, the errors present in telecommunication network can be identified and handled through this technology. To discover insightful, new and highly interesting patterns from large-scale data sets, the data mining technology is applied in computer science related applications [3]. For creating the groups among objects that have similar properties and differentiating the objects with different properties, an unsupervised classification approach known as data clustering is applied. One of the traditional methods of data mining is cluster analysis. In the direction of discovering important knowledge, this is the initial step to be performed. The data objects are grouped into a set of disjoint classes also known as clusters by performing clustering. The resemblance of objects present in the class is higher as compared to the ones in different class. A basic clustering algorithm that is based on partitioning method and is applied for several clustering tasks particularly that include low dimension datasets is known as k-means clustering algorithm. The k is used as a parameter and the n numbers of objects are divided into k clusters such that the similarity of objects in one cluster is stronger and there is no similarity among objects present in different clusters. For reducing the sum of squared distances of every data point $x_i, 1 \le i \le n$, toitsnearestclustercenter$C_j, 1 \le j \le k$, the cluster centers ($C_1 \ldots\ldots C_k$) are identified by this algorithm. The k objects are chosen randomly by the algorithm by the algorithm initially where a cluster mean or center is represented initially. Further, to the cluster center that is the closest is assigned with object $x_i$inthedataset. Then, a new mean is calculated for every cluster and every object is reassigned to the nearest new center by this algorithm [5]. Until there is no change seen when assigning the objects, the process keeps iterating. The sum-of-square error designed in summation of squared distances from every object towards its cluster center is reduced by the convergence results. The k-means clustering algorithm is improved using the KNN approach. Normalization is used in this approach. It is a non-parametric lazy learning approach that is difficult to implement even though it is easy to understand. It does not make any assumptions on the data distribution due to which it is known as non-parametric in nature. There are no theoretical assumptions obeyed by most of the algorithms. To perform generalization, no training data is needed by this algorithm due to which it is known as lazy algorithm. The non-support vectors such as SVM are not discarded by this algorithm [6]. Based on the overall training data set, the decision is made. The training phase is less costly but the cost of testing phase is high. With respect to memory and time, the cost of these phases is calculated. For accessing all the training sets more time is needed. For storing all the data, more money is needed.

2. Research Methodology

One of the simplest unsupervised learning algorithms using which all the well-known clustering related issues can be resolved is known as k-means algorithm. For classifying a given data set using certain number of clusters that have fixed apriori, a simple and easy method has been applied by this approach. However, k-means has certain disadvantages even though it is applied in several applications. Some of these disadvantages are listed below:

- The k-means clustering algorithm assumes that the numbers of clusters k in the database are known previously. However, in real world applications, this is not always possible.
- This algorithm is particularly sensitive to initial center selections since it is iterative in nature.
- The local minima are converged by the k-means algorithm.

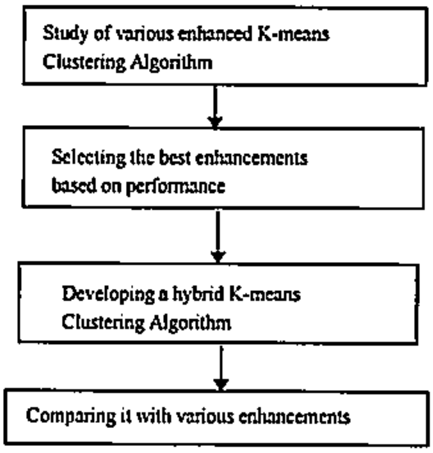

Study of various enhanced K-means Clustering Algorithm
Selecting the best enhancements based on performance
Developing a hybrid K-means Clustering Algorithm
Comparing it with various enhancements

Fig. 1: Design of Proposed Work

Due to these certain drawbacks of k-means algorithm, improvement has been proposed in this research. Resolving the efficiency and accuracy related issues is the major aim of this proposed hybrid k-means algorithm. It is known as a fact that the accuracy and efficiency are interrelated. Thus, an efficient k-means clustering algorithm is required through which both accuracy and efficiency can be balanced to appropriate factor. This improvement can further result in improving the clustering quality.

3. Hybrid Algorithm

```
Input:
D = {d1, d2,......dn} // set of n data items.
k// Number of clusters.
Output:
A set of k clusters.
Steps:
1. For each column of the data set, determine the range as the variation between the maximum and the minimum element;
2. Identify the column with maximum range;
3. Sort the entire data set increasing order based on the column having the maximum range;
4. The sorted data set are partitioned into k equal parts;
5. Determine the arithmetic mean of each part obtained in Step 4 as a1, c2,....ak; Take these mean values as the initial centroids.
6. Compute the distance of each data-point di (1<=i<=n) to all the centroids cj (1<=j<=k+1) as d(di, cj)
7. For each data-point di, find the closest centroid cj and assign di to cluster j
8. Set ClusterId[i]=j; // j:Id of the closest cluster
9. Set Nearest_Dist[i]=d(di, cj)
10. For each cluster j (1<=j<=k+1), recalculate the centroids
11. Repeat
12. For each data-point di
12.1 Compute its distance from the centroid of the present nearest cluster
12.2 If this distance is less than or equal to the present nearest Distance, the data-point stays in the cluster,
Else
    12.2.1 For every centroid cj (1<=j<=k+1) Compute the distance (di, cj); End for
    12.2.2 Assign the data-point di to the cluster with the nearest Centroid Cj
    12.2.3 Set ClusterId[i]=j
    12.2.4 Set Nearest_Dist[i] = d (di, cj); End for
13. For each cluster j (1<=j<=k+1), recalculate the centroids; until the convergence Criteria is met.
```

4. Experimental Results

MATLAB simulator is used to implement the propsoed k-means algoirithm. The proposed and existing k-means algoirthm are compared with each other to check the level of improvement achieved. The result analysis is shown with respect to accuracy and execution time.

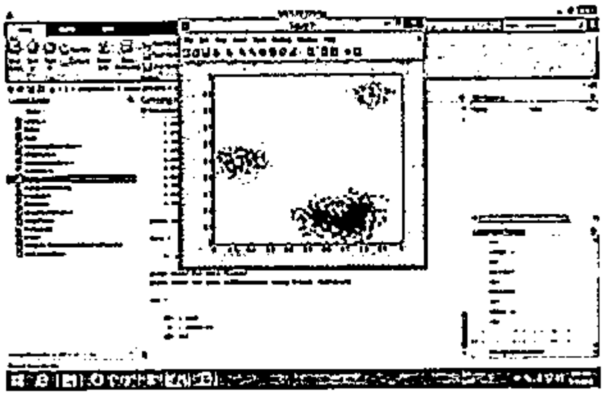


Fig 1: Coloring of data points

As shown in figure1, the first selected points are used for clustering of data. In this figure, Euclidian distance is used to cluster the data. Various colors are used such that the data can be analyzed in a better way.

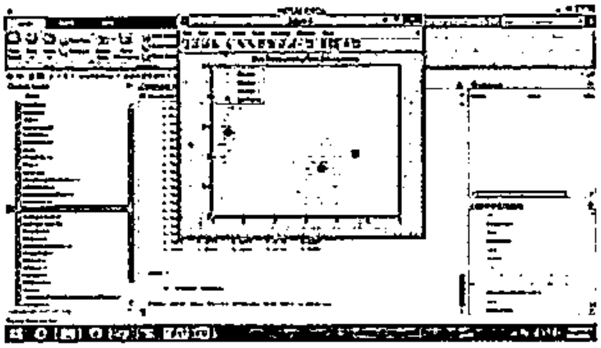


Fig 2: Vornoalic Representation

Figure 2 shows that hybrid k-mean clustering algorithm is applied to cluster the dataset that is used in previous figure. The quality of clustering is improved when data is clustered using hybrid algorithm. To perform better dataset analysis, each point in the dataset is shown on voronlic plane.

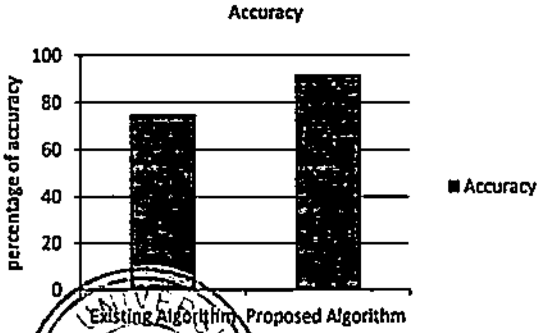


Fig 3: Accuracy Comparison

Figure 3 shows the comparison of performances of proposed and existing algorithms in terms of accuracy achieved. The outcomes show that in comparison to existing algorithm, the accuracy of proposed algorithm is higher.

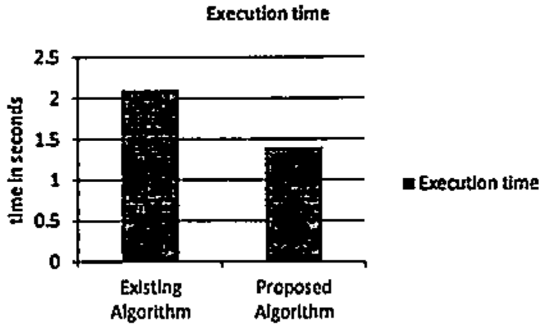


Fig 4: Execution time

Figure 4 shows the comparison of proposed and existing algorithms in terms of execution time. The outcomes show that in comparison to existing algorithm, the performance of proposed algorithm is better since it provides less execution time.

5. Conclusion

The approach using which the similar and dissimilar kind of data is clustered separately is known as clustering. The k-mean clustering is the partitioned based clustering algorithm in which central point is calculated and from the point Euclidian distance is calculated. A cluster includes the data points that have similar Euclidean distance and the data points with different Euclidean distance are separated. In this research work, k-mean clustering is improved using the back propagation algorithm to increase accuracy of clustering. In the technique of back propagation system learns from the previous experience and drive new values. Based on the result analysis it is concluded that with respect to execution time and accuracy, the proposed technique provides better results.

References

Ahamed Shafeeq B M and Hareesha K S, "Dynamic Clustering of Data with Modified K- Means Algorithm," International Conference on Information and Computer Networks, Volume 27, 2012.

Amar Singh and Navot Kaur, "To Improve the Convergence Rate of K-Means Clustering Over K-Means with Weighted Page Rank Algorithm," International journal of Advanced Research in Computer Science and Software Engineering, Volume 3, Issue 8, August 2012

Amar Singh and Navot Kaur, "To Improve the Convergence Rate of K-Means Clustering Over K-Means with Weighted Page RankAlgorithm," International journal of Advanced Research in Computer Science and Software Engineering, Volume 3, Issue 8, August 2012.

Azhar Rauf, Sheeba, Saeed Mahfooz, Shah Khusro and Huma Javed, "Enhanced K-Mean Clustering Algorithm to Reduce Number of Iterations and Time Complexity," Middle-East Journal of Scientific Research, pages 959- 963, 2012.

Chich-Yuan Tsai and Chuang-Cheng Chiu, "Developing a feature weight self-adjustment mechanism for a K-means clustering Analysis, pages 4658-4672, Volume 52, 2008.

Daljit Kaur and Kiran Jyot, "Enhancement in the Performance of K-means Algorithm", International Journal of Computer Science and Communication Engineering Volume 2 Issue 1, 2013.

Gupta, R., Kumar, S., Yadav, P., & Shrivastava, S. (2018, July). Identification of Age, Gender, & Race SMT (Scare, Marks, Tattoos) from Unconstrained Facial Images Using Statistical Techniques. In 2018 International Conference on Smart Computing and Electronic Enterprise (ICSCEE) (pp. 1-8). IEEE.

Gupta, R., Yadav, P., & Kumar, S. (2017). Race identification from facial images using statistical techniques. Journal of Statistics and Management Systems, 20(4), 723-730.

Harpreet Kaur and Jaspreet Kaur Sahiwal, "Image Compression with Improved K-Means Algorithm for Performance Enhancement," International Journal of Computer Science and Management Research, Volume 2, Issue 6, June 2013.

Kajal C. Agrawal and Meghana Nagori, "Clusters of Ayurvedic Medicines Using Improved K-means Algorithm," International Conf. on Advances in Computer Science and Electronics Engineering, 2013.

Manpreet Kaur and Usvir Kaur, "Comparison Between K-Mean and Hierarchical Algorithm Using Query Redirection", International Journal of Advanced Research in Computer Science and Social , Volume 3, Issue 7, July 2013 ISSN: 2277 128X

Certified True Copy
Jagan [illegible] Jaipur

Neha Aggarwal, Kirti Aggarwal and Kanika Gupta, "Comparative Analysis of k-means and Enhanced K- means clustering algorithm for data mining," International Journal of Scientific & Engineering Research, Volume 3, Issue 3, August-2012.

Osamor VC, Adebiyi EF, Oyelade JO and Doumbia S "Reducing the Time Requirement of K-Means Algorithm" PLoS ONE, Volume 7, Issue 12, 2012.

Panwar, D., & Tomar, P. (2011, December). New method to find the maximum number of faults by analyzing reliability and reusability in Component-Based Software. In Trendz in Information Sciences and Computing (TISC), 2011 3rd International Conference on (pp. 164-168). IEEE.

Panwar, D., Tomar, P., & Singh, V. (2018). Hybridization of Cuckoo-ACO algorithm for test case prioritization. Journal of Statistics and Management Systems, 21(4), 539-546.

Sharma, A., Chaturvedi, R., Dwivedi, U. K., Kumar, S., & Reddy, S. (2018). Firefly algorithm based Effective gray scale image segmentation using multilevel thresholding and Entropy function. International Journal of Pure and Applied Mathematics, 118(5), 437-443.

Vijay Jumb Mandar Sohani Avinash Shrivas, "Color Image Segmentation Using K-Means Clustering and Otsu's Adaptive Thresholding, International Journal of Innovative Technology and Exploring Engineering (IJITEE) ISSN: 2278-3075, Volume-3, Issue-9, February 2014

Yadav, P., Gupta, R., & Kumar, S. (2019). Video Image Retrieval Method Using Dither-Based Block Truncation Code with Hybrid Features of Color and Shape. In Engineering Vibration, Communication and Information Processing (pp. 339-348). Springer, Singapore.

15

56

Impact of Psychological Contract on Organizational Commitment

Jyotsana Sharma[a], *Shivani Wadhwa*[b], *Sanjive Saxena*[c]

[a]*Jagnnath University Jaipur, Rajasthan, India*
[b]*Jagan Institute of Management Sciences,Sector3, Rohini, New Delhi, 110085, India*
[c]*Jagan Institute if Management Studies, Sector 5, New Delhi, 110085, India*

ARTICLE INFO

Article history:
Received 06 February 19
Received in revised form 13 March 19
Accepted 06 April 19

Keywords:
Employees
Contract
Commitment

ABSTRACT

The paper examined the impact of psychological contract on the organizational commitment by studying the impact of independent variables of organizational policies, work environment and organizational compensation structure. The respondents chosen for this study include software developers and associated functional representatives. The sample size was 56 while purposive sampling technique was used for data collection. The findings indicate that there is a definite positive impact of psychological contract on the organizational commitment with the variables organizational work environment and organizational compensation structure dominating over organizational policies. The limitation that surfaced from the study is the small sample size and the application of descriptive statistical technique. The future scope of study is the inclusion of breakdown of the variable organizational work environment and organizational compensation structure which would provide detailed findings into these main variables.

© 2019ICACM. Hosting by SSRN. All rights reserved.

Peer review under responsibility of International Conference on Advancements in Computing & Management.

1. Introduction

Hyper competitiveness in the market has reshaped business scenario across the world. Geographical boundaries are demolished, new business models are evolving and to add to this, employee and employer relationship is undergoing significant transformation with each and every emerging new business model. The safety, security and the long lasting relationship between employer and employee is a thing of the past. Today, the focus has shifted to understanding the behavior of employees in this rapidly changing dynamic business world (Freese C. & Schalk R., (2008) so that employer and employee are able to work in a manner which is mutually beneficial to both. For, close understanding of the human behavior will enable the executive management to address the issues specially related to psychological contract. Psychological contract is understood and is interpreted as an implied contract arising out of interactions of management executives and the employees, and which results in the process of defining improved perceptions of duties, obligations and promises made by both the parties which leads to a better relationship and an assurance of an increased output thereby enabling the organization to achieve business objectives (Anderson N.R. &SchalkR.,1998; Antonaki X. &Trivellas P.,2014). The concept of psychological contract came into existence during the 60's and since then it has caught the fancy of executive management and has undergone several transformations to understand the employee behavior wherein in job security and sustainability is the norm (Hasan, Zubair, Arshida Abdul-rahman, Abdul Basit, 2017).

2. Literature Review

Several attempts by the researchers were made to define the exact nature of psychological contract. According to (Pei-ling T., Yi-shyuan L., & Tung-han Y., 2013) psychological contract is the belief of an individual in the context of fulfilling the conditions and is executed in terms of understanding of a reciprocal exchange of so called an agreement between an individual and the employee and this brings in the subjectivity factor into play (Coyle-Shapiro, J. A m&Parzefall, M.,2008). On the other hand there were several attempts to link the psychological contract with different contexts. While the researchers [13] linked the psychological contract with the perspectives of equity theory, receipt of an outcome against the input exerted and the degree of existence and maintenance of inter-personal relationships. However, some of the researchers, linked the psychological contract to the context of deficiency wherein the outcome received and input exerted was taken as the base. The higher the deficiency between the outcome received and the input exerted impacted the psychological contract in a negative manner while it was the other way round (Arnold J., Cooper C L. & Robertsoni T, 1998)). Researchers (Blau, Peter M, 1964; Konovsky, MA & Pugh, S., 1994) tried to link the psychological contract with the social cost theory and the expectation of future returns at the cost of the input exerted resulting in mutual benefit. The concept of self-expectancy theory was introduced by (Vroom V H., 1964) wherein it was argued that an individual performance is the result of his thoughts and the belief system which operate in a manner designed to enhance pleasure and reduce pain and thus lead to superior organizational performance (Lawler, Edward & W. Porter, Lyman., 2008; G Isaac, Robert & J Zerbe, Wilfred & C Pitt, Douglas (2001). In the same context, iceberg model which is derived from the writing style of Ernest Hemingway's puts the business context covering the functions of marketing and relates it to the psychological contract with an iceberg wherein 2/8 portion is invisible and it is this portion of

SS

Enhancement of Surface Finish by Optimization Technique Employed for Al 6061 Considering Different Parameters Using RSM

Ajay Pal Singh[a], *Abdul Samad*[b], *Amit Kumar Saraf*[c]

[a]*M.Tech Scholar (Production Engineering) Marudhar Engineering College, Bikaner, India*
[b]*Assistant Professor (Mechanical Engineering) Marudhar Engineering College, Bikaner, India*
[c]*Assistant Professor (Mechanical Engineering) Jagannath University,Jaipur, India*

ARTICLE INFO

Article history:
Received 24 February 19
Received in revised form 05 March19
Accepted 01 April 19

Keywords:
Surface Finish, ANOVA, Aluminium Alloy, CNC

ABSTRACT

The objective of the present work is to analyze the effects of the machining parameters in turning of Al 6061 alloy on the surface roughness parameters. The Design of experiments based on response surface methodology with three numeric factors (cutting speed, feed rate and depth of cut) five level central composite rotatable designs have been used to develop relationships for predicting surface roughness. The surface roughness parameters were measured using surface roughness tester (SURFTEST SJ- 210). The "Design Expert" software has been used for the analysis. A quadratic model and linear Model have been developed which indicates that interaction is present between the machining parameters (speed, feed, depth of cut). Model adequacy tests were conducted using ANOVA table and the effects of various parameters were investigated and presented in the form of contour plots and 3D surface graphs. Numerical optimization was carried out considering all the input parameters within range so as to minimize the surface roughness. The optimal values obtained are cutting speed 187.84 m/min, feed 73.37 mm/min and depth of cut 0.48 mm.The findings of this study would be beneficial to manufacturing industries (Specially in Automobile sector) where surface finishing plays a very important role.

© 2019ICACM. Hosting by SSRN. All rights reserved.
Peer review under responsibility of International Conference on Advancements in Computing & Management.

1. Introduction

Surface unpleasantness, is a proportion of the surface or of a surface. It is estimated by the vertical deviations of a certifiable surface from its ideal structure. In case these deviations are tremendous, the surface is cruel; if they are little the surface is smooth. In gathering to the surface completion brilliance, the cutting powers is additionally a significant trademark in turning activity and high low estimation of powers during turning tasks is constantly profitable. So the investigation of cutting powers and surface harshness and the connection between them is presently turning into a fundamental piece of machining tasks nowadays.

This section uncovers the significance of surface greatness in machining. The surface completion of the machined work piece is significantly affected by different factors, for example, cutting device properties, machining parameters, work piece properties and cutting wonder. Machining framework such as feed rate, cutting speed and profundity of cut assume a pivotal job during machining. These majorly affect the size of generation, cost of creation and pace of generation consequently their consideration full choice is of most extreme criticalness. The chose machining parameters should yield wanted quality on the machined surface while using the machining assets.

2. Literature Review

[1] depicts the system to acquire the machining conditions for turning activity considering unit cost of generation as a goal work. The optimality conditions for single point cutting tasks are resolved dependent on the target capacity utilizing dynamic programming strategy.[2] created surface unpleasantness forecast models for turning EN 24T steel with uncoated carbide additions using reaction surface procedure. A factorial plan method has

Certified True Copy
Jaipur
Jagan Na

been utilized to consider the impacts of the primary cutting parameters, for example, cutting rate, feed, and profundity of cut, on surface unpleasantness. [3] tentatively explored the impact of speed, feed and profundity of cut on instrument life, surface completion and vibration during turning of nodular cast iron utilizing earthenware apparatus. Quantities of slicing test have been led to check the adjustment in surface completion of the workpiece because of expanded apparatus wear. [4] built up an expectation model dependent on the investigational impacts to accomplish surface unpleasantness and machining parameters, for example, speed, feed, spiral rake edge and nose range and hereditary calculation was utilized to upgrade the machining parameters. [5] built up a numerical model to discover the powers during machining of fired fortified Al combination. They affirmed that the power created from chip development was similarly higher than the power delivered during the furrowing and molecule crack. [6] built up a RSM model for GFRP composites to assess the surface harshness. The model uses the CCD-based four variables five level rotatable structure to play out the examination and for investigation, and the model was confirmed utilizing ANOVA. [7] proposed a state of observing technique for the end processing process with the assistance of the estimation of vibration and miniaturized scale controlled information securing framework. [8] built up a model based a fake neural system (ANN) based vibration and a model dependent on full factorial test configuration to break down the machining parameter impacts, for example, cutting velocity, feed rate and profundity of cut on flank apparatus wear for the fast turning activity. They affirmed that vibration upgrades the apparatus wear and its effect is duplicated in the machining quality.

3. Design of Experiments

Structure of trial is a ground-breaking approach to improve item plan or to improve process execution where it ought to be utilized to lessen process duration required to develop new item or the procedures. Configuration examination is a test or arrangement of test where changes are made in the info parameters of the procedure for finishing up and distinguishing changes in the yield reaction comparing to include parameters. The aftereffect of the procedure would dissect to locate the ideal worth or parameters that have a most critical impact to the procedure. The goals of the examination may incorporate:

- Determination of components that influentially affect the reaction.
- Determination of the suitable settings of the compelling variables for advancement of the reaction.
- Determination of the fitting settings of the powerful factors for minimization of the reactions changeability.

4. Response Surface Methodology

Response surface methodology is a statistical technique that uses quantifiable data from suitable experiment to determine and simultaneously solve the multivariate equation. This process is used to define the best input of causes that yields the anticipated response and determines the optimum output.

It also shows how a specific response is affected by changes in the level of factors over the specified level of interest. RSM comprises of a collection of empirical techniques used for the evaluation of relation that exists between a group of controlled experimental factors and measured responses, according to one or more selected criteria.If the model contains coefficients for main outcome, coefficients for quadratic effects and coefficients for two factor interactions, a full factorial design with all the factors at three levels would provide estimation of all the required regression parameters. However, these full factorial three level designs are expensive to run as the number of runs increases rapidly with the number of factors
The output parameter for the turning experiments was surface roughness and the input factors were feed, spindle speed, depth of cut and tool nose radius. These were varied at two levels each as below

- Feed : 10 mm/min and 70 mm/min
- Spindle speed : 500rpm and 1500 rpm
- Depth of cut : 0.2 mm and 0.8mm
- Tool nose radius : 0.2 mm and 0.8mm

Certified True Copy
Jagan Nath University, Jaipur

Table I - Specification of CNC Lathe.

Model	HYTECH PUNE MODEL NO: 4-CLT100
Rapid Feed Rate X	400 mm/min
Rapid Feed Rate Z	400 mm/min
Distance Between Centers	310 mm
Floor Space Provided	1200 x 600 mm
Swing Over Bed:	100 mm
Swing Over Cross Slide:	80 mm
Spindle Speed:	3000 RPM
Spindle Bore:	50 mm
Tool Station :	4
Maximum Machining Diameter	50 mm
Maximum Machining Length (shaft)	350 mm

4.1. Measurement of Surface Roughness

A Profilometer is a device used to measure the roughness of a given surface profile. Figure 2 shows Mitutoyo SJ- 201P Profilometer.

4.2. Workpiece

The machining experiments were performed on AL 6061 alloy. All the pieces used in experimentation were 24-40 mm in diameter and 150 mm in length as shown in Figure 1.

Fig. 1- Workpiece.

Certified True Copy
Registrar
Jagan Nath University, Jaipur

5. Results and Discussions

Table : 2 ANOVA Analysis for Ra

Source	Sum of Squares	DF	MeanSquare	F Value	p-value Prob> F
Model	0.691944	7	0.09884919	42.7874	< 0.0001 Significant
A-Cutting Speed	0.015469	1	0.015469436	6.69602	0.0238
B-feed	0.396912	1	0.396911785	171.805	< 0.0001
C-Depth of Cut	0.066495	1	0.06649498	28.7827	0.0002
AB	0.016021	1	0.016020595	6.93457	0.0218
AC	0.01445	1	0.014450081	6.25477	0.0279
B^2	0.141902	1	0.14190184	61.4231	< 0.0001
C^2	0.027849	1	0.027849225	12.0547	0.0046
Residual	0.027723	12	0.0023102		
Lack of Fit	0.014948	7	0.002135435	0.83579	0.6008 Not significant
Pure Error	0.012775	5	0.0025550		
Cor Total	0.719667	19			
Std. Dev.	0.0480649	R-Squared	0.961478		
Mean	1.03515	Adj R-Squared	0.939007		
C.V. %	4.643278	Pred R-Squared	0.881056		
PRESS	0.0856	Adeq Precision	28.69033		

Certified True Copy
Registrar
Jagan Nath University, Jaipur

Table 3: Results of Surface roughness measurements after turning

Std	Run	A	B	C	Ra	Rq	Rz
1	1	152.16	70.26	0.481	0.967	1.189	4.635
12	2	170	150	0.675	1.618	1.789	6.989
18	3	170	100	0.675	0.982	1.268	7.456
9	4	140	100	0.675	1.029	1.241	5.469
20	5	170	100	0.675	0.989	1.284	7.134
10	6	200	100	0.675	0.921	1.242	4.123
11	7	170	50	0.675	0.945	1.195	5.689
19	8	170	100	0.675	0.945	1.115	7.489
17	9	170	100	0.675	0.999	1.212	7.765
14	10	170	100	1	0.997	1.216	6.241
6	11	187.83	70.26	0.868	0.902	1.105	5.313
3	12	152.16	129.73	0.481	1.125	1.383	6.071
8	13	187.83	129.73	0.868	1.345	1.451	4.756
5	14	152.16	70.26	0.868	0.969	1.144	6.354
15	15	170	100	0.675	1.072	1.198	7.987
4	16	187.83	129.73	0.481	1.067	1.187	5.788
7	17	152.16	129.73	0.868	1.247	1.641	5.123
2	18	187.83	70.26	0.481	0.716	0.989	4.143
16	18	170	100	0.675	1.068	1.187	7.876
13	20	170	100	0.35	0.783	0.969	4.983

Certified True Copy
Registrar
Jagan Nath University, Jaipur

Table 4 ANOVA Analysis for Rq

Source	Sum ofSquares	DF	MeanSquare	FValue	p-valueProb> F
Model	0.66915	6	0.11153	28.142	< 0.0001 significant
A-Cutting Speed	0.02845	1	0.02845	7.1787	0.0189
B-feed	0.36544	1	0.36543	92.212	< 0.0001
C-Depth of Cut	0.07436	1	0.07446	18.788	0.0008
BC	0.02543	1	0.02543	6.4156	0.0250
B^2	0.13117	1	0.13118	33.102	< 0.0001
C^2	0.03123	1	0.03121	7.8754	0.0148
Residual	0.05162	13	0.00396		
Lack of Fit	0.03298	8	0.00412	1.1118	0.4750 not significant
Pure Error	0.01854	5	0.00371		
Cor Total	0.72067	19			
Std. Dev.	0.06295	R-Squared		0.9285	
Mean	1.25025	Adj R-Squared		0.8955	
C.V. %	5.03515	Pred R-Squared		0.8433	
PRESS	0.11287	Adeq Precision		21.448	

Table 5 ANOVA Analysis for Rz

Source	Sum of Squares	DF	Mean Square	F Value	p-value Prob>F
Model	29.13	7	4.16	40.51	< 0.0001 significant
A-Cutting	1.45	[illegible]	1.45	14.10	0.0027
B-feed	0.89	1	0.89	8.63	0.0124

Certified True Copy
Jagan Nath Univ[illegible], Jaipur

C-Depth of Cut	0.67	1	0.67	6.54	0.0252
BC	2.96	1	2.96	28.85	0.0002
A^2	15.49	1	15.49	150.80	< 0.0001
B^2	3.48	1	3.48	33.86	< 0.0001
C^2	8.08	1	8.08	78.70	< 0.0001
Residual	1.23	13	0.10		
Lack of Fit	0.73	8	0.10	1.04	0.5000 not significant
Pure Error	0.50	5	0.10		
Cor Total	30.36	19			
Std. Dev.	0.32	R-Squared		0.9594	
Mean	6.07	Adj R-Squared		0.9357	
C.V. %	5.28	Pred R-Squared		0.8668	
PRESS	4.04	Adeq Precision		18.193	

6. Conclusion

The results of ANOVA and the confirmation runs verify that the developed mathematical models for surface roughness parameters shows excellent fit and provide predicted values of surface roughness that are close to the experimental values, with a 95 per cent confidence level. The model can be used for direct evaluation of Ra under various combinations of machining parameters during turning of Al 6061 alloy. The minimum surface roughness parameters Ra (0.6943 microns), R_q (1.0314microns),and R_z (4.1229 microns) have been obtained at cutting speed 187.84 m/ min, feed 73.37 mm/min and depth of cut 0.48mm.. The 3D surface diagram for surface harshness is appeared shows the bends have curvilinear profile in agreement to the quadratic model fitted. As per the 3 D plot, the normal surface harshness is essentially limited when the feed is set to the low level (0.20 mm/rev.), and cutting pace at abnormal state (260 m/min)

REFERENCES

[1] A.Manna, Sandeep Salodkar, Optimization of machining conditions for effective turning of E0300 alloy steel. Journal of Materials Processing Technology 203, pp.147-153, 2008.

[2] I.A Choudhury. , M.A Baradie., Surface roughness prediction in the turning of high strength steel by factorial design of experiment Journal of Material Processing Technology, Vol.67 pp.55- 67, 1997.

[3] J.A Ghani., I.A Choudhury., H.H Hassan., Application of Taguchi method in the optimization of end milling parameters. Journal of Materials Processing Technology, 145, pp.84-92, 2003.

Certified True Copy

Jagan Nath [illegible] Jaipur

[4] N. S. Reddy and P. Vengateshwararao, Selection of optimum tool geometry and cutting Conditions using a surface roughness prediction model for end milling, International Journal of Advanced Manufacturing Technology, 26, pp. 1202-1210, 2005.

[5] Pramanik, L. C. Zhang and J. A. Arsecularatne, Prediction of cutting force in machining of metal matrix composites, International Journal of Machine Tools and Manufacture,46, pp.1795-1803, 2006.

[6] K. Palanikumar, Modeling and analysis for surface roughness in milling glassfiber reinforced plastics using response surface methodology, Materials Design, 28, pp. 2611-2618, 2007.

[7] J. Z. Zhang and J. C. Chen, Tool condition monitoring In an end milling operation based on the vibration signal collected through a micro controller – based data acquisition system, International Journal of Advanced Manufacturing Technology, 39, pp.118-128, 2008.

[8] H. Chelladurai, V. K. Jain and N. S. Vyas, Development of a cutting tool condition monitoring system for high speed turning operation by vibration and strain analysis, International Journal of Advanced Manufacturing Technology, 37, pp.471-485, 2008.

Certified True Copy
Registrar
Jagan Nath University, Jaipur

Review Paper on Data Mining and Classification

Yogesh Sharma[a], *SurajYadav*[b]

M.Tech Scholar, Jagannath University, Jaipur, India, Associate Professor, Jagannath University, Jaipur, India

ARTICLE INFO

Article history:
Received 29 January 19
Received in revised form 03 March 19
Accepted 08 April 19

Keywords:
Data Mining
Machine Learning
[illegible]

ABSTRACT

Data mining [illegible] used for mining data from datasets and discovering significant [illegible] databases. Numerous associations are [illegible] data mining strategies [illegible] the [illegible] as the techniques for the data mining and gives the total a thought regarding the idea. The paper also [illegible] about the types of the classification in the data mining. The paper also [illegible] various methods which are used in the process of the data mining. In short the paper gives the complete information regarding the data mining and its concepts.

© 2019 ICACM [illegible] SSRN [illegible]
Peer review under responsibility of International Conference on Advancements in Computing & Management

1. Main text

Data mining is that the examination and [illegible] information set [illegible] action is to search out practical by virtue of [illegible] the PC's ability to technique the information with the human eye's ability to see subject. [illegible] concept is considered as the process of examining information from extremely astounding viewpoints and gathering the results to support [illegible]. It's been outlined as "the nontrivial system for trademark significant, novel, most likely charging, and in the long run fathomable models in data.

The definition data mining is almost associated with another routinely used term learning disclosure [2]. Data processing is AN [illegible] data. AI, ML estimations, etc. a couple of [illegible] and development in current period are databases. AI, data processing and [illegible] be an examination of 3 tiers enormous advancement segments. Data Mining may be a multi-step process, needs getting to and making [illegible] for examining the information, data processing tool, researching results and making material move. The data [illegible] the opportunity [illegible] hold tight in one or a lot of operational databases. In data mining the information are [illegible] different [illegible].

Data mining suggests [illegible] Discovery from Data or KDD [illegible]. Data [illegible] the process of [illegible] information [illegible] data. Data mining has been described [illegible] effectively dark and [illegible] support [illegible] from data. Data [illegible] information out of data and [illegible] a shape that is easily grasped to individuals [illegible]. Data mining is the idea everything [illegible] strategies which grant examining colossal data sets to evaluate and discover officially cloud structures and relations out of such [illegible] instances. Data Mining is the process of retrieving information from broad data sets utilizing computations and methodology drawn from [illegible]. Data Mining. Broadly called as information exposure of significant data [illegible] and relationships to settle on decided [illegible] gathering, researching and getting to correlate data [illegible] uses [illegible] processing gadgets and Decision Support System (DSS) [illegible].

[illegible] True Copy
[illegible]
Jagan Nath University, Jaipur

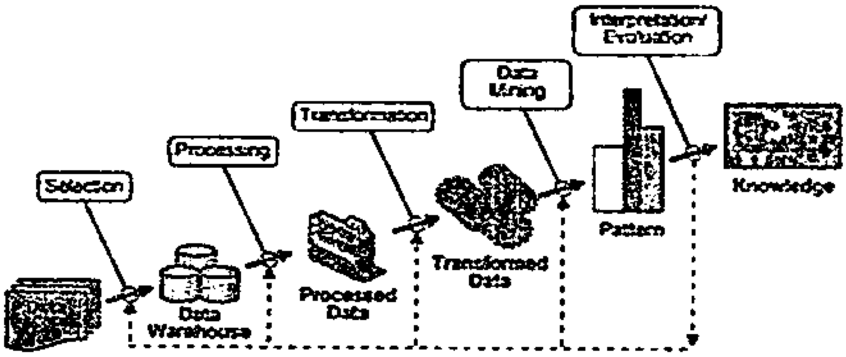


Fig. - 1 Data Mining Process

2. Data Mining Process

In data processing the information is profound mined abuse 2 learning methodologies for example the supervised learning or even the unsupervised learning [1]

2.1. Supervised Learning

In supervised learning (as often as possible likewise insinuated as facilitated informa-tion mining) the variable sunder examination will be part into 2 get-togethers helpful elements and (somewhere around one) subordinate elements The goal of the exami-nation is to decide an association between the variable and instructive elements the in light of the fact that it is done in multivariate examination To proceed with composed data processing [illegible] estimations of the variable should strike for an enough mammoth a bit of the information set

2.2. Unsupervised Learning

In unsupervised learning, every one of the factors zone unit treated in same technique, there's no refinement among reliant and useful factors. In any case, in qualification to the name rudderless data processing still there's some objective to figure it out. This objective might be as information decrease as general or a ton of explicit like group. Unsupervised learning commonly either the objective variable has exclusively been recorded for too minor assortment of cases or the objective variable is unknown [2]

3. Classification of Data Mining

Classification of data mining systems as demonstrated by the kind of data source mined. In an affiliation a huge proportion of data is open where we need to arrange these data yet these are available most of times similarly. We ask for to manage these data as shown by its character (conceivably stable picture, content structuring and so on) [3]

Classification of data mining systems, according to the sort of learning discov-ered. This gathering reliant on the arrangement of information [illegible] mining functionalities, for instance, depiction, partition, connection, request, packing, and so on a couple of structures will when all [illegible] sweeping systems offering a couple of data mining functionalities together [3]

Classification of data mining structures, accord[illegible] procedures used. This portrayal is as demonstrated by the data examination approach used, for instance, AI, neural nets, genetic [illegible] portrayal, database mas-terminded or data circulation focus arranged, and so on The gathering can more-over consider the dime[illegible]ed effort drew in with the data mining process, for instance, question driven

Certified True Copy

Jagan N[illegible] U[illegible]y, Jaipur systems, causes exploratory systems or self decision systems. A record structure would offer a sweeping game plan of data mining [illegible] assorted conditions and choices, and other unmistakable elements of customer connection [3].

4. Data Mining Approaches

4.1. Classification Approach

Classification is a supervised learning technique [4]. Data classification is two advance process. In the underlying advance, a model is worked by separating the data tuples from getting ready data having a course of action of attributes. For each tuple in the arrangement data, the estimation of the name quality is known. Classification calculation is associated on data planning data to make the model. In the second step of classification [illegible] used to check the exactness of the model. In case the accuracy of the model is commendable, the model can be used to master [illegible] [4]. Classification systems were [illegible] as a basic part of ML [illegible] in order to extract [illegible] models from data that [illegible]. Classification techniques are used to arrange data records into one among a game plan of predefined classes. They work by structure a model of planning dataset containing point of reference records with known class marks [4].

Tree based: C.5 tree develops classification or backslide models as a tree structure. It isolates a dataset into smaller and more diminutive subsets while meanwhile a related decision tree is step by step made. The last result is a tree with decision centers and leaf center points.

4.2. Clustering Approach

Clustering is finding social events of articles to such a degree, that the things in a solitary get-together [illegible] resemble one another and [illegible] from the articles in another get-together. Clustering is the process of dealing with things into social affairs whose people are practically identical [illegible] [5]. [illegible] examination has been comprehensively used in various applications, for instance, business understanding, picture structure acknowledgment, [illegible] science and security. In business information, clustering can be used to demonstrate the sizable client into social affairs, where customers in a get-together offer tantamount qualities. This energizes the headway of business systems for redesigned customer relationship the officials. In picture acknowledgment clustering can be used to discover group or subclasses in composed by hand character acknowledgment structure. Accept we have a dataset of composed by hand digits where each digit is named as either 1, 2, 3 and so on. Note that there can be a broad contrast in the way by which [illegible] comparable digit. Take the number 2, for example, a couple of individuals may make it with a little hover at the left base part while [illegible]. We can use clustering to choose sub classes for all of which addresses a minor takeoff from the way by which 2 can be formed. [illegible] subject to the subclasses can improve all in all affirmation accuracy [4].

K-Mean Algorithm: K-mean is an iterative clustering calculation in which things are moved among sets of groups until the perfect set is [illegible] manner it may be viewed as a kind of squared mistake calculation, disregarding the way that the [illegible] criteria require not be portrayed subject to the squared oversight. An abnormal state of closeness among parts in groups is gotten while an abnormal state of similarity among segments in bunches is executed while an abnormal state of uniqueness among segments in different bunches is practiced simultaneously [6].

Set the [illegible]
First, it picks the hidden k modes [illegible]
The squared mistake measure is used to choose the [illegible]
In each cycle, the model of each bunch is reevaluated to be the group mean
The [illegible] type of k suggests [illegible]

Hierarchical Algorithm: Hierarchical clustering calculations truly make sets of bunches. Hierarchical calculations differentiate in how the sets are made. [illegible] inside center point in the dendrogram addresses new bunches formed by mixing the groups that appear as its adolescents in the tree. Each [illegible] in the tree is connected with the division measure that was used to solidify the groups. All groups made at a particular measurement [illegible] the way that the adolescents bunches had a division between them not actually the particular [illegible].

5. Literature Survey

Hafiz Muaaz Hamid et al. 2015: In this paper, [illegible] about [illegible] which are related to the data mining.

Cerfified True Copy
Registrar
Jagan Nath University, Jaipur

V.P. Muthu kumar et. al 2018 in this paper describes the various clustering techniques and their classification and also about the various tools which are used for the purpose of the data. The paper also focuses on the recent trends in the data mining.

Nirmal Kaur and Gurpinder Singh 2017 in this paper , authors discuses the concept related to the data mining and its relevance related to the big data. The paper also describes the various challenges in the big data field and also discusses about the solution for the same.

Ashish Kumar Dogra and TanujWala 2015 This paper discusses in details the various algorithms which are using in the process of the data mining also how they are implemented.

Manish Verma et. al 2012 This paper reviews on various types of clustering concepts and reviews the impacts on the positive as well as the negative terms.

Pradeep Rai and Shubha Singh 2010 , describes about the clustering concept and the algorithms of clustering.

6. Conclusion

Data mining helps the analysis in understanding the facts , also regarding the relation-ships between the various attributes and more. The data mining has applications in various fields like demand analysis , opinion mining etc. This paper has focused on the concept and the components of the data mining. Seeing the importance of the data mining , in future work we'll like to work in the product demand analysis by making use of the apriori algorithm.

REFERENCES

Hafiz Muaaz Hamid, Hafiz Muneeb Ahmad, Zahid Javed and Tariq Shehzad, "A Review Paper on Various Data Mining Techniques", J. Glob. Innov. Agric. Soc. Sci., 2015

V.P. Muthukumar, Dr S Subbaiah , S Srinivasan "A REVIEW PAPER ON DATA MINING TECHNIQUES, ALGORITHMS AND TOOLS" First International Conference on NextGen technologies,2018

Nirmal Kaur, GurpinderSingh,"A Review Paper On Data Mining And Big Data", Interna-tional Journal of Advanced Research in Computer Science, 8 (4) 2017

Ashish Kumar Dogra, TanujWala , "A Review Paper on Data Mining Techniques and Al-gorithms",International Journal of Advanced Research in Computer Engineering & Tech-nology (IJARCET) Volume 4 Issue 5, May 2015

K Kameshwaran, K Malarvizhi, Survey on Clustering Techniques in Data Mining, IJCSIT, Vol. 5, 2014, 2272-2276 [6] Aastha Joshi, Rajneet Kaur, A Review: Comparative Study of Various Clustering Techniques in Data Mining, IJARCSSE, Vol. 3, 2013, 2277 128X

Manish Verma, Mauly Srivastava, Neha Chack, Atul Kumar Diswar, Nidhi Gupta, A Comparative Study of Various Clustering Algorithms in Data Mining, International Journal of Engineering Reserch and Applications (IJERA), Vol. 2, Issue 3, pp 1379-1384, 2012

Pradeep Rai, Shubha Singh, A Survey of Clustering Techniques, International Journal of Computer Applications, 2010

Certified True Copy
Registrar
Jagan Nath University, Jaipur

ISSN No. 1556-5018 Dr. Shilpi

(7)

167

Trust is an important factor affecting consumer behaviour while shopping online

Babita Saini[a], *Shilpi khandelwal*[b]

[a]*Assistant professor.Delhi University.Delhi*
[b]*Associate professor.Jagannath University.Jaipur*

ARTICLE INFO

Article history:
Received 16 febuary19
Received in revised form 28 March19
Accepted 08 April 19

Keywords:
Trust,
Awareness,
Online Shopping
Consumer Behaviour

ABSTRACT

Whenever you start searching for stuff, the listing is awesome in most cases. Images used on these shopping sites are bright, high definition and catch your eyes. But, as they say, &amp; quote, all that glitters is not gold - this year old proverb applies to most of the stuff sold online. Be it casual t-shirts, jeans, weight loss aid, home appliances, watch, mobile accessories, they seldom match one's imagination when they receive the product physically

The images on these sites are really great and compel us to imagine high. But, then, in reality, most of the stuff is not at all at par with the image and description. Read reviews online for the various products and get the best out of this. You will get an idea what you exactly mean. A sense of dissatisfaction reflected on most of the reviews and I think this is the reality. So, if you compare about product quality, physical stores are far-far better

One can rely on e-commerce sites just for branded products such as mobile, TV etc, else an individual could only rely on them for some low-cost kids' items or innovative stuff. Most of the people cannot rely on them for everything. Books are the ideal things for various consumers to order online, but often do get a book at a much-discounted price from my college street market even covering my communication cost. Still ordering books online nowadays as it is surely time-saving for most of the people. So, honestly speaking, online shopping has been a mixed experience for people, and Indian e-Commerce sites have a long-long way to go. If they want to a real alternative of the physical store like in western countries

The steady growth of online consumer purchasing in service categories is a driving force that convinces businesses that they should make a firm commitment to Internet branding. Although there's a bigger audience on the web, the companies must take into account the consumer's perception of brand trust online. With the evolution of online shopping, online brand trust has often been identified as a critical component and has increased in importance among the internet users. It is essential for on-line businesses to grasp what influences on-line users to trust to buy product and services on-line. The importance of e-loyalty has been a critical issue in the context of online shopping

© 2019ICACM. Hosting by SSRN. All rights reserved

Peer review under responsibility of International Conference on Advancements in Computing & Management.

1. Introduction

If you are trying to purchase many products online and have encouraged many others to do so then with the passage of time, individual considers a number of factors

Awareness Individual should be aware of varied payment mode as unsecured mode of payment may lead to a loss. One should prefer to make payments using your own device while payment (mobile, pc, tablet, etc), also one should not use open passwords for the site and cautiously save card Details

Certified True Copy
Registrar
Jagan Nath University, Jaipur

Urban Solid Waste Management In India

Pro.(Dr.) Ranjeeta Soni

Dept.of Physical Science, Jagannath University, Chaksu, Jaipur, Rajasthan.

E-mail: ranjeetasoni@gmail.com

ARTICLE INFO

Article history:
Received 19 March,19
Received in revised form 30 March,19
Accepted 01 April 19
Keywords: Solis waste, disposal, management, methods.

ABSTRACT

At present time solid waste management is a big and serious problem of country. Urban solid wastes are discarded from various sources due to anthropogenic activities. These waste are arises from various activities. Solid waste consist various kinds of wastes generated from urban areas .The waste discards as a unusable materials. It consists of the different verity of waste released from the urban community, agricultural, industrial, mining, biomedical waste etc. Many types of disposal methods can be used like open dumping, ocean dumping, sanitary land filling, composting and incineration. In our country these methods are very common. After waste generation Proper waste collection and conveyance and disposal are essential parts of the overall solid waste management system. In collection methods the refuse is delivered to fixed storage bins and refuse is stored in the bins till it is collected for disposal by a larger vehicle for shifting it to transfer station. Community storage point, kerbside collection and block collection methods are some popular method for waste collection. For the disposal of solid waste so many methods are using in India but due to various merits and demerits all method are not feasible for solid waste management. These methods are Open dumping, Ocean Dumping, Sanitary land filling, Composting, Vermicomposting and Incineration. Some potential disposal methods are also beneficial for waste management like Reduction, Reuse and Recycle(3R's).

© 2019ICACM. Hosting by SSRN. All rights reserved.

Peer review under responsibility of International Conference on Advancements in Computing

Sources of Solid Waste

In a huge quantity of solid waste is regular practice from various sources like domestic, commercial, industrial and various other agricultural related activities. At dumping sites it can pollute the surrounding environment due to foul smell and can seriously affect the health of humans, wildlife and our environment. Some major sources of solid waste generation are:

Domestic sources

Certified True Copy
Registrar
Jagan Nath University, Jaipur

Construction sites and demolition sites are also responsible for production of solid waste. Construction sites for buildings and roads, road repair sites, building renovation sites and building demolition sites. Some of the solid wastes produced in these places include steel materials, concrete, wood, plastics, rubber, copper wires, dirt and glass.

Municipal services

The urban centers also contribute immensely to the solid waste crisis in most countries today. Some of the solid waste brought about by the municipal services include, street cleaning, wastes from parks and beaches, wastewater treatment plants, landscaping wastes and wastes from recreational areas including sludge.

Treatment Plants and Sites

Heavy and light manufacturing plants also produce solid waste. They include refineries, power plants, processing plants, mineral extraction plants and chemicals plants. Among the wastes produced by these plants include, industrial process wastes, unwanted specification products, plastics, metal parts just to mention but a few.

Agriculture

Agricultural lands are also a major source of solid waste generation. Crop farms, orchards, dairies, vineyards and feedlots are produces solid wastes. Among the wastes they produce include agricultural wastes, spoiled food, pesticide containers and other hazardous materials.

Biomedical wastes

Waste comes from hospitals and biomedical equipment and chemical manufacturing firms called biomedical waste. All hospitals produces various kind of infectious and non infectious waste. Some of these solid wastes include syringes, bandages, used gloves, drugs, paper, plastics, food wastes and chemicals. All biomedical wastes require proper disposal otherwise they will cause a huge problem to the environment and health.

Certified True Copy
Registrar
Jagan Nath University, Jaipur

Methods for collection of discarded materials: Solid waste collection by various conveyance systems are the important part of waste management. In collection method the refuse is delivered to fixed storage bins and refuse is stored in these bins till it is collected for disposal by a vehicle. The organic matter in the refuse tends to decompose rapidly in the hot climate so the collection of waste should be daily. Collection methods include activities with the gathering of solid wastes from different sites with the help of collection vehicle and ultimately it to the site of disposal. Community storage point, kerbside collection and block collection methods are some popular method for waste collection system.

Community Storage point: The municipal Solid waste is taken to fixed large storage bins. The waste collection agency collects it daily disposal in a vehicle.

Kerb side Collection: In this collection system the refuse is collects in metal containers and placed on the foot path, from where it is collected by the waste collection agency. Materials are collected in large bins, colored bag or small open plastic bags, specially designed for the purpose.

Block Collection: Individuals bring the waste in containers and hands it over to the collection staff empties it into the waiting vehicle and returns the containers to individuals.

The collection trucks and crew is the most important member of the collection system.

Transfer Station: A transfer Station may be described as a place receiving refuse from a number of small collection vehicles and transferring it to larger vehicles.

In order that the transfer station may be economically viable the total cost of collection transfer and disposal must be less than the total cost of collection, direct transport by collection trucks and disposal.

Disposal Methods:

Many methods for waste disposal are using in India but the still most common methods of disposal are open dumping, sanitary land filling, incineration composting and Vermicomposting.

Sanitary land filling is the main practices used in the developed countries and open dumping is very cheap and common method of India.

Certified True Copy
Registrar
Jagan Nath University, Jaipur

The landfill operation is an important part of waste treatment. The refuse stabilization may be divided into five distinct phases-

Aerobic bacteria which are actively reduce the available oxygen and as a result of aerobic respiration the temperature increases.

Anaerobic environment become established and hydrogen and carbon dioxide which are the part of acidogenic activity.

The methanogenic activity becomes stabilized.

The methanogenic bacteria's decreases the organic matter and ultimately the process reached to aerobic conditions.

End products of decomposition during phases three and four are mostly CO2 and CH4.Accompanied by small amount of H2S, NH3 and water vapors.

Advantages:

1. Very is simple and economical method for waste decomposition.
2. Skilled person is not required
3. Low lying areas can be reused and put to better use after filling.
4. No residue or byproduct is formed; hence no further disposal is required.

Disadvantages:

1. Foul smell continuously emanates from the landfill site.
2. Need of insecticides and pesticides.
3. Large land area is required for filling.
4. Landfills requires maintenance.
5. Gases produced may become health hazard.
6. Not economical than open dumping.

Incineration: Incineration means the burning of solid wastes at higher temp. Leftover materials like ash, glass, metals, and unburned combustibles amount to about 25% refuse of the original waste. This residue must still be disposed of in some other methods. Air Pollution can be controlled by installation is to become an economical method for solid waste disposal, useful material and energy must be recovered by the process.

Multiple hearths, rotary and fluidized bed are some incinerators with wide applications for industrial waste treatment and disposal.

Advantage:

1. Requires minimum land area.

Certified True Copy
Registrar
Jagan Nath University, Jaipur

5.No health hazards

6.Less soil erosion and salinization.

7.Better ground water recharge.

8.Waste creates no soil, water, ground water and air pollution.

9.Boost to rural economy.

Disadvantage:

1.It is suitable only for decomposing organic waste.
2.It is slow process.
3.It requires more handling before the waste is stored to decompose.

Conclusion: From the study of various methods of solid waste management it is conclude that in India due to huge population and lack of awareness in public about waste management and related technologies as well as the disposal methods of solid waste is still a big problem. Still we are using those methods of Solid waste disposal having many types of advantages and disadvantage. So according to the wastes composition we have to select perfect method for waste disposal with removal of their disadvantages.

References:

Environmental Problems: Landfills." LoveToKnow.Web.7 Mar.2015.
<http://greenliving.lovetoknow.com/Environmental_Problems:_Landfills
Municipal Solid Waste." EPA. Environmental Protection Agency. Web. 7 Mar. 2015.
<http://www.epa.gov/epawaste/nonhaz/municipal/>.
Dr.Narendra Mohan Awasthi Environmental Studies, Laxmi Narayan Agarwal Publication2005-2006.
Dr.Praksh Bakre, Dr.Vidhulata bakre Environmental Studies, , Rastogi Publication, 2005- 2006.
Dr.Shikha Agarwal, Dr.Suresh Sahu A textbook of Environmental Engineering, ,Dhanpat rai and Co.(p) Ltd.2009.

96

Benefits of Cloud Computing for Business Enterprises: A Review

Hukam Chand Saini[a*], *Dr. Abhay Upadhyaya*[b], *Manish Kumar Khandelwal*[a]

[a]*Jagan Nath University, Jaipur, INDIA,* [b]*Rajasthan University, Jaipur, INDIA*

ARTICLE INFO

Article history:
Received 29 January19
Received in revised form 12 March19
Accepted 01 April 19

Keywords:
Cloud computing,
SaaS,
PaaS,
IaaS,
Cloud computing benefits

ABSTRACT

Cloud computing is the emerging technology for delivering computing resources as a service. The popularity and also the areas of the applications of the cloud computing as considerably multiplied once it had been planned by Google in year 2007. The set of resources and services to be shared among users via web. Web computing is another name for the cloud computing. Within the earlier years, the cloud computing was a theoretical conception, however currently it maybe applied among numerous industries. Many area nitas that are massively benefitting from cloud computing. There area unit myriad of benefits of cloud computing these days.Cloud computing enables the business to look big virtually and operate extensively. In this review paper, we present how the cloud computing has been influncing businesses from its inception till now.

© 2019ICACM. Hosting by SSRN. All rights reserved.

Peer review under responsibility of International Conference on Advancements in Computing & Management.

1. Introduction

At present time, the growing of IT innovation led the organization to make a decision to accept new technology to solve the organization computing requirements, to support their services, products and to satisfy their operations. Today is the era of cloud Cloud Computing Technology in IT Industries. Cloud computing that relies on net has the foremost powerful design of computation. It reckons in of a compilation of integrated and networked hardware, code and net infrastructure [1].

A business needs advance resources in hardware, software, platforms and other IT service and infrastructures with expertise to run and keep them. Cloud computing enables businesses to use applications and service without installation and access them at any place of the world with Internet [1]. Cloud computing give a new opportunity to business especially for small and medium companies, as there is no need for to spend a lot of manpower, financial and material resources to set up it needs of the business. All of the tasks can be handled by the cloud computing providers. It is a rapidly growing technology which brings the concept of virtualization, data storage, infrastructure and software [3]. Cloud computing can help business change their focus to developing good business applications instead of IT infrastructure [2]. It helps to overcome economical and technical barriers while starting a business [17].

Cloud computing can help business to pay attention to core task, customers, improvement of business, enterprise benefit instead of IT infrastructure.

2. Cloud Computing

Cloud Computing is a new style of computing during which dynamically ascendible and infrequently virtualized resources area provided as a service over the Internet, these resources are usualiy exploited by a pay-per-use model by the Infrastructure Providers by means of customized Service-Level Agreements [2]. The users need to pay just for the services that they had used.

Cloud computing provides IT ability with huge extension force to different external customers through the internet service; It is an emerging sharing of infrastructure that can connect the huge system storage pool together to provide all kinds IT service.

The term "cloud" refers to the all kinds of computing center distributed in the Internet which containing thousands or even hundreds of thousands computers or servers. There is no need to purchase of high-performance hardware or the development of various features of the software, users can use any Internet-connected devices to connection the "cloud", and processing and storing data in the "cloud" by using the software or services it provided [4]. The application of cloud computing model shown in Figure 1:

Certified True Copy

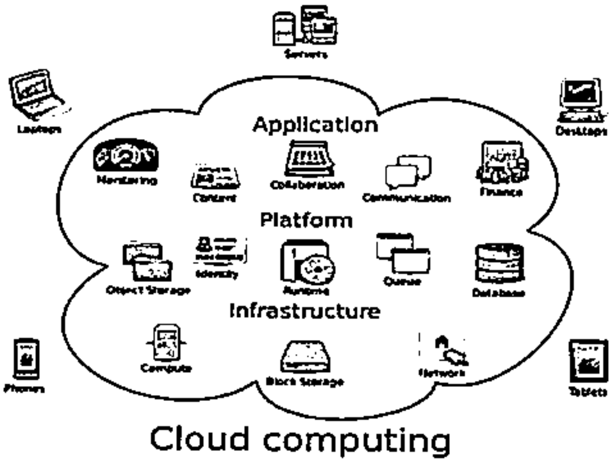


Fig. 1 - Model of Cloud Computing Application.

3. Evolution of Cloud Computing

In 1960 John McCarthy indicated that like water and electricity, computing may also be oversubscribed as a utility. And in 1999, the Salesforce Company started distributing the applications to the shoppers through a convenient web site. Amazon net Services were started by Amazon in 2002 and that they were providing the services of storage and computation. In around 2009 huge firms like Google,IBM, Microsoft, HP, Oracle had began to give cloud computing services [5]. Nowadays each and every person is using the services of cloud computing in their daily life, for example Google Docs, Google Drive, and iCloud etc. In future cloud computing will become the basic need of IT Industries.

4. Services of Cloud Computing

There are three services provided by cloud computing: SaaS, PaaS and IaaS. Each type of services serve different purposes and different customers, they rent out the use of their computing resources such as services, applications, infrastructures, and platform to customers.

4.1. Software as a Service (SaaS)

The way of carrying application as a service on the internet is known as software as a service, where software applications are leased out to contracted organizations by SaaS sellers. In this model of service in place of installing the software packages on client's laptop, the shopper will access it via the net [13]. The sole issue needed by user is a web association then access to the applying is incredibly straightforward. Example, Microsoft workplace 365, GoogleSheet, GoogleForms etc. SaaS is the most popular and familiar model of cloud service for consumers.

4.2. Platform as a Service (SaaS)

In this model of service a computing platform or development surroundings is provided to the customers as a service, upon that user will develop and deploy their own code. The client has the freedom to construct his own applications which will run on the provider's platform [18]. Product as service suppliers offers a predefined composition of software package and application server to get the management capability of the applications. for instance, Linux, Apache, MySQL, PHP, J2EE, Ruby etc.

Certified True Copy
Jagan [illegible] Jaipur

4.3. Infrastructure as a Service (SaaS)

In IaaS computing resources provided within the variety of storage, network, software system, hardware, and storage devices on demand. IaaS userscan access the services employing a wide space network, like the web [6]. for instance, a user will produce virtual machines by login to the IaaS platform.

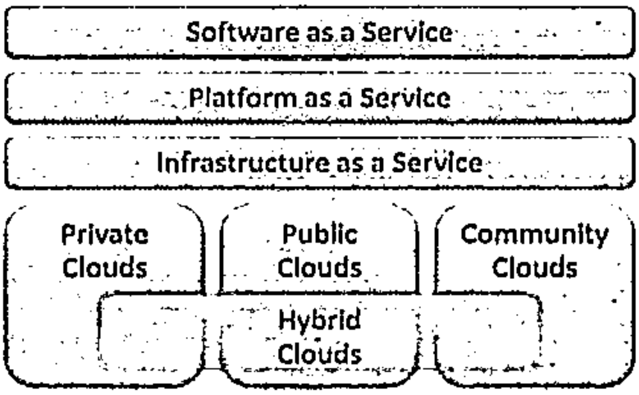


Fig. 2 - Cloud computing service and deployment model.

These three services are divided into several deployment models like Public cloud, private cloud, hybrid cloud, community cloud [14] etc. depending upon security level varies.

5. Cloud Computing Benefits For Businesses

5.1. Cost Saving

In cloud computing users need to solely pay money for the services they consumed. Maintenance price is low as user doesn't have to be compelled to purchase the infrastructure. So that the up-front expenses of the companies get reduced by putting the information and computing center into the cloud. The savings will be invested with into the core business to boost the services to the cusnsumers of the companies.

5.2. Enhanced Security

The security of information put away in the cloud is a significant concern. Cloud computing give high security by utilizing the information encryption, solid access controls, key administration, and security insight [7].It also provide the Artificial intelligence based security by judging the nature of the user.

5.3. Backup and Recovery

A cloud-based platform with built-in redundancy can save the business from loss of the data .Lost of data leads to loss of productivity, revenue, and brand reputation [12]. Cloud keeps the data secure, backed-up and easily accessible. It helps to overcome the loss of disasters and resume the business in a streamlined way [8]. Cloud-based services provide instant data recovery for all types of emergency [12].

Certified True Copy
Jagan Nath University, Jaipur

5.4. Availability of Resources

The services on cloud are commonly accessible all day, every day and open from various programs (i.e., Mozilla Firefox, Chrome, Safari) and gadgets (i.e., work area, PC, Smartphone, iPad) in some random time zone. This gives colossal adaptability for everybody to lead their work. The profitability of the groups will profoundly rely upon the administrations given by the exceptionally solid systems and Internet [9].

5.5. Scalability

Cloud Computing provides services as per demand of clients or businesses.It permits upscaling or downscaling the administrations as indicated by the interest, traffic, and regular spikes. Cloud gives the adaptable engineering your business needs [15]. The way that your business will increment in the coming time, it is essential to scale the business as it develops. This handle expanded outstanding tasks at hand and satisfy the fluctuating needs in the pinnacle season [20]. These varieties of cloud computing services give us adaptability.

5.6. Speed

In contrast to traditional IT projects,cloud computing services can be provisioned with only a couple of hours' notice, as opposed to weeks or months.

5.7. Mobility

Cloud computing allows its customers to get products and services from anyplace and whenever through cell phones. On the off chance that the clients travel, he is able to access the services through their smart phones and laptops [9]. And if business switches to another location the same services are available without any efforts of transport.

5.8. Growth in core business

As the user does not having the need to set up and maintain IT infrastructure and services, so it enables the organizations to focus on their core business[3]. This advantage of cloud can not only mean a substantial contribution to the growth and competitiveness of an organization, but also outshine the financial benefits it realizes.

5.9. Insight

Cloud-based storage gives incorporated cloud analytics to a bird's-eye perspective on your stored information over cloud. You can without much of a stretch break down and get ready redid reports from your information. You can increase efficiencies and build action frame to meet business goals with these insights[12]. Success of a business depends on proper action plans based on proper analysis.

5.10. Resource Maximization

Cloud computing has reduce burden of IT resources to many companies and agencies by maximizing the resources from cloud computing pool [17]. Most cloud providers offering facility to meet any type of requirements. This is one of the exciting benefit of cloud computing.

5.11. Boosters for Small business

Many problems are solved by Cloud computing that faced by Small and medium enterprises in term of cost- viability, security-effectiveness, availability and IT-resources .A small company can access the higher technology and on-pay-per-use model. These small enterprises are offered with professional developers around the globe and powerful computing resources whereas in the past only the large companies had such competitive edge [10].

6. Conclusion

This paper illustrated the benefits of the cloud computing for businesses. Cloud computing can solve many problems and issues that faced by Small, medium and large enterprises. In this paper the review paper benefits of the cloud computing are listed out. The benefits of the cloud computing are the opportunities for the business as discussed in this paper and it is clear that cloud computing are essential in present era. It is suggesting you to adopt cloud

Certified True Copy
Registrar
Jagan Nath University, Jaipur

computing services for businesses. Businesses that are integrated with cloud computing can sustain their competitive edge due to the benefits of this technology. The emergence of cloud computing technology is creating a new service ecosystem.

REFERENCES

Azad, N., Varaee, F. (2016). Improvement of E-Commerce Quality through Cloud Computing Benefits, international journal of humanities and cultural studies 1719-1734.

Wang, H. (2011).Cloud Computing in Ecommerce. https://studylib.net /doc/ 8925442/wang-han—school-of-computing

Roy, S., Sinha, I. (2014). Data security and Influence of Cloud Computing in Electronic Commerce Industry. International Journal of Computer Applications, 88 (6), 18-22.

Juncai, F., Shao, Q. (2011). Based on Cloud Computing E-commerce Models and Its Security. International Journal of e-Education, e-Business, e-Management and e-Learning. 1(2),175-180.

Srivasta, P., Khan, R .(2018). A Review Paper on Cloud Computing. International Journals of Advanced Research in Computer Science and Software Engineering 8(6), 17-20.

Ruchi Oberoi, Sharmistha Dey (2017).Survey of Security Issues in Cloud based E-Commerce. International Journal of Advanced Research in Computer Science and Software Engineering.7(5),823-827.

Aydin, N. (2015). Cloud Computing for E-Commerce. IOSR Journal of Mobile Computing & Application. 2(1), 27-31.

Motahari, N., Hamid, R., Stephenson, B., Singhal,S. (2009). Outsourcing business to cloud computing services: Opportunities and challenges. IEEE Internet Computing, Palo Alto, 10(4), 1-17.

Abdulkader, S. J., Abualkishik, A. M. (2013).Cloud Computing and E-commerce in Small and Medium Enterprises (SME's): the Benefits, Challenges. International Journal of Science and Research (IJSR), 2(12), 285-288.

Marston, S., Li, Z., Bandyopadhyay, S., Zhang, J., & Ghalsasi, A. (2011). Cloud computing—The business perspective. Decision support systems, *51*(1), 176-189.

Venters, W.Whitley, E. A. (2012). A critical review of cloud computing: researching desires and realities. Journal of Information Technology, 27(3), 179-197.

Salesforce, https://www.salesforce.com/hub/technology/benefits-of-cloud/

Sether, A. (2016). Cloud Computing Benefits. *SSRN 2781593*.

Kavitha, K. (2014). Study on Cloud Computing Model and its Benefits, Challenges. International Journal of Innovative Research in Computer and Communication Engineering, 2(1), 2423-2431

Barik, N. (2013). Benefits and Challenges in Cloud Computing. International Journal of Network Security & Its Applications. 4(1), 2423-2431.

Begum,S., Sheeba, T., Rani N. (2013).Survey on cloud computing. International Journal of Advanced Research in Computer Science and Software Engineering,3(1), 18-22.

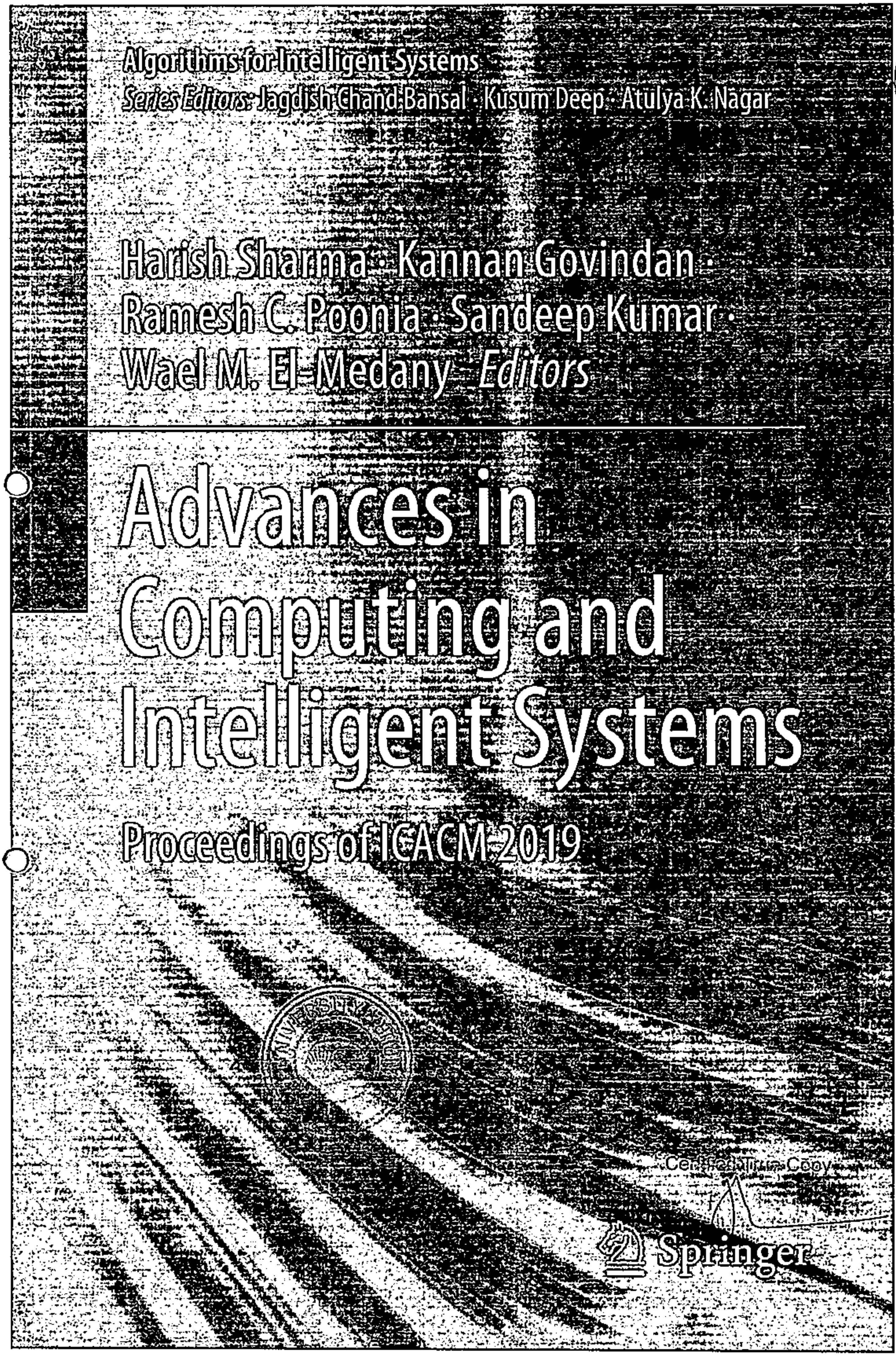
Islam, N. (2017). Review on Benefits and Security Challenges of Cloud Computing . International Journal of Computer Science and Information Technologies. *8 (2),224-228.*

Aldossary, S., Allen, W. (2016).Data security, privacy, availability and integrity in cloud computing: issues and current solutions. International Journal of Advanced Computer Science and Applications, 7(4), 485-498.

Kumar V(2016). Brief Review on Cloud Computing. International Journal of Computer Science and Mobile Computing. 5(9),01-05.

IBM, https://www.ibm.com/cloud/learn/benefits-of-cloud-computing

Cerfified True Copy
Jagan Nath [illegible]



Algorithms for Intelligent Systems
Series Editors: Jagdish Chand Bansal · Kusum Deep · Atulya K. Nagar

Harish Sharma · Kannan Govindan ·
Ramesh C. Poonia · Sandeep Kumar ·
Wael M. El-Medany *Editors*

Advances in Computing and Intelligent Systems

Proceedings of ICACM 2019

Springer

Big Data and Query Optimization Techniques

Aarti Chugh, Vivek Kumar Sharma and Charu Jain

Abstract With rise in new technologies like Big Data, Internet of Things, Sensor Networks, etc. new query processing and optimization techniques have been evolved which handles the complex and interactive queries. Traditional query processing systems are not capable enough to handle queries on big data. In this paper, we represent many of the big data querying techniques along with the comparative analysis. Finally, the paper concludes with list of tools/techniques that are used for big data query optimization.

Keywords Big Data · Query optimization · Unstructured data · Hadoop · Hive

1 Introduction

Big data means large or complex data sets that cannot be handled by existing relational data processing systems or others application tools/techniques. Several challenges include analysis, capture, storage, search, sharing, transfer, visualization, and information privacy [1]. Massive data created in a real-time manner need fast and efficient methods for handling real-time interactive queries [2]. Several research and industrial projects are focusing on query processing and optimization methods.

Query processing is an important step which translates a query in a high-level language such as SQL into low-level data manipulation procedures. The translated query is passed to query optimizer to improve query execution by finding best query execution plan. Big Data query processing and optimization are still in its infancy. The motivation behind this survey paper is increased demand of knowledge discovery out of Big Data. Big data incorporates data from multiple sources. When it comes to unstructured data, the complexity of the data becomes a hurdle in analysis process. Vast application areas need quick and accurate response for queries fired on Big

---

A. Chugh (✉) · C. Jain
Amity University, Gurgaon, Haryana, India
e-mail: achugh@ggn.amity.edu

V. K. Sharma
Jagannath Univarsity, Jaipur, India

© Springer Nature Singapore Pte Ltd. 2020
H. Sharma et al. (eds.), *Advances in Computing and Intelligent Systems*,
Algorithms for Intelligent Systems,
https://doi.org/10.1007/978-981-15-0222-4_30

Data. Although, numerous tools and techniques have been proposed but exponential growth of Big Data demands more innovative approach to answer intelligent and complex queries. Hence, query processing is an up growing and interesting research area. Section 2 provides literature study along with drawbacks of techniques used by various authors. Finally, our concluding remarks are given in Sect. 3 (Table 1).

2 Literature Study and Comparative Analysis

There is vast literature survey on query processing on big data. Most of the techniques are meant for querying structured data and there are research gaps while working with unstructured data [18–20]. Some of the major techniques used by most of the researchers for query optimization are as follows:

- Data mining techniques like Partitioning, Clustering, etc.
- Pilot runs
- Bucketing
- In-memory execution
- Pattern matching algorithms
- Addition of new algebraic or operators
- Addition of new hardware components to existing frameworks
- Change in storage formats: Column-oriented or row-oriented
- Use of indexes: Bit slice index, hybrid index, etc.
- Genetic Algorithm
- Semantic Matching
- Data compression
- Directed Acyclic Graphs
- Tree representation: B+ trees
- Heuristics based optimization
- Materialized Views.

3 Conclusion

Big Data is simply the collection, processing and analysis of huge data sets from traditional or digital means which deliver business intelligence for companies to enhance their services or create a new competitive advantage. Query processing is one of the biggest challenges because of variety of queries, data complexity, data generation speed, etc. Numerous tools and techniques have been proposed but exponential growth of Big Data demands more innovative query processing and optimization approach to answer intelligent and complex queries. We propose to improve query optimization techniques by grouping two or more listed techniques. Further, our

Certified True Copy
Jagan N[illegible], Jaipur

Table 1 Comparative analysis of query optimization techniques based on literature survey

Paper title	Problem discussed/technique	Framework/experiment setup	Result	Drawback
RAPID: In-Memory Analytical Query Processing Engine with Extreme Performance per Watt [3]	Author's research shows that commodity hardware is not capable of providing best performance when it works on big data based applications. Hence, there is a requirement to redesign hardware architecture using modern hardware features for improved good query execution performance with low power consumption. For their proposed RAPID Data Processing Unit architecture, they have designed RAPID software architecture pluggable to different RDBMS	RAPID provides an original design of hardware aware data/storage model. The model performs query optimization using specific data processing operators. It is a relational, columnar, in-memory query processing engine which comprises a new processor called the Data Processing Unit (DPU). Query compilation starts from host database system which sends compiled query to RAPID for cost-based query optimization	In the experiment, authors ran half of TPC-H queries on 1 TB data on both System X and RAPID. System is evaluated for queries varying from 10× to 25×. Results prove that RAPID achieves its important performance/power goal. While the speedup of RAPID software varies from 1.2× to 8.5×, the average speedup over the ran queries is 2.5×	DPU, the proposed processor has to be installed on system for working with Big Data queries. Other proposed systems do not need any new hardware component
Improving the monitoring of telephone network with Analytics [4]	The proposal was to implement Real Time analysis for network monitoring for Elisa Oyj, Finnish telecommunication, ICT and online service provider at Finland	An analytic tool by Microsoft, called Power BI is used to find the relationships of different data sources. M-query language of Power BI is used for calculations to monitor Elisa network	The thesis is carried out by analyzing the data from different components of Elisa network and making recommendations based on the findings	Data is stored in Excel sheets which is not capable of storing vast volumes of data
A Design of High-speed Big Data Query Processing System for Social Data Analysis, Using Spark SQL [5]	Social network service (SNS) generates massive data which is difficult to analyze. Author's implemented distributed in-memory based SparkSQL and storage is column-oriented instead of row-oriented Performance analysis has been done for social data using Spark SQL queries	Hadoop and YARN are used to manage the whole cluster and Spark platform setup is done above them. Data size taken varies from 20 to 1000 GB	Comparison in terms of executor memory size, the numbers of executors which determine the parallel execution counts of the tasks and assigned cores per an executor have shown following observations (i) More executors for processing columns than the memory size, the smaller the responding time (ii) More cores do not show improved performance when there is limitation of the whole resource utilization in the cluster (iii) More number of cores increases the speed of cluster CPU	Query processing time increases as data size increases

(continued)

Certified True Copy

Jagan Nath University, Jaipur

Table 1 (continued)

Paper title	Problem discussed/technique	Framework/experiment setup	Result	Drawback
Incremental Query Processing on Big Data Streams [6]	Authors addresses online processing for large-scale, incremental computations on a distributed processing platform The research automatically generates an incremental distributed stream processing (DSP) program for any batch data analysis program	Incremental processing framework is combination of Apache MRQL and Apache Spark Streaming. The first step is lineage tracking. It transforms a query so that it propagates the join and group-by keys to the query output	Proposed system is authenticated using four queries: groupBy, join-groupBy, k-means clustering, and PageRank. The data streams consist of a large set of initial data, which is used to initialize the state, followed by a sequence of nine equal-size batches of data (the increments)	MRQL algebra is unconventional. So, to apply proposed technique users has to first translate their queries which will be time consuming
Query Optimization of Big Data Using Hive [7]	Authors studied that time taken for executing join operations on Map Reduce is more. By using the hive query language on the Hadoop and increasing number of nodes authors have proved that the data will be processed fastest than with the fewer nodes	HIVE is built on the Hadoop framework and is used to store, summarize, analyze and query processing of the dataset present in the hadoop distributed file system (HDFS). It provides query language HiveQL. Authors run a hive query and run the same query in traditional databases like MySQL	The given input file will be stored in HDFS by creating a directory with the related schema name. The query is passed to respective driver and an optimized plan is generated. Performance is improved in terms of response time	Hive supports overwriting or apprehending data, but not updates and deletes
Dynamically Optimizing Queries over Large-Scale Data Platforms [8]	User defined functions (UDFs) involve business logic close to data and complicate cost-based optimization. Here, authors have introduced 'pilot runs' which execute part of query to estimate selectivities and employs cost-based optimizer to pick a primary query plan. These query plans are dynamically modified until best plan is reached	New framework, DYNO, which work over Hadoop data is proposed. Data is taken through TPC-H, and datasets of size 100, 300 GB and 1 TB are used during experiments. Work is done on a cluster of 15 nodes which is connected with 10 gigabit Ethernet. Further, Columbia optimizer is used a s a basis for cost based optimizer	Authors have tested on sample queries Q2, Q7, Q8, Q9 and Q10 of TPC-H benchmark. They used four execution plans. Relational optimizer and Jaql optimizer are existing ones and DYNOPT-Simple and DYNOPT algorithms are designed by them. Comparison shows that DYNOPT always produces better query plans even when query involves UDFs. When there are no UDFs, then re-optimization is not beneficial and it degrades system performance. Moreover, when data size increases than also re-optimization is not feasible or takes more time. In query Q8', DYNOPT algorithm shows performance speedup of 2×, 1.17 and 1.07× over Jaql optimizer	Pilot runs introduce overhead. Total overhead computed is 7–10%, which is acceptable as designed architecture provides benefits of working on UDFs

(continued)

Table 1 (continued)

Paper title	Problem discussed/technique	Framework/experiment setup	Result	Drawback
Big Data Analysis and Query Optimization Improve HadoopDB Performance [9]	HadoopDB performance is lower in query optimization. Authors have added new components in HadoopDB to overcome its disadvantages	Queries will be submitted to YSmart, which convert them into series of MapReduce jobs. Data storage is done using MonetDB. They have implemented new security mechanism which was missing in Hadoop to ensure MapReduce integrity. They use the idea given by SecureMR into existing MapReduce system	Experiment is still in progress hence no comparison is done	Users must have knowledge of working with MonetDB and YSmart along with Hadoop
Efficient Query Handling On Big Data in Network Using Pattern Matching Algorithm: A Review [10]	Prasadkumar Kale and Arti Mohanpurkar proposed pattern matching technique for handling queries on unstructured real-time data. Partition and pattern matching algorithms are used with MapReduce for fast query execution	Query arriving at server is partitioned into word. Partition algorithm works according to data arriving on the server and create partitions. Every partition will have an indexing system which is applied during matching and analyzing the data patterns. Through patterns related queries are found and executed faster	Real-time data is used during research. According to authors pattern matching algorithm along with MapReduce will provide good performance during query processing	System is tested only for range-aggregate queries
Blink and It's Done: Interactive Queries on very Large Data [11]	BlinkDB is a query processing framework optimized for interactive answers on large volumes of data. The framework is capable of handling petabytes of data through massively parallel, sampling based approximate query processing system	The optimization process is based on finding the set of columns for stratifying by monitoring data distribution past queries, storage constraints and several other system related factors. The storage system is integrated HIVE/HADOOP/HDFS stack. The memory caching technique of spark is utilized for fast processing of created samples	Experiments are done on TPC-H benchmark and on real-world video content from Conviva Inc. BlinkDB provides faster execution up to 150× as compared Hive on MapReduce and 10–150× faster than Shark over tens of terabytes of data	System suffers from long start-up times and high level of buffering. Authors are diagnosing the above problems to make their system more efficient and fast

(continued)

Table 1 (continued)

Paper title	Problem discussed/technique	Framework/experiment setup	Result	Drawback
RTSTREAM: Real-Time Query Processing for Data Streams [12]	Authors presented a model for querying real-time irregular data stream. This model is designed especially for real-time applications like traffic control systems, surveillance systems and health monitoring systems. Such systems require that their queries should be finished in deadlines	Here, periodic real-time queries are generated which are managed by RT-Stream prototype. This prototype gives deadline miss ratio for execution of such queries	The system is developed on top of STREAM data stream management system prototype developed at Stanford University. The prototype has improved query specification language along with parser	
Query Optimization by Genetic Algorithm [13]	Users need to use very large join queries to support them in their business decisions. There is requirement of new algorithms which tackle complexity level of such queries and fulfill good performance requirements Genetic Algorithms are a powerful search technique used in many problems successfully. Authors have proposed genetic algorithm for query optimization for complex queries	Authors have designed Carquinyoli Genetic Optimizer (CGO). Here, every member in the population is a valid query execution plan (QEP). Each QEP is considered as a program for the problem of finding a good access path to retrieve the required data. Crossover and mutation operations are applied on QEPs per generation until stop criterion is met	CGO is applied on a relational database schema which contains a set of relations that are linked through primary and foreign keys. Queries having more no of joins (more than 16 joins) are tested. The selection method and the best fitness function are used for processing the chromosome (individuals) which decreases time and CPU cost according the no of relations	Aggregate queries are not tested with proposed method
An Extensive Survey on Various Query Optimization Techniques [14]	Authors have identified many of the common issues, themes, and approaches that pervade query optimization work in relational databases, distributed databases and data warehousing environment	Authors have discussed various query optimization techniques along with the strong points. Their survey shows that based on database system (i.e. relational, distributed, data warehouse) query optimization techniques have been evolved	.From relational databases to data warehouse, each optimization algorithm works well on some specific problem area and till now there are no standard criteria to compare such techniques. Further, it can be concluded that query optimization is a vast research area and can be extended in several ways. Despite many years of work, significant open problems remain	Since, this survey paper gives an idea of various query optimization techniques, no drawback can be derived for authors work

(continued)

Table 1 (continued)

Paper title	Problem discussed/technique	Framework/experiment setup	Result	Drawback
R-Store: A Scalable Distributed System for Supporting Real-time Analytics [15]	Most of existing techniques only focuses on optimizing OLAP queries, and are ignorant to track changes done in OLTP data since the last loading. For real-time (RT) analytics, the OLAP data must be refreshed to get efficient results which support time deadlines too	In this work, authors have used MapReduce for large scale real time OLAP processing. While forming key-value pair, value will be the recent query submission time. The designed scalable distributed RTOLAP system called R-Store is a storage system. It uses multi-versioning where timestamp is associated with each version. Hence, OLAP query uses the recent version of data and each OLTP transaction produces a new version	Experimental study is conducted on a cluster with more than one hundred nodes using TPC-H data. The system consists of four components: a distributed key/value store, a MapReduce system which is used for processing large scale OLAP queries, a streaming system which maintains the real-time data cube, and a MetaStore for storage purpose. The throughput increases with increase in the number of nodes. Proposed system offers good scalability	Experiment conducted shows that OLTP performance degrades little bit but the response time and throughput were good and acceptable
Massive Data Query Optimization on Large Clusters [16]	Ad hoc queries in the large clusters environment require fast query response time. Authors designed an efficient massive data query and optimization mechanism SemanQuery	All files will be stored in the local file system. When the SemanQuery get the users' query requirements, SemanQuery will make a semantic matching with the big query network. A big query network is constructed for optimizing query execution	Comparison of execution cost shows that queries perform better when run on SemanQuery	It only works in offline mode
FastRAQ: A Fast Approach to Range-Aggregate Queries in Big Data Environments [17]	Current techniques for range-aggregate queries cannot provide accurate and fast results when data is big and complex	FastRAQ (fast approach to range-aggregate queries) first divides big data into independent partitions with a balanced partitioning algorithm, and then generates a local estimation sketch for each partition. For answering a range-aggregate query, FastRAQ system obtains local estimates from all partitions and summarizes them to provide result	Implementation is done on the Linux platform with about 10 billions data records. Experimental results demonstrate that range queries are executed within a time period two orders of magnitude lower than that of Hive	Proposed approach handles range queries only

Certified True Copy
Registrar
Jagan Nath University, Jaipur

research work will focus more on optimization to support scalability, since companies doing analytics will scale out to hundreds or even thousands of nodes.

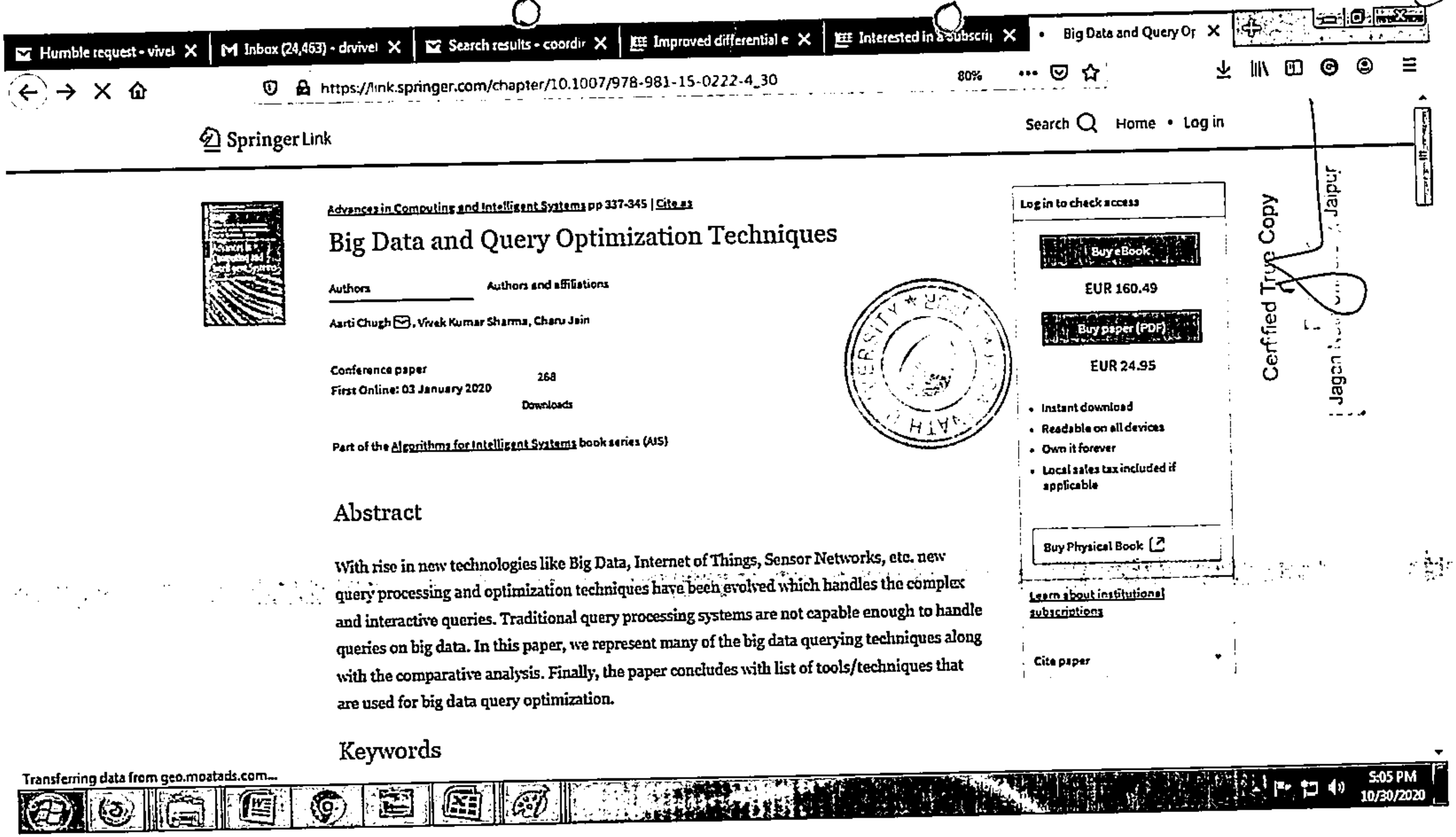
References

1. Bertino, E., et al. (2012). *Challenges and opportunities with big data white paper* (pp. 1–16).
2. Devisetti, N., & Gupta, M. *Data challenges in telecommunications networks and a big data solution, white paper*. Incedo Solution.
3. Balkesen, C., et al. (2018). RAPID: In-memory analytical query processing engine with extreme performance per watt. In *Proceedings of the 2018 International Conference on Management of Data SIGMOD'18* (pp. 1407–1429), 10–15 June 2018.
4. Alikoski, S. (2017). *Improving the monitoring of telephone network with Analytics*. Thesis submitted for fulfillment of B.E at Helsinki Metropolia University of Applied Sciences.
5. Park, K., & Peng, L. (2016). A design of high-speed big data query processing system for social data analysis: Using spark SQL. *International Journal of Applied Engineering Research, 11*(4), 8221–8225. ISSN 0973-4562.
6. Fegaras, L. (2016). Incremental query processing on Big Data streams. *IEEE Transactions on Knowledge and Data Engineering, 28*(11), 2998–3012.
7. Vinay Kumar, A., & Madhuri, A. (2015). Query optimization of big data using hive. *International Journal of Computer Sciences and Engineering, 3*(9), 135–139.
8. Karanasos, K., et al. (2014). Dynamically optimizing queries over large scale data platforms. In *Proceedings of the ACM SIGMOD International Conference on Management of Data, SIGMOD'14* (pp. 943–954).
9. Bissiriou, C. A. A., & Chaoui, H. (2014) Big data analysis and query optimization improve hadoop DB performance. In *Proceedings of the 10th International Conference on Semantic Systems, SEM '14* (pp. 1–4).
10. Kale, P., & Mohanpurkar, A. (2014). Efficient query handling on big data in network using pattern matching algorithm: A review. *International Journal of Science and Research (IJSR), 3*(11), 2247–2250.
11. Agarwal, S., et al. (2012). Blink and It's done: Interactive queries on very large data. *Proceedings of the VLDB Endowment, 5*(12), 1902–1905.
12. Wei, Y., et al. (2006). RTSTREAM: Real-time query processing for data streams. In *Ninth IEEE International Symposium on Object and Component-Oriented Real-Time Distributed Computing (ISORC'06).*
13. Butey, P. K., et al. (2012). Query optimization by genetic algorithm. *Journal of Information Technology and Engineering, 3*(1), 44–51.
14. Thangam, A. R., et al. (2016). An extensive survey on various query optimization techniques. *International Journal of Computer Science and Mobile Computing, 5*(8), 148–154.
15. Li, F., et al. (2014). R-Store: A scalable distributed system for supporting real-time analytics. In *ICDE Conference*. IEEE.
16. Zhang, G., et al. (2012). Massive data query optimization on large clusters. *Journal of Computational Information Systems, 8*, 3191–3198.
17. Yun, X., et al. (2015). FastRAQ: A fast approach to range-aggregate queries in big data environments. *IEEE Transactions on Cloud Computing, 3*(2), 206–218.
18. Sharma, K. P., Poonia, R. C., & Sunda, S. (2018). Real time location tracking map matching approaches for road navigation applications. *Data Intensive Computing Applications for Big Data, 29*, 414.

19. Gupta, S., Poonia, R. C., Singh, V., & Raja, L. (2019). Tier application in multi-cloud databases to improve security and service availability. In *Handbook of research on cloud computing and big data applications in IoT* (pp. 82–93). IGI Global.
20. Sharma, K. P., Poonia, R. C., & Sunda, S. (2018). Map matching algorithm: Curve simplification for Frechet distance computing and precise navigation on road network using RTKLIB. *Cluster Computing*, 1–9.

Cerfified True Copy
Jagan Nath University, Jaipur

(10)


Humble request - vivel
Inbox (24,463) - drvivel
Search results - coordir
Improved differential e
Interested in a subscri
Big Data and Query Op
https://link.springer.com/chapter/10.1007/978-981-15-0222-4_30
80%
Springer Link
Search
Home • Log in

Advances in Computing and Intelligent Systems pp 337-345 | Cite as

Big Data and Query Optimization Techniques

Authors
Authors and affiliations

Aarti Chugh, Vivek Kumar Sharma, Charu Jain

Conference paper
First Online: 03 January 2020
268
Downloads

Part of the Algorithms for Intelligent Systems book series (AIS)

Abstract

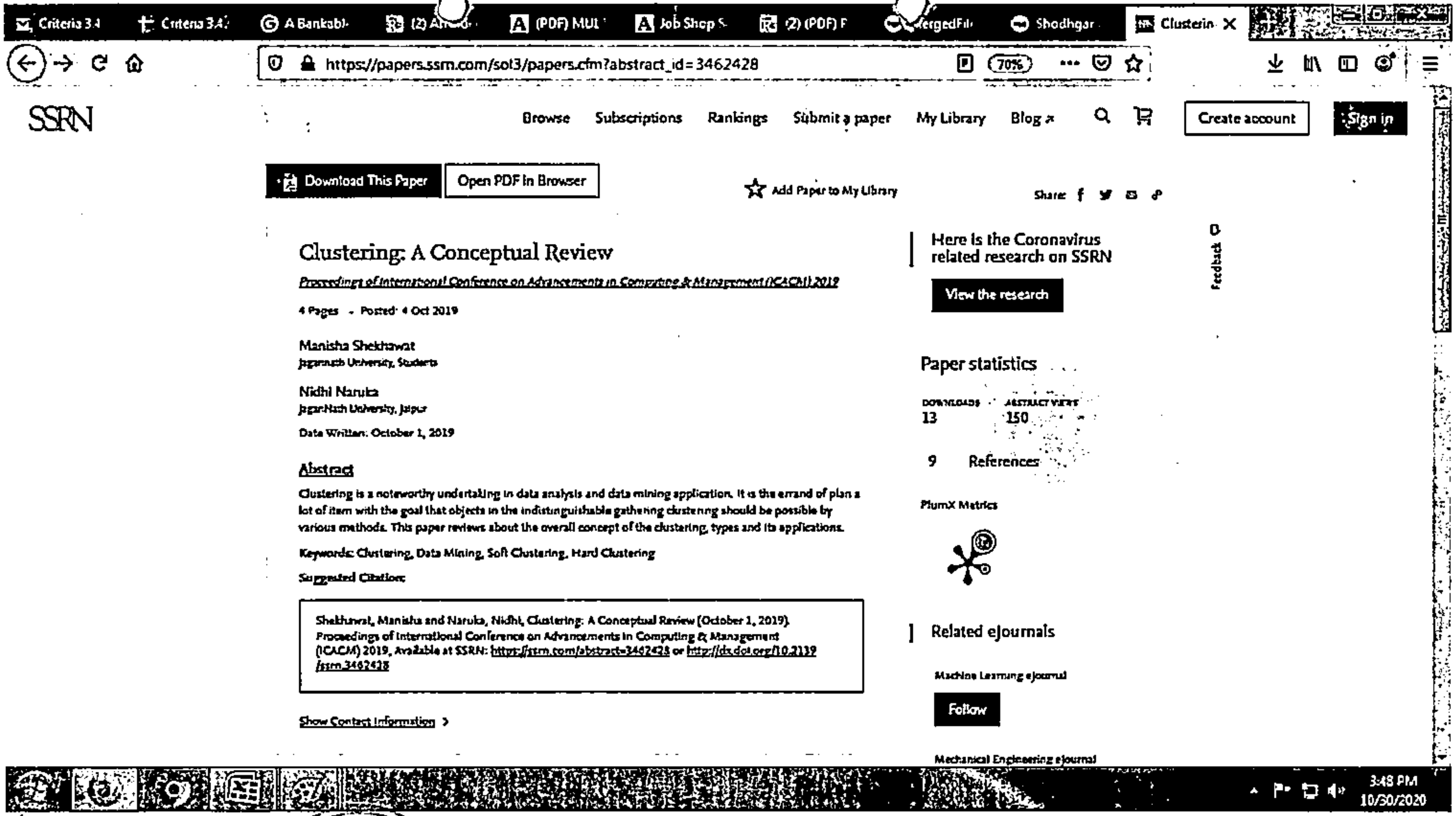
With rise in new technologies like Big Data, Internet of Things, Sensor Networks, etc. new query processing and optimization techniques have been evolved which handles the complex and interactive queries. Traditional query processing systems are not capable enough to handle queries on big data. In this paper, we represent many of the big data querying techniques along with the comparative analysis. Finally, the paper concludes with list of tools/techniques that are used for big data query optimization.

Keywords

Log in to check access
Buy eBook
EUR 160.49
Buy paper (PDF)
EUR 24.95
Instant download
Readable on all devices
Own it forever
Local sales tax included if applicable
Buy Physical Book
Learn about institutional subscriptions
Cite paper
Transferring data from geo.moatads.com...
5:05 PM
10/30/2020

Cerified True Copy
Jagan … Jaipur

49


Criteria 3.4
Criteria 3.4
A Bankabl
(2) A
(PDF) MUL
Job Shop S
(2) (PDF) F
MergedFil
Shodhgar
Clusterin
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3462428
70%
SSRN
Browse
Subscriptions
Rankings
Submit a paper
My Library
Blog
Create account
Sign in
Download This Paper
Open PDF In Browser
Add Paper to My Library
Share
Feedback
View the research
PlumX Metrics
Follow
3:48 PM
10/30/2020

Clustering: A Conceptual Review

Proceedings of International Conference on Advancements in Computing & Management (ICACM) 2019

4 Pages • Posted: 4 Oct 2019

Manisha Shekhawat
Jagannath University, Students

Nidhi Naruka
JaganNath University, Jaipur

Date Written: October 1, 2019

Abstract

Clustering is a noteworthy undertaking in data analysis and data mining application. It is the errand of plan a lot of item with the goal that objects in the indistinguishable gathering clustering should be possible by various methods. This paper reviews about the overall concept of the clustering, types and its applications.

Keywords: Clustering, Data Mining, Soft Clustering, Hard Clustering

Suggested Citation:

Shekhawat, Manisha and Naruka, Nidhi, Clustering: A Conceptual Review (October 1, 2019). Proceedings of International Conference on Advancements in Computing & Management (ICACM) 2019, Available at SSRN: https://ssrn.com/abstract=3462428 or http://dx.doi.org/10.2139/ssrn.3462428

Show Contact Information >

Here is the Coronavirus related research on SSRN

Paper statistics

DOWNLOADS	ABSTRACT VIEWS
13	150

9 References

Related eJournals

Machine Learning eJournal

Mechanical Engineering eJournal

Certified True Copy
Jagan Nath University, Jaipur

ISSN No. 1556-5068 Dr. Shilpi ⑨ ㊿

Corporate Social Responsibility (CSR) implementation in Oil & Gas Industry: Challenges and Solutions

Nikhil Koolwal[a], *Dr Shilpi Khandelwal*[b]

[a]*Research Scholar Jagannath University, Sitapura, Jaipur, 302022, India*
[b]*Professor, Jagannath University, Sitapura, Jaipur, 302022, India*

ARTICLE INFO

Article history:
Received 01 December 18
Received in revised form 20 January 19
Accepted 03 March 19

Keywords:
CSR
Oil & Gas
US Agency for International Development (USAID)
Green House Emissions
Oil Upstream
Midstream and Downstream

8

ABSTRACT

Lately researchers and leadership have committed to a more pertinent thoughtfulness in the CSR domain and its planned inferences. The absence of a generally acknowledged explanation has driven some characterize it as an idea/ a procedure/a hypothesis, while others refer to it as an action or a set of exercises. Additionally, CSR has been inscribed under innumerable names. For example, terms like 'corporate citizenship', 'worldwide citizenship', 'corporate social responsiveness', 'key charity' and 'otherworldly free enterprise' are used now and again contingent to the desired reference. Consequently, these monikers and translations prompt disarray among those who mean to study or actualize the training into their business procedures.

CSR has appeared as a pivotal approach to address the social and environmental consequences of a company's day-to-day operations. As the externalities produced by these companies is expected to grow exponentially, they are often predictable to assist in addressing many of the world's most tenacious problems (education, change in climate, poverty, and greenhouse effect, to name a few). With increasing expectations from businesses, this paper pragmatically explores if CSR is capable to deliver on these expectations. It does so by investigating an industry that has been constantly at the epicentre of the CSR development: The Oil & Gas sector. This paper explores the conceivable of CSR for addressing the impactful challenges by comprehensively looking at the major companies from developed as well as emerging economies.

8

© 2019SUSCOM. Hosting by Elsevier SSRN. All rights reserved.

Peer review under responsibility of International Conference on Sustainable Computing in Science, Technology and Management.

1. Introduction

CSR has emerged as a pivotal approach in addressing the social and environmental consequences of a company's day-to-day operations. With ever-increasing expectations from businesses in the domain of CSR, one needs to ask if CSR is in turn able to address the larger challenges. Therefore, this paper attempts to analyse CSR's potential and limitations in contributing towards solving wider societal 'challenges'.

The oil and gas sector have been among the main businesses in advocating CSR. This is mostly due to the obvious antagonistic impacts of oil tasks, for example, oil spills which result in mass challenges by social, civic groups and affected individuals. Noticeable instances of the oil & gas industry 'failures' incorporate oil tanker mishaps, such as, the Exxon Valdez, indigenous turmoil, hostile to Shell disagreements in Nigeria and the contribution of oil companies in human rights misuses, for example, Chevron in Columbia. Such occasions — generally announced by the media — apply weight on worldwide

Certified True Copy
Jagan

(51)

Data Security and its Measures: An Analytical Review

Charu Verma[a], *Renu Bagoria*[a]

[a]Department of Computer Science and Engineering, JagannathUniverstiy, Jaipur,India

ARTICLE INFO

Article history:
Received 29 January19
Received in revised form 13 March19
Accepted 04 April 19

Keywords:
Data Security
Attacks on Data Security
Authentication Types

ABSTRACT

Data security is primary issue of processing in light of the fact that numerous sorts of attacks are expanding step by step. The correspondence innovation is progressed in nowadays. Computerized Communication has turned out to be essential to verify the transmission of data among sender and recipient. Security is essential element for trade the data since it verifies the data from interlopers. This paper discusses the idea of data security, attacks and proportions of actualizing the data security..

© 2019ICACM. Hosting by SSRN. All rights reserved.
Peer review under responsibility of International Conference on Advancements in Computing & Management.

1. Introduction

Data security is the insurance of projects and data in PCs and correspondence frame-works against unapproved get to, adjustment, decimation, exposure or exchange whether coincidental or deliberate by structure physical plans and programming checks. It alludes to one side of people or associations to deny or confine the accumulation and utilization of data about unapproved get to. Data security requires framework supervisors to decrease unapproved access to the frameworks by structure physical courses of action and programming checks. [1]

Data security utilizes different strategies to ensure that the data is right, unique, pro-tected privately and is. It incorporates

- Guaranteeing the respectability of data.
- Guaranteeing the security of the data.
- Keep the misfortune or pulverization of data.

Data security thought includes the assurance of data against unapproved get to, change, decimation, misfortune, revelation or exchange whether unintentional or deliberate. [1]

2. Requirement for Security

Database security is the insurance of the database against purposeful and inadvertent dangers that might be PC based or non-PC based. Database security is the matter of the whole association as all individuals utilize the data held in the association's database and any misfortune or debasement to data would influence the everyday activity of the association and the execution of the general population. In this way, database security includes equipment, programming, foundation, individuals and data of the association.

- Privacy:A safe framework guarantees the classification of data. This implies it enables people to see just the data they should see. Classification has a few pers-pectives like protection of correspondences, secure capacity of touchy data, con-firmed clients and approval of clients. [2]
- Security of Communications: The DBMS ought to be equipped for controlling the spread of classified individual data, for example, wellbeing, work, and credit records. It ought to likewise keep the corporate data, for example, exchange in-sider facts, restrictive data about items and procedures, focused examinations, just as showcasing and deals plans secure and far from the unapproved individu-als. [2]
- Secure Storage of Sensitive Data: When secret data has been entered, its uprightness and security must be ensured on the databases and servers wherein it resides. [3]
- Validation:A standout amongst the most fundamental ideas in database security is confirmation, which is essentially the procedure by which it framework checks a client's personality, a client can react to a solicitation to verify by giving a proof of character, or a validation token [3].

3. Attacks on Security

The data attacks can be gathered into two noteworthy classifications specifically passive attacks and active attacks. Point by point portrayal of the two sorts of attacks is given beneath.

3.1 Passive attacks

The passive attacks shows no attempt of the data change , it is mainly for gaining the information residing on some system for this purpose the target system either scanned or monitor by the intruders. Examples of such attack are , message analysis , content analysis [4].

3.2 Active attacks

In active attacks the intruder tries to manipulate the system directly by entering some data directly into the main system. Another term which is used for identifying the active attacks is the hacking. Some of the examples of such type of attacks are Denial of Services, session replay etc.[4].

4. Authentication Concept

Authentication is the way toward building up or making access to PC arrange, making buys web based, exchanging accounts through bank site or maybe visiting web based life destinations include a technique called authentication; [5] defined, authentication as the way toward confirming the personality of a client, following the birthplaces of an occasion, or guaranteeing that the data originates from a confided in website. It is the demonstration of affirming reality or validity of a trait or element. It builds up the realness or demonstrates validity.

4.1 Token Based

The token based concept require the generation of the unique key combination for the authentication of the transaction or user. Such concept is used for the generation of the pin in case of ATM, Credit card transactions [6]

4.2 Biometric based

The biometric based authentication techniques make use of the finger prints, retina validations etc. concepts for authentication of the users. The devices like finger print scanners, retina scanners etc. are used for the same.[6]

4.3 Graphical Based

The graphical authentication requires the validation using the photos or images. The simple photo or image can be used for the validation or even the slicing of images; image arrangement can also be used. [6]

4.3.1 5x5 Bingo card scheme

The bingo cards scheme contains of the 5X5 card , it is one of the popular card game played in America. This game is played in the group. The total squares which are in the cards are 25 and the card itself will contain the 5 rows and the 5 columns.

The free space is in the center of the card. The code is created on the basis of the arrangement or the selection of the letter blocks. Due to number of movement or the number of selection options, this scheme provides the quite effective way of authentication mechanism. [7]

4.3.2 Entrust Grid card scheme

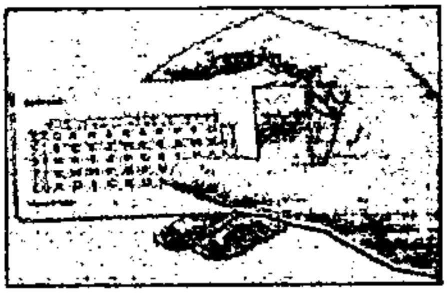
The Entrust-licensed network card is a Visa - measured authentication comprising of numbers and characters consecutively segment group. A client is given authentication pattern once when they sign in to a limited system, application, and also the cloud administration or site. The test gives the client arranges, for example, A2, A3 and E1. The client alludes to their one of a kind lattice card to give the data from the asked for cells: P52 (Fig 2).[7]

Certified True Copy

Jagan N Jaipu

B	I	N	G	O
11	27	38	60	64
5	28	34	48	74
1	24	■	59	65
2	20	42	50	70
14	30	43	54	68

Fig.- 1 5x5 Bingo Card Scheme



	A	B	C	D	E	F	G	H	I	J
1	H	R	W	0	②	S	T	0	D	F
2	Ⓟ	E	7	8	2	H	2	E	N	3
3	Ⓢ	P	1	X	K	H	9	4	⑦	Y
4	K	8	X	Q	S	J	C	2	F	C
5	H	0	T	K	M	T	C	T	0	R

Fig- 2 Entrust Card Scheme

5. Literature Survey

S. Agarwal et. al 2016 , proposed the graphical plus a text based secure authentication scheme which can be used in ATM , or in any other applications where the secure authentication is necessary. The proposed algorithm makes the users to select the 4 images which are to be matched at the time of the login and together with the session key. The session key is also generated on the basis of the selection of the images in the grid [11].

M. H. Zaki et. al 2017 , presented an algorithm for the secure authentication. The proposed algorithm works in the registration and the login phase. It consists of the 5X5 grids with the arrangement of the digits and forming the keys using the left and right dummy approach to form the key which is used for the authentication purpose [12].

P. S. S. Princes and J. Andrews , 2017 proposed a click or the point based password scheme by clicking on the particular pixel-points. The image is presented at the regis-tration phase and the user has to register its click points which are be later validated at the time of the login. The scheme proposed is innovative and can secure from various type of attacks to again unauthorized access [13].

6. Conclusion

The security is of utmost importance and protecting the data from the unauthorized access is its prime motive. In this paper the overall concept of the data security, attacks and various measures of implementing the security and authentication are discussed. Inspired by various works in the field of the graphical passwords, on which we have discussed in this paper , in the future in the main research work we also try to create some sort of the secure

Certified True Copy

Jagan Nath ... Jaipur

authentication concept using the flipping of the photos related to some actress, national leaders etc.. and associate with some information like birth date , name etc. to form some patterns which can be used for the password or OTP in authenticating the valid users..

REFERENCES

[1] Dr. Sandeep Tayal, Dr. Nipin Gupta, Dr. Pankaj Gupta,Deepak Goyal, Monika Goyal,"A Review paper on Network Security and Cryptography",Advances in Computational Sciences and Technology ,2017
[2] Er. Babita,Er. Gurjeet Kaur," A Review: - Network Security Based On Cryptography & Steganography Techniques",International Journal of Advanced Research in Computer Science,2017
[3] Marwa E. Saleh , Abdelmgeid A. Aly, Egypt Fatma A. Omara,"Data Security Using Cryp-tography and Steganography Techniques", International Journal of Advanced Computer Science and Applications, Vol. 7, No. 6, 2016
[4] Ruzaina Khan,Mohammad Hasan,"Network Threats, Attacks And Security Measures: A Review",International Journal of Advanced Research in Computer Science,2017
[5] Xiaoyuan Suo,Ying Zhu,G. Scott. Owen,"Graphical Passwords: A Survey",ACSAC,2005
[6] F. S. Roozbahani and R. Azad, "Security Solutions against Computer Networks Threats," Int. J, pp. 2576–2581, 2015.
[7] Benedicto B. Balilo Jr., Bobby D. Gerardo, Ruji P. Medina,"A comparative analysis and review of OTP Grid Authentication Scheme: Development of new scheme",International Journal of Scientific and Research Publications, Volume 7, Issue 11, 2017.
[8] S. Agrawal, A. Z. Ansari and M. S. Umar, "Multimedia graphical grid based text password authentication: For advanced users",International Conference on Wireless and Optical Communications Networks (WOCN), 2016.
[9] M. H. Zaki, A. Husain, M. S. Umar and M. H. Khan, "Secure pattern-key based password authentication scheme," International Conference on Multimedia, Signal Processing and Communication Technologies (IMPACT), 2017.
[10] P. S. S. Princes and J. Andrews, "Analysis of various authentication schemes for passwords using images to enhance network security through online services", International Conference on Information Communication and Embedded Systems (ICICES), 2017.
[11] Poonia, R. C. (2018). Internet of Things (IoT) Security Challenges. In Handbook of e-Business Security (pp. 191-223). Auerbach Publications.
[12] Arora, A. S., Raja, L., & Bahl, B. (2018). Data Centric Security Approach: A Way to Achieve Security & Privacy in Cloud Computing.
[13] Gupta, S., Poonia, R. C., Singh, V., & Raja, L. (2019). Tier Application in Multi-Cloud Databases to Improve Security and Service Availability. In Handbook of Research on Cloud Computing and Big Data Applications in IoT (pp. 82-93). IGI Global.

Certified True Copy
Jagan Nath [illegible] Jaipur

53

Design and Simulation of Piezoelectric Bimorph Cantilever Beam

Mr. Nitesh Kumar Dixit[a],*Mr. Amit Kumar Saraf*[b],*Dr. Mahendra Pratap Singh*[c]

[a]*Department of Electrical Engineering BIET, Sikar, India*
[b]*Department of Mechanical Engg, Jagannath University, Jaipur , India*
[c]*Department of Mechanical Engg, JECRC, Jaipur, India*

ARTICLE INFO

Article history:
Received 29 January19
Received in revised form 02 March19
Accepted 03 April 19

Keywords:
Piezoelectric
Bimorph
Comsol
Resonant
Frequency

ABSTRACT

This paper discusses the design and simulation of cantilever beams for mechanical vibration power. On this paper an optimal power output is configured in a biomorphic cantilever beam configuration for the single piezoelectric substances. The structure of the beam modeled in COMSOL 5.1. The LZT (PZT-5A) material used and the size taken as 21x0.14mm in case of active bimorph layers and in case of structural steel the size taken as 21x0.16mm. This cantilever structure produces a max. power of 1mw, and 5.39V at a resistive load of 12k at resonating frequency of 75.5 Hz with an acceleration of 1 g (g = 9.81 m /s2). In the area of the MEMS sensors and WiFi networks, this power harvesting machine can be used for many purposes.

© 2019ICACM. Hosting by SSRN. All rights reserved.
Peer review under responsibility of International Conference on Advancements in Computing & Management.

1. Introduction

The traditional energy sources of the battery have a few drawbacks because of their increased quantity and a reduced lifetime (D. Shen, J.-H. Park,2009), (F. F. Zulkifli, J. Sampe,2015). To minimize the energy problems, harvesting energy from renewable from environmental sources, including wind, solar, geothermal and mate, is an attractive way of extracting energy (N. A. A. Semsudin, J. Sampe,2015). In addition, for many apps, mechanical vibrations can be recycled to produce electricity (N. V. Lavrik, M. J. Sepaniak ,2014),(Y. Song, C. H. Yang ,2016). Efficiently converting vibration energy into electrical power, vibration mounted energy harvesters employ three electric transductor methods: electrostatic, electromagnetic and piezoelectric (D. Shen, J.-H. Park,2009), (M. Bhuyan, B. Majlis,2013)- (L.-j. Gong, X. Shen). The simple setup and the greater conversion efficiency have given piezoelectric transductors a great deal of concern among those techniques (J. C. Park, J. Y. Park 2010), (Md. Naim Uddin, Md. Shabiul Islam,2016). In piezoelectric transduction, there are some piezoelectric substances namely Lead Zirconate Titanate (PZT), Polyvinylidene Fluoride (PVDF), (D. Vatansever, R. dimani,2011). Aluminium nitride (AlN) (Y. Jiang, S. Shiono2010). While the piezoelectric materials have fallen short of the mechanical force, then power can be produced and vice versa, as shown in Fig. 1 (C.-Y. Sue, and N.-C. Tsai,2012)

Mechanic vibration atmospheric resources provide frequency reduction (< 1000 Hz). Thus, the resonant frequency of piezoelectric energy harvesters should be much less than the range, so that one can use ambience vibration properly.moreover,(S. Roundy, and P. K. Wright,2004) most energy can be harvested efficiently while strength harvester pushed at the resonant frequency (J.-Q. Liu, Hua-Bin Xu). Because of flexibility, reduced resonance frequency and over-stress generation, the cantilever beam structure is more favorite than former researchers (Williams, C. B,1995). Energy density was demonstrated to decline while the frequency of resonance is different from the frequency of vibration. Frequency ranges from 60Hz to 200Hz for common environmental vibration. (Williams, C. B,1995). Moreover acceleration decreases with better modes of frequencies.

2. Theoretical Background

The piezoelectric effect is an embedded mechanical electricity conversion incorporated into electricity right away. As piezoelectric matter is deformed, voltage is generated throughout the substances. These substances may be modeled by the next equations in terms of mechanical and electrical behavior (IEEE Standard,1983).

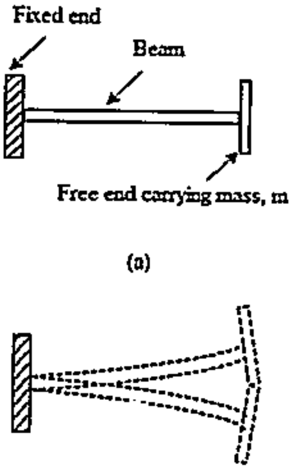
Certified True Copy
Jagan Na[illegible] Jaipur

Lead Zirconate Titanate (PZT-5A) characteristics can be defined as matrices such as coupling, compliance and primitive. The connection between strain and stress is described by the matrix of conformity in eq* 3. The matrix of coupling can have of some of the real global characteristics of the scheme eq* 4 and relative permittivity eq* 5.

Piezoelectric materials are polarized and therefore respond to stresses integrated into the direction in an integrated manner. Electromechanical couples for piezoelectric products are incorporated in main modes : The integrated 3-1 mode of integrated electrical disciple is produced on an orthogonal-axis axis with the built-in pressure axis and The embedded 3-3 mode of the built-in electrical carrier is generated at the same axis as the embedded one Ye (Zhang and C S Cai,2012). The modes 3-1 are used on this document for voltage technology because of embedded connection with the piezoelectric material Lead Zirconate Titanate (PZT-5A). The beam modus relies on distinct resonant frequencies, because it also differs between beam deflection and induced voltages (Shaker F.J.,,1968).

The first end of the beam is fixed and the second end is free. (Leea S.Y., Linb,2004). The mass tip has been added to the comprehensive structure of the open ends as indicated in figure 1(a) and bending beam as illustrated in figure 1(b). Here CB stands for Cantilever Beam.

The proportion of Poisson and Youth modulus were immediately linked to modifications in material pressure. The resonating frequency does not rely on piezoelectric device density and is therefore presumed to be constant, i.e. 0.04μm. The system's essential, circular natural frequency is indicated as equation no 9 and 10



(a)

(b)

Fig. 1 - (a) Basic Structure of CB (b) Beam Vibrating.

3. Equations

Equations and formulae should be typed in Mathtype, and numbered consecutively with Arabic numerals in parentheses on the right hand side of the page (referred to explicitly in the text). They should also be separated from the surrounding text by one space.

$$S = s^{E}.T + dt.\mathrm{E} \qquad (1)$$

$$D = dt.T + e^{T}.E \qquad (2)$$

Certified True Copy
Jagan N... Jaipur

$$S_E=\begin{bmatrix}16.4 & -5.74 & -7.22 & 0 & 0 & 0\\ -5.74 & 16.4 & -7.22 & 0 & 0 & 0\\ -7.22 & -7.22 & 18.8 & 0 & 0 & 0\\ 0 & 0 & 0 & 47.5 & 0 & 0\\ 0 & 0 & 0 & 0 & 47.5 & 0\\ 0 & 0 & 0 & 0 & 0 & 44.3\end{bmatrix} \tag{3}$$

$$d=\begin{bmatrix}0 & 0 & 0 & 0 & 584 & 0\\ 0 & 0 & 0 & 584 & 0 & 0\\ -171 & -171 & 374 & 0 & 0 & 0\end{bmatrix}\bullet 10^{-12}\frac{C}{N} \tag{4}$$

$$\frac{\varepsilon_T}{\varepsilon_0}=\begin{bmatrix}1730 & 0 & 0\\ 0 & 1730 & 0\\ 0 & 0 & 1730\end{bmatrix}\frac{F}{m} \tag{5}$$

$$m\ddot{y}(t)+ky(t)=0 \tag{6}$$

$$k=\frac{3EI}{I^3} \tag{7}$$

$$I=\frac{bd^3}{12} \tag{8}$$

$$\omega_n=\sqrt{k/\mathrm{m}} \tag{9}$$

$$\omega_n=\sqrt{3\,\mathrm{EI}/\,\mathrm{mm}^3} \tag{10}$$

4. Finite Element Modeling

The COMSOL Metaphysics has become used in this paper to simulate. COMSOL provides a platform for assessment on extraordinary streams of physics. COMSOL simulation involves a number of steps, including the physics, geometry definition and substances determination, the physics establishment, meshing, simulation and impact assessment. The mechanical structures must be chosen according to the method for the cantilever described. Static word is used here for the stationary and dynamic word is used for frequency analysis.

A cantilever is a handsome mechanical structure that can easily individually fasten. The sensor can also be used as simpler sensor, whereas the ground is covered with a unique sensor layer. As with the lifting structure, a 2-D rectangular cantilever device has been intended to add constraints.

Certified True Copy
Registrar
Jagan Nath University, Jaipur

Both the layers of CB are made from the substance (Lead zirconate titanate, PZT-5A) and SS is used for the medial layer of CB structure. Here the dimensions of the CB are taken as 21x0.14mm and 21x0.16 mm. The properties of CB are as per table I. The material PZT 5A is longer, more sensitive and allowable than other materials in PZT 5A. The mass tip is also composed of a 4x1.7 mm dimensional stainless steel material as indicated in figure 2.

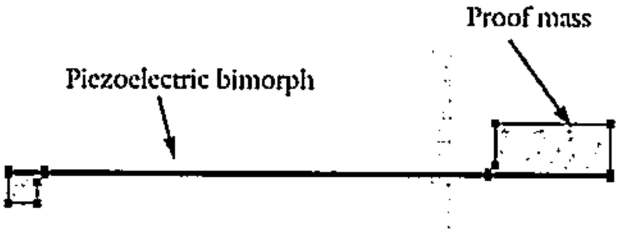


Figure 2: Geometry of CB

Solid mechanisms, electrostatics and electric circuit physics are coupled and modelled for beam structure examines. For mode analyzing and resistive load of 12kΩ, energy assessment has been applied to a low frequency of 60 Hz to 90 Hz in solid mechanics with accelerations of 1 g. The mesh was distributed in active layers and on top of mass was the triangular mesh as shown in Figure 3

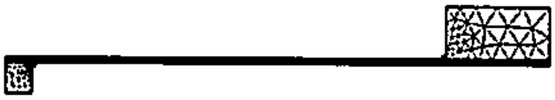


Figure 3: Meshed CB in distributed and Triangular form

Table 1- Material Properties of CB

Properties	Material	
	PZT 5A	Structural Steel
Density (kg/m3)	7750	7850
Young's modulus (GPa)	72	200
Poisson's ratio	0.31	0.33

5. Simulation Result

The aftereffect of the model recreation is broke down by a sinusoidal increasing speed, and the power yield is evaluated by the recurrence, the quickening and the heap impedance. The physical electrostatic and electric circuit applied to the calculation of electricity and voltage. PZT 5A's restriction layers set as a terminal outputs and structural steel limits as the grounds. 12kΩ load resistance connected to the output terminal. As expands the quickening voltage

Certified True Copy
Jagan N[illegible] Jaipur

produced crosswise over piezoelectric additionally increment, at 75.5Hz gadget created 5.39V as appeared in figure 4 and figure 5 shows pillar worry at 75.5 Hz.

The voltage caused by distinct charges at varying acceleration is shown in Figure 6. Maximum power output of 1mw at 75.5 Hz with a 1 g acceleration as illustrated in log figure and caused voltage at various load frequencies 12k total referred to in Table II

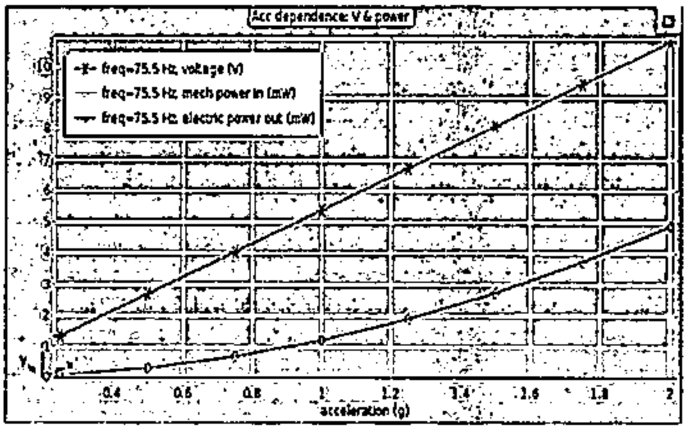


Fig.4: Graph bw Acc. Depen. And Power Output

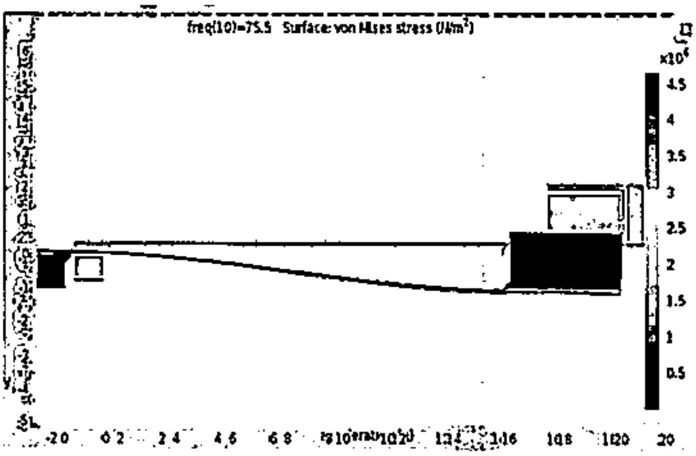


Fig.5:BeamStress at 75.5 Hertz

Jagan [illegible] Jaipur

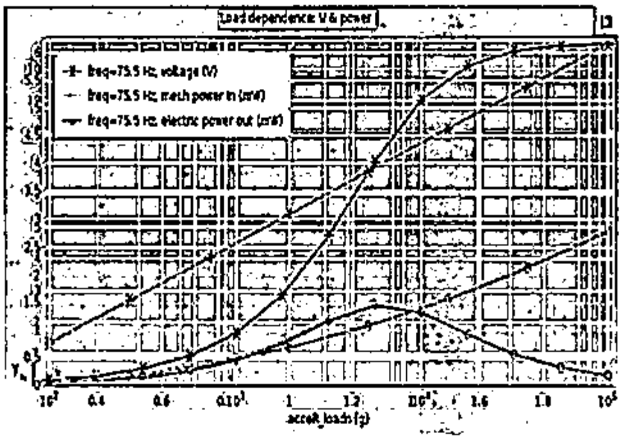


Figure 6: Load dependence Voltage and Poutput

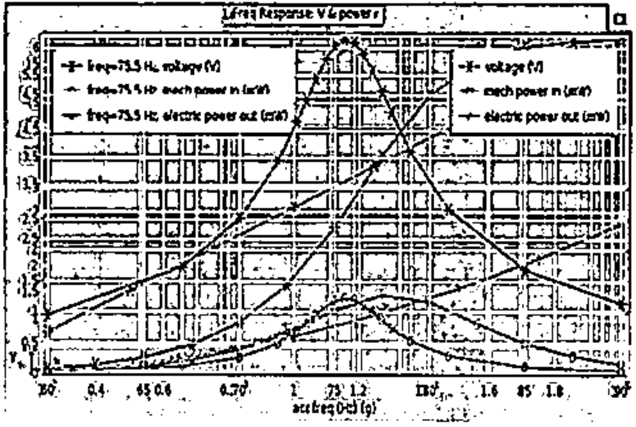


Figure7: Frequency response Voltage and Poutput

Table2- Frequency V/s Induced Voltage

Frequency	Induced Voltage
60	0.950465509
70	2.514654281
73.5	4.425365757
74	4.770192828
74.5	5.075833604
75	5.298437259
75.5	5.395089267
76	5.347428316
76.5	5.166111431
77	4.89224687
77.5	4.56555595
81	2.658883025
85	1.686523336
90	1.144073085

Certified True Copy
Jagan [illegible] Jaipur

6. Conclusion

This works describes how the piezoelectric power generator is modeled and simulated at the micro level. Mechanically vibrating systems were examined for their electrical and mechanical properties. Due to the highest power output of 1mW and 5.39V was achieved with a load resistance of 12kΩ at the 75,5Hz resonance frequency with vibrating 1 g acceleration, beam displacement and stress. With an expanding weight tip and increasing vibratory energy or acceleration, the output power improves. But harvesters in a stable condition can hardly influence energy production, the weight tip and the speed of vibration. The highest tip of mass absorbed beam energy. In order to improve output energy, various beams in series must be connected

REFERENCES

D. Shen, J.-H. Park, J. H. Noh, S.-Y. Choe, S.-H. Kim, H. C. Wikle, and D.-J. Kim, "Micromachined PZT cantilever based on SOI structure for low frequency vibration energy harvesting," Sensors and actuators A: physical, vol. 154, no. 1, pp. 103-108, 2009.

F. F. Zulkifli, J. Sampe, M. S. Islam, and M. A. Mohamed, "Architecture of Ultra Low Power Micro Energy Harvester Using RF Signal for Health Care Monitoring System: A Review," American Journal of Applied Sciences, vol. 12, no. 5, pp. 335, 2015.

N. A. A. Semsudin, J. Sampe, M. S. Islam, M. Zain, and A. Rifqi, "Architecture of ultra-low-power micro energy harvester using hybrid input for biomedical devices," Asian Journal of Scientific Research, vol. 8, no. 2, pp. 212-224, 2015.

N. V. Lavrik, M. J. Sepaniak, and P. G. Datskos, "Cantilever transducers as a platform for chemical and biological sensors," Review of scientific instruments, vol. 75, no. 7, pp. 2229-2253, 2004.

Y. Jiang, S. Shiono, H. Hamada, T. Fujita, K. Higuchi, and K. Maenaka, "Low-frequency energy harvesting using a laminated PVDF cantilever with a magnetic mass," Power MEMS, vol. 375378, 2010.

S. Roundy, and P. K. Wright, "A piezoelectric vibration based generator for wireless electronics," Smart Materials and structures, vol. 13, no. 5, pp. 1131, 2004.

Y. Song, C. H. Yang, S. K. Hong, S. J. Hwang, J. H. Kim, J. Y. Choi, S. K. Ryu, and T. H. Sung, "Road energy harvester designed as a macropower source using the piezoelectric effect," International Journal of Hydrogen Energy, 2016.

M. Bhuyan, B. Majlis, M. Othman, S. H. M. Ali, C. Kalaivani, and S. Islam, "Development of a Fluid Actuated Piezoelectric Micro Energy Harvester: Finite Element Modeling Simulation and Analysis," Asian Journal of Scientific Research, vol. 6, no. 4, pp. 691, 2013.

M. Bhuyan, B. Majlis, M. Othman, S. H. M. Ali, C. Kalaivani, and S. Islam, "Bluff Body Fluid Interactions Modelling for Micro Energy Harvesting Application." p. 012024.

M. Bhuyan, B. Majlis, M. Othman, S. H. M. Ali, and S. Islam, "Finite Element Analysis of a Fluid Flow Based Micro Energy Harvester," Research Journal of Applied Sciences, vol. 8, no. 10, pp. 507-515, 2013.

L.-j. Gong, X. Shen, and J.-q. Li, "Experimental investigation of energy harvesting from triple-layer piezoelectric bender." pp. 1-6.

J. C. Park, J. Y. Park, and Y.-P. Lee, "Modeling and characterization of piezoelectric-mode MEMS energy harvester," Journal of Microelectromechanical Systems, vol. 19, no. 5, pp. 1215-1222, 2010.

Md. Naim Uddin, Md. Shabiul Islam, J. Sampe, and M. S. Bhuyan, "Modeling of MEMS Based Piezoelectric Cantilever Design Using Flow Induced Vibration for Low Power Micro Generator: A Review," Asian Journal of Scientific Research, vol. 9, no. 2, pp. 71-81, March 15, 2016.

D. Vatansever, R. Hadimani, T. Shah, and E. Siores, "An investigation of energy harvesting from renewable sources with PVDF and PZT," Smart Materials and Structures, vol. 20, no. 5, pp. 055019, 2011.

C.-Y. Sue, and N.-C. Tsai, "Human powered MEMS-based energy harvest devices," Applied Energy, vol. 93, pp. 390-403, 2012.

J.-Q. Liu, Hua-Bin Xu, Zheng-Yi Mao, Xin-Hui Shen, Xiu-Cheng Chen, Di Liao, Hang Cai, Bing-Chu, "A MEMS-based piezoelectric power.

Williams, C. B. and Yates, R. B., Analysis of a micro-electric generator for Microsystems, Transducers 95 Eurosensors IX, pp. 369-72, 1995,"IEEE Standard on Piezoelectricity, Standards Committee of the IEEE Ultrasonics," 1987.

Ye Zhang and C S Cai, A retrofitted energy harvester for low frequency vibrations, Smart Materials and Structures 21 (2012) 075007

Shaker F.J, "Method of calculating the normal modes and Frequencies of a branched timoshenko beam", National Aeronautics and Space Administration, Washington, D. C., May 1968.

Leea S.Y., Linb S. M., Wua C.T., "Free vibration of a rotating non-uniform beam with arbitrary pretwist an elastically restrained root and a tip mass",Journal of Sound and Vibration 273, 477–492, 2004.

Certified True Copy
Jagan N[illegible] Jaipur

Design & Analysis of Plastic Hanger Component using Mold Flow Software

[a]Khushboo Dadhich, [b]Avinash NathTiwari

[a]MTech Scholar, Jagannath University, Jaipur, India.[b]Assistant Professor, Jagannath University, Jaipur, India

ARTICLE INFO

Article history:
Received 01 March 19
Received in revised form 11 March 19
Accepted 03 April 19

Keywords:
Injection Moulding,
Mold Flow Analysis,
Computer Aided Design,
3d; Parametric Design

ABSTRACT

Paper represents the design of HANGER which is in plastic form. In this design we use injection mould for making plastic product. In market and industries plastic demand is very high. Each and every product is made by plastic material in this world. There are various techniques for manufacturing the plastic products according to the market requirement. So as per the topic which is named as plastic advanced "HANGER" for this there is an technique which is Injection Molding machine process. This technology is belongs to making mold & manufacturing of different kind of shapes with proper accuracy. So this process is most important for manufacturing the plastic product parts by using forcing method for melt the plastic into mold cavity & then its cooling process for developed specific or can say particular plastic shape.

So the requirements for making different type of plastic products we use various advance technologies like CAD/CAM/CAE. The paper defines the design and analysis of HANGER component. Basically we all know Hanger is used to hang the clothes, accessories and other ornament and any kind of things. Create a new model of Hanger that is easily movable, easily rotate, specify extra space in an common space and to fulfill current market and human being needs. So for all these techniques we use mold flow software and make a perfect 3D model of the component. This software is more powerful for simulation and analysis for a component and also locates the defect in a product. So with the help of this software, the "HANGER" can be easily moved because its size and weight.

© 2019ICACM Hosting by SSRN. All rights reserved.

Peer review under responsibility of International Conference on Advancements in Computing & Management.

1. INTRODUCTION

This project purpose is to design and analysis of a plastic HANGER using Mold FLOW SOFTWARE. So the plastic component is "ADVANCED HANGER". I need to create a clothes hanger that is easy to bring anywhere and easy to store, nowadays people having problem to store and carry the clothes hanger. Not for clothes, some other home appliances. So I need to design that type of plastic hanger which is easily movable. The most important thing in our routine life is our wardrobe maintenance. We just compile our clothes and other accessories in aesthetic way. Hangers always join your hands to keep our closet as desire. Especially plastic hangers are easy to store, durable, easily manageable and maintainable. According to requirements there are many kind of Hangers manufactured in market for uses in your residential work.

So, let's we know about plastics Now a day's demand of plastics products as compared to other material product is very high. Because of plastic product quality, durability is good. There are different types of mold techniques which is manufacturing the plastic product parts mold. Such techniques are blow molding, rotational molding, compression molding. Each and every plastic process technologies has their own advantages in the machining time. So there is one technology which is injection molding process that is used to makes lots of product item is an rapid rate, according to this process per part cost is low and cheap. This project involves the design of the hanger with a specification regarding strength, material and cost.

As compare to the old engineers, new generation design engineer require different kind of software for analysis and optimize injection moulding process in different way one of is change the parameters to reduce cycle time. New development of CAD/CAM/CAE technology mainly in mold flow analysis, in this case mould trails in numbers can be reducing to achieve good quality of product. In this project mold flow design and analysis for plastic HANGER in high end software, and performed on plastic component for verify molding defects & reduced the time and expenses.

So, in Polypropylene plastic -; Polypropylene is one of the more commonly used injection molding resins for a reason: It's extremely versatile and has a number of applications for which it's suited. In addition, polypropylene injection molding parameters, such as melt temperature and viscosity, lend themselves to relatively easy, cost-effective production in a wide range of uses. This is all about why we choose PP plastic in injection moulding process.

Material and Properties

PP- Polypropylene
This is a tough and rigid material, which is used in crystalline thermoplastic for produced from propene monomer. This is a linear hydrocarbon resin. Chemically it is explained in an formula i.e. is $(C_3H_6)_n$. Now a days PP is the cheapest plastics as compared to the other plastic materials.

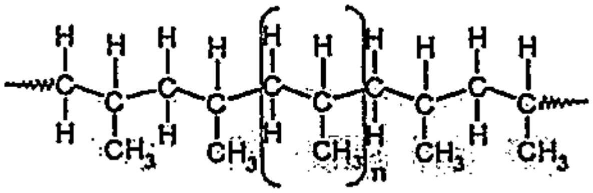


Fig.1 – (a) Molecular Structure of Polypropylene

This material related to polyolefin family of polymers. The applications of PP in plastic as well as fiber also:-

- Industry of Automobile
- Industrial Fields
- Consumer Goods, and
- Availability of Furniture in Market

Polypropylene material Properties:-

1. Melting Point of Polypropylene in an range.
    - Homopolymer: 160 - 165°C
    - Copolymer: 135 - 159°C

2. Density of Polypropylene plastic material light why because this material among from all plastic material is light in weight. There are some density values which is shown below:-
    - Homopolymer : 0.904 – 0.908 g/cm3
    - Random Copolymer: 0.904 – 0.908 g/cm3
    - Impact Copolymer: 0.898 – 0.900 g/cm3

3. Polypropylene Chemical Resistance is excellent to diluted & concentrated acids, alcohols bases.
4. Flammability of Polypropylene is high in flammable material
5. PP retains mechanical & electrical properties at elevated temperatures, in humid conditions and when submersed in water. It is a water-repellent plastic
6. This is good in environment stress & cracking.
7. It is sensitive to microbial attacks (bacteria, mold)
8. Have good resistance to steam sterilization.

Polypropylene properties with Values Parameters

Table 1 –

S.no.	Parameter	Property	Values
1.	Stability of Dimension	Coefficient of Linear Thermal Expansion	6 - 17 x 10-5 /°C
2.		Shrinkage	1 - 3%
3		Water Absorption 24 hours	0.01 - 0.1%

Table 2 –

S.no.	Parameter	Property	Values
1.	Mechanical Properties	Elongation at Break	150 - 600%
2		Modulus of flexibility	1.2 - 1.6 GPa
3		Izod & Impact toughness at room temperature	20 - 60 J/m
4.		Young Modulus	1.1 - 1.6 GPa

Table 3 –

S.no.	Parameter	Property	Values
1.	Physical Properties	Density	0.9 - 0.91 g/cm3
2.		Thermal Conductivity	0.15 - 0.21 W/m.K

2. Literature Review

[1]This project plays a important role in plastic, because now a days in our residential as well as commercial level each and every product is in plastic material. Plastics give more reliability, durability to the product. Or other prospective view manufacturing of the plastic by Injection Molding machine, In the field of mold flow analysis software injection molding importance is very high. By this the process reduces the time, cost & productivity. As we study about the project topic mold flow analysis software will play a vital role. Which will include the study of various parameters such as, Gate location analysis, Fill time Analysis, shrinkage analysis, Wrapage analysis, etc.

[2]Current days, the world is habitual or can say involved/ centered for using more plastics and it has become's human internal body parts and in their life. Mostly a country will grow is only depends on the sale of plastic product and in our home and household appliances are not to work without plastics.

[3]Once we discarded the plastic products growth, the materials are centuries to break down. They clogged up with waste material plastics. By waste material low plastic bottles, polybags and packaging and other plastic refuse and recycling into new goods which is helps the environment and creates a good economic opportunities. Plastics' recycling keeps still-useful materials out of landfills and encourages businesses to develop new and innovative products made from them.

[4] For example for startup a new mold design, the designer should know about so important factors to avoid mistakes before going further i.e.- outlook design of an product uses of material, shrinkage of the material, number of cavities and mold base selection. In injection moulding, there is an optimum gate size and it should large enough for suitable fill rate and small enough seal off and prevent back flow or over packing.

[5]. For a product design there is a CAD/CAM design engineer help to speed up design for the plastic part mold flow process and reduces long lead time. The introduction of simulation software has made a significant impact in the injection moulding industry. With the increasing use of computers in design engineering, the amount of commercially available software on the market has also increased.

[6]. By these simulation process traditional trails runs on the production floor can be replaced easily by less cost of computers. Now a days the research for injection molding process has developed as compared to previous environment a lot CAD/CAE tools are used to produce an optimal mould gating design

[7]. The mould flow analysis software helps in reduced cost and time and also less the defects occurring in the process.

2.1. *Burden on the Environment:-*

Every product or material is one good quality on the same manner one drawback also. Some for plastic is goods are useful because its properties and durability but this becomes disadvantages, when items are not fulfill the industry demand. The natural process to destroy the plastic papers, cardboard & wood products in a few months doesn't affect plastic materials as well. In nature plastics bits and tiny pieces become unsightly and unhygienic hazards to animals.

2.2. *Innovative Uses:-*

So all of this the HANGERS are basically newly innovative based design concept, which use for hang-up the clothes and in this project add more hangers in a one single rod. And the upper part is movable part by this move your hangers easily.

3. Methodology

Methodology can be explained by flow chart:-

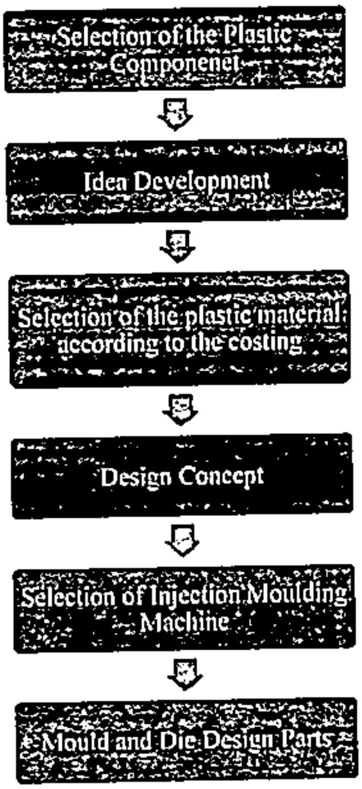

Selection of the Plastic Componenet
Idea Development
Selection of the plastic material according to the costing
Design Concept
Selection of Injection Moulding Machine
Mould and Die Design Parts

Fig.2 – (b) Methodology flow chart

According to the flow chart of the Methodology firstly choose the plastic product that is HANGER.

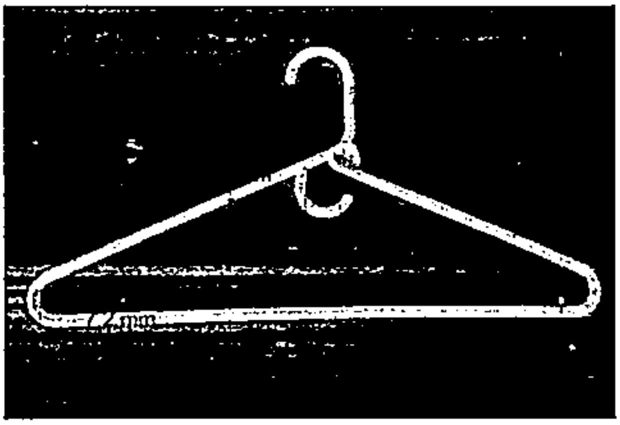


Fig.3 (c) This diagram shows basic dimensions of HANGER in mm.

Now next is Idea Development or can say modified advanced HANGER which is used in daily routine life. So according to the development designed a clothes hanger that is easy to bring anywhere and easy to store, nowadays people having problem to store and carry the clothes hanger. Not for clothes, some other home appliances. Human shoulders designed to facilitate the hanging of a coat, jacket, sweater, shirt, blouse or dress in a manner that prevents wrinkles, with a lower bar for the hanging of trousers or skirts. So, for all these factors I used to design such kind of Hanger which is easily movable and rotational also.

Now next selection of the Plastic material i.e. Polyproplene (PP), according to the cost as we discussed above this type of plastic as much cheaper than the others plastic materials.

Next is Design Concept of the Advanced HANGER. For design procedure we go through the Computer Aided Design (CAD) is also known as computer aided design & drafting is used for design a product with proper dimension and proper layout by help with computer technology. Softwares which are used in this design concept that is; AutoCAD, PROE, CATIA such kind of high end softwares

Design of the HANGER in 2-D as well as 3-D also.

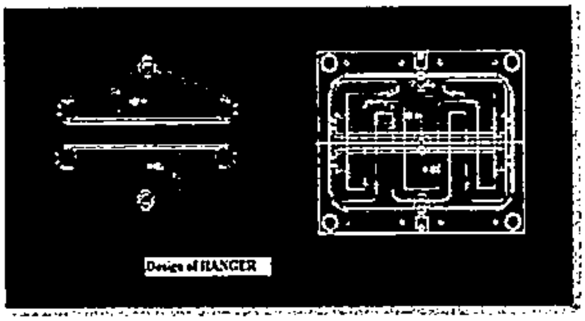


Fig.4 (d) 2-D View of HANGER

3.1 Modified and part Assembly Designs;-

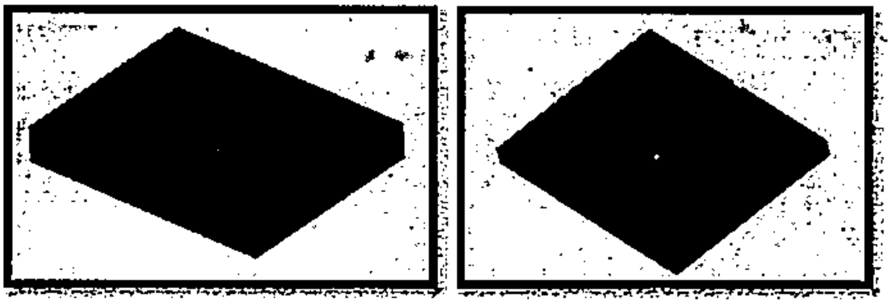


Fig.4 - (a) Assembly Design; (b) Main Cavity Design-1

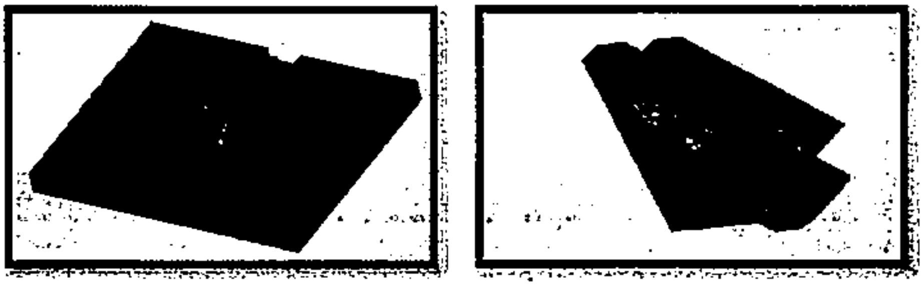


Fig.5 - (a) Main Cavity Design-2; (b) Heel Block

- **Cavity Parts;-**

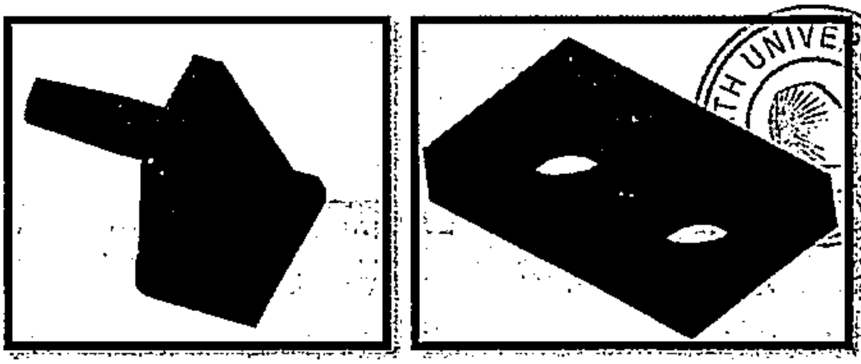


Fig.6 - (a) SIDE CORE; (b) WEAR PLATE

Certified True Copy
Registrar
Jagan Nath University, Jaipur

- **Modified Assembly Design;- (In CREO PARAMETRIC SOFTWARE)**

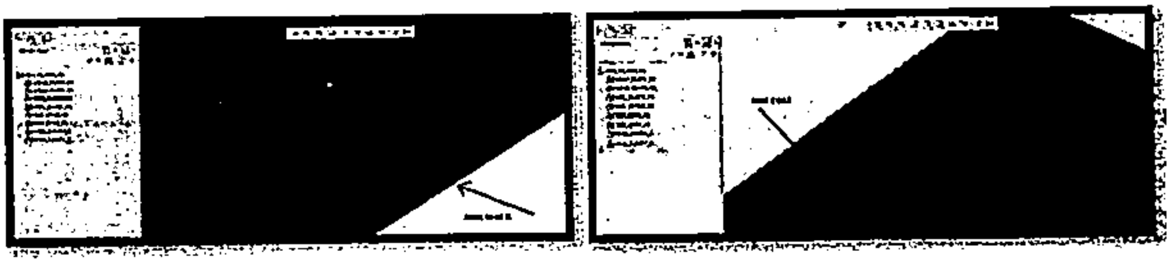


Fig.7 - (a) & (b)

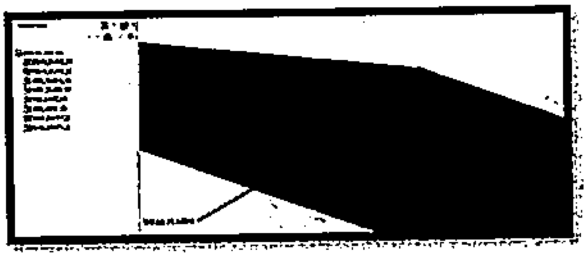


Fig.8

- **Updated Assembled Design;-**

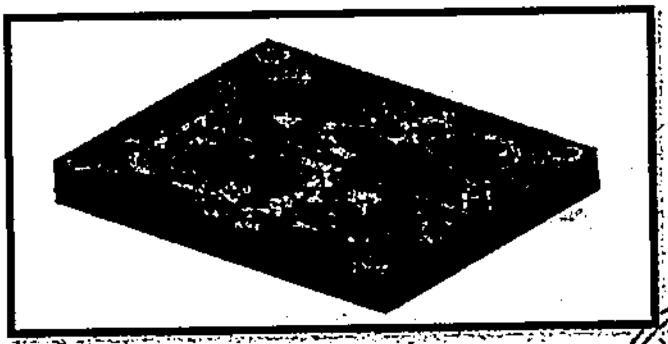


Fig.9

3.2 Now next selection of Injection Molding Machine;-

- Model Name:- TOSHIBA Machine's

it is essential to design the mould with the machine requirements and capacity of the machine. Before mould design is commenced, it is necessary to determine the press capacity that will be required for successful operation. The essential considerations are shot capacity, plasticizing rate, clamping force, injection pressure.

Certified True Copy

Jagannath University, Jaipur

Parameters of Injection Molding machine during product production-

1. Clamping Force - 120 TR
2. Cooling - Normal (35 sec)
3. Cycle Time :- 55-60 sec
4. Component Weight:- 112 gram for both cavity
5. Filling Pressure:- 600 bar
6. Filling Speed:- 25
7. Filling Time:- 3 sec
8. Holding Pressure:- 500 bar
9. Holding Speed :- 20
10. Holding Time:- 5 sec

Behalf all of these design procedure the product is produced in as the diagram shows:-

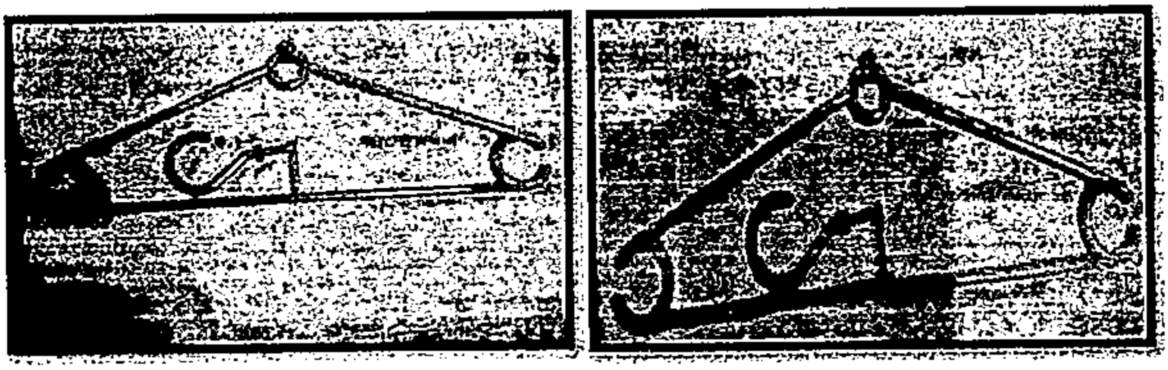


Fig.10 - (a) Shows the actual designed product of HANGER

4. Conclusion

In my project I have modeled a rotating HANGER in PROE (Creo) Parametric Software. The manufacturing process for HANGER is Injection Moulding. I have designed tool cavity parts and whole assembly for the product under the guidance of expert. The work in progress done according to the guidance but the analysis part is not done. The analysis is done by Mold Flow software; it will take time so this paper is a review paper. With this people use in an daily routine life, as well as light weight of this HANGER easy to place anywhere. The costing of the product is cheap because of the plastic material which is in used.

REFERENCES

Auto desk Mold-Flow Insight material data warehouse.
J.A. Brydson, Plastic materials, British Catalogingsixth edition, 1995, Butterworth Heinemann Ltd. [2]. Bown, J. "Injection-Moulding of Plastic Components", McGraw-Hill, 1979.

Manzione, L.T., Applications of Computer Aided Engineering in Injection Moulding,Hanser,New York, 1987.

Jagannath Rao M B, Dr. Ramni "Analysis ofPlastic Flow in Two Plate Multi Cavity InjectionMold for Plastic Component for Pump Seal"International Journal of Scientific and Research Publications, Volume 3, Issue 8, August 2013 ISSN2250-3153

Chen, S. C. and Y. C. Chung (1994). "Numerical simulations of the cyclic, transient mold heat transfer in injection model cooling process". International Communications in Heat and Mass Transfer 21(3): 323- 332.

S H. Tang, Y M Kong, S.M Sapuan, R. Samin, S Sulaiman, "Design andthermal analysis of plastic injection mould Department of Mechanical andManufacturing Engineering", University Putra Malaysia, 43400 Serdang,Selangor. Malaysia June 2005

SanjayKNayak, PratapChand.aPadhi, Y. Hidayathullah, "Fundamentals of Plastics Mould Design", 2012, 2.1-2.124

R.G.W. Pye. Injection Mould Design and a Design manual for the Thermoplastic Industry.

Belofsky, H., Plastics: Product Design and Process Engineering, Hanser Publishers, Munich, Vienna, New York, 1995.

Saman, A M Abdullah, A.H, Nor, MAM Computer Simulation opportunity in Plastic Injection Mould Development for Automotive part.

Design Solutions Guide, http://www.honeywellplastics.com

A. Moammer and Dimitar Dimitrov (2011). Thermal Management of Moulds and Dies- A Contribution to Improved Design and Manufacture of Tooling for Injection Moulding.

Williams AR. Tire Design. CHEMTECH 1984;14(12):756-764

Hutchinson H. Tire maker outsources CAD/CAM support. Mechanical Engineering 1999;121(4):14-18

Jay Shoemaker, "MoldFlow Design Guide A resources for Plastics Engineers", 2006,141-200

Certified True Copy
Jagan N[illegible] Jaipur

Benefits of Cloud Computing for Business Enterprises: A Review

Hukam Chand Saini[a], *Dr. Abhay Upadhyaya*[b], *Manish Kumar Khandelwal*[a]

[illegible] *University, Jaipur INDIA,* [illegible] *University, Jaipur INDIA*

ARTICLE INFO

[illegible]

ABSTRACT

[illegible]

© 2019 ICACM Hosting by SSRN [illegible]
[illegible] under responsibility of International Conference on Advancements in Computing & Management [illegible]

1. Introduction

[illegible]

2. Cloud Computing

[illegible]

Cerfified True Copy

Jagan Nath University, Jaipur

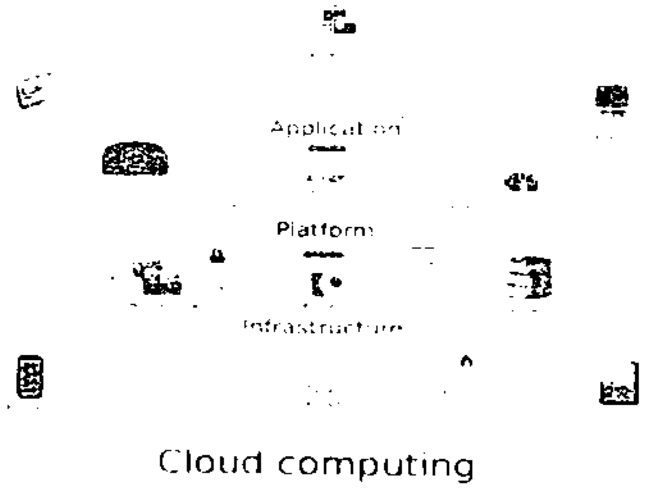

Application
Platform
Infrastructure
Cloud computing

Fig. 1 : Model of Cloud Computing Application

3. Evolution of Cloud Computing

[illegible]

4. Services of Cloud Computing

[illegible]

4.1. Software as a Service (SaaS)

[illegible]

4.2. Platform as a Service (SaaS)

[illegible] MySQL, PHP, [illegible]

Certified True Copy

Jagan N[illegible] Jaipur

4.3 *Infrastructure as a Service (SaaS)*

[illegible]

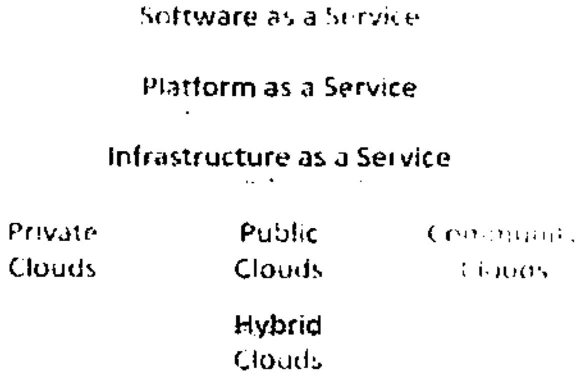

Software as a Service
Platform as a Service
Infrastructure as a Service
Private Clouds
Public Clouds
Community Clouds
Hybrid Clouds

Fig. 2 - Cloud computing service and deployment model.

[illegible]

5. Cloud Computing Benefits For Businesses

5.1. *Cost Saving*

[illegible]

5.2 *Enhanced Security*

[illegible]

5.3. *Backup and Recovery*

[illegible] [12].

5.4. Availability of Resources

The services on cloud are commonly accessible all day every day and open from various programs [illegible] Mozilla Firefox, [illegible] the work area, PC, Smartphone, iPad) in some random time zone. This gives colossal adaptability for everybody to lead their work. The [illegible] of the groups will profoundly rely upon the administrations given by the exceptionally solid systems and Internet [9].

5.5. Scalability

Cloud computing provides services as per demand of clients or businesses. It permits upscaling or downscaling the administrations as indicated by the [illegible] and regular spikes. Cloud gives the adaptable engineering your business needs [15]. The way that your business [illegible] it is essential to scale the business as it develops. It's handle expanded outstanding tasks at hand and satisfy the fluctuating [illegible] [20]. These varieties of cloud computing services give us adaptability.

5.6. Speed

In contrast to traditional IT projects cloud computing services can be provisioned with only a couple of hours' notice, as opposed to weeks or months.

5.7. Mobility

Cloud computing allows its customers to get products and services from anyplace and whenever through [illegible] to access the services through their smart phones and laptops [9]. And if business switches to another location [illegible] available without any efforts of transport.

5.8. Growth in core business

As the user does not having the need to set up and maintain IT infrastructure and services, it enables the organizations to [illegible] business [7]. This advantage of cloud can not only mean a substantial contribution to the growth and competitiveness of an organization but [illegible] the financial benefits it realizes.

5.9. Insight

[illegible] incorporated cloud analytics [illegible] bird's eye perspective [illegible] Success of a business depends on proper action plans based on proper analysis.

5.10. Resource Maximization

Cloud computing has reduce burden of IT resources to many companies and agencies by maximizing the resources from cloud [illegible] Cloud providers offering facility to meet any type of requirements. This is one of the exciting benefit of cloud computing.

5.11. Boosters for Small business

Many problems are solved by Cloud computing that faced by Small and medium enterprises in term of cost, usability, security, effectiveness [illegible] A small company can access the higher technology and on pay per use model. These small enterprises are offered with [illegible] around the globe and powerful computing resources whereas in the past only the large companies had such competitive edge [illegible]

6. Conclusion

[illegible] illustrated the benefits of the cloud computing for businesses. Cloud computing [illegible] problems and issues [illegible] enterprises. In this paper the review paper benefits of the cloud computing are illustrated. The benefits of the cloud computing are the [illegible] for the business as discussed in this paper and it is clear that cloud computing are essential in present era. It is suggesting you to adopt [illegible]

Certified True Copy

Jagan Nath U[illegible], Jaipur

computing services for businesses. Businesses that are integrated with cloud computing can sustain their competitive edge [illegible] technology. The emergence of cloud computing technology is creating a new service ecosystem.

References

[illegible] N. [illegible] (2016). Improvement of E-Commerce Quality through Cloud Computing Benefits. [illegible]

A[illegible] (2017). [illegible] Computing in Ecommerce. https://studylib.net/doc/8925442/ [illegible]

[illegible] (2015). Data security and Influence of Cloud Computing in Electronic Commerce Industry. International Journal of Computer Applications [illegible]

[illegible] Based on Cloud Computing E-commerce Model and [illegible] 85

[illegible] A Review Paper on Cloud Computing. International Journal of Advanced Research in Computer Science and Software Engineering [illegible]

R[illegible] Shareena Devi (2017). Survey of Security Issues in Cloud based E-Commerce. International Journal of Advanced Research in Computer Science and Software Engineering, 7(5), 823-827

[illegible] N. (2015). Cloud Computing for E-Commerce. IOSR Journal of Mobile Computing & Application [illegible] 27-[illegible]

Motahari N., Hamid, R., Stephenson, B., Singhal S. (2009). Outsourcing business to cloud computing [illegible] Computing. [illegible]

Abdulkader, S. J., Abualkishik, A. M. (2013). Cloud Computing and E-commerce in Small and Medium [illegible] Journal of Science and Research (IJSR) 2(12), 285-288

Marston, S., Li, Z., Bandyopadhyay, S., Zhang, J., & Ghalsasi, A. (2011). Cloud computing — The business perspective. Decision support systems, 51(1), 176-189. [illegible] W. [illegible] A critical review of cloud computing: researching [illegible]

Salesforce. https://www.salesforce.com/hk/technology/benefits-of-cloud

[illegible] (2010). Cloud Computing Benefits. SSRN [illegible]593

[illegible] (2014). Study on Cloud Computing Model and its Benefits, Challenges. International Journal of Innovative Research in Computer and Communication Engineering [illegible]

[illegible] Issues and Challenges in Cloud Computing. International Journal of Network Security & Its Applications [illegible]

[illegible] (2013). A Survey on Cloud Computing. International Journal of Advanced Research in Computer Science [illegible]

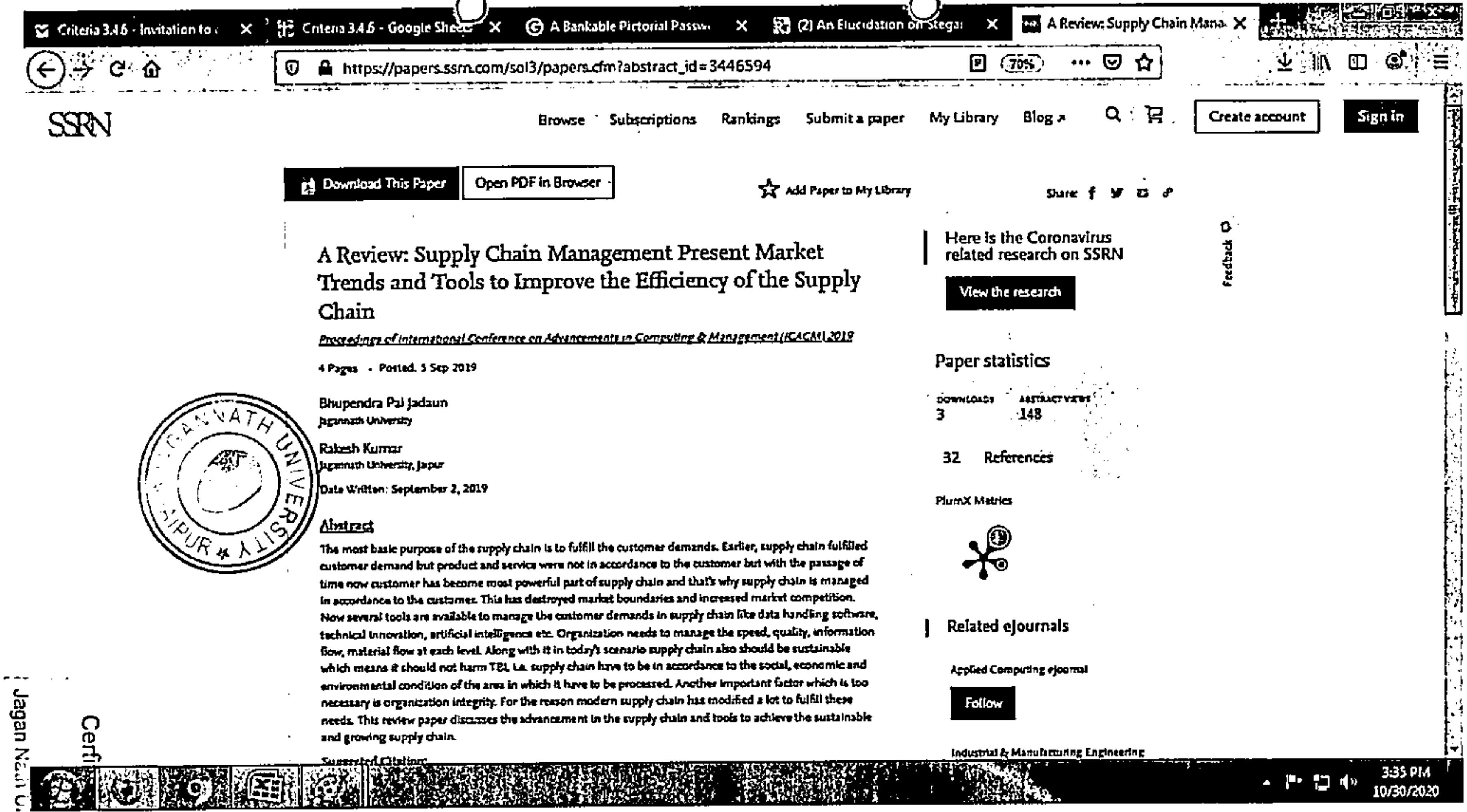
[illegible] Benefits and Security Challenges of Cloud Computing. International [illegible]

[illegible] (2016). Data security, privacy, availability and integrity in cloud computing: issues [illegible] Computer Science and Applications, 7(4), 485-498

[illegible] V. (2016). Brief Review on Cloud Computing. International Journal of Computer Science and Mobile Computing, 5(9), 01-05

IBM [illegible] www.ibm.com/cloud/learn/benefits-of-cloud-computing

Certified True Copy
Registrar
Jagan Nath University, Jaipur


Criteria 3.4.6 - Invitation to
Criteria 3.4.6 - Google Sheets
A Bankable Pictorial Passw
(2) An Elucidation on Stega
A Review: Supply Chain Mana
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3446594
70%
SSRN
Browse
Subscriptions
Rankings
Submit a paper
My Library
Blog
Create account
Sign in
Download This Paper
Open PDF in Browser
Add Paper to My Library
Share
Feedback
View the research
Follow
3:35 PM
10/30/2020

A Review: Supply Chain Management Present Market Trends and Tools to Improve the Efficiency of the Supply Chain

Proceedings of International Conference on Advancements in Computing & Management (ICACM) 2019

4 Pages · Posted: 5 Sep 2019

Bhupendra Pal Jadaun
Jagannath University

Rakesh Kumar
Jagannath University, Jaipur

Date Written: September 2, 2019

Abstract

The most basic purpose of the supply chain is to fulfill the customer demands. Earlier, supply chain fulfilled customer demand but product and service were not in accordance to the customer but with the passage of time now customer has become most powerful part of supply chain and that's why supply chain is managed in accordance to the customer. This has destroyed market boundaries and increased market competition. Now several tools are available to manage the customer demands in supply chain like data handling software, technical innovation, artificial intelligence etc. Organization needs to manage the speed, quality, information flow, material flow at each level. Along with it in today's scenario supply chain also should be sustainable which means it should not harm TBL i.e. supply chain have to be in accordance to the social, economic and environmental condition of the area in which it have to be processed. Another important factor which is too necessary is organization integrity. For the reason modern supply chain has modified a lot to fulfill these needs. This review paper discusses the advancement in the supply chain and tools to achieve the sustainable and growing supply chain.

Suggested Citation:

Here is the Coronavirus related research on SSRN

Paper statistics

DOWNLOADS	ABSTRACT VIEWS
3	148

32 References

PlumX Metrics

Related eJournals

Applied Computing eJournal

Industrial & Manufacturing Engineering

Certi[illegible] True Copy
Jagan Nath Un[illegible], Jaipur

43

12

A PEST Analysis on the impact of Make in India program on manufacturing sector's productivity

Ms. Megha Grover[a] , *Dr. Kapil Khattar* [b]

[a]Research Scholar, Jagannath University, Jaipur, 303901 (Rajasthan).[b]Professor, Jagannath University, Jaipur, 303901 (Rajasthan)

ARTICLE INFO

Article history:
Received 29 January19
Received in revised form 12 March19
Accepted 01 April 19

Keywords:
Make In India,
Comprehensive,
Skills & Innovation,
PEST

ABSTRACT

The main aim of this study is to provide a comprehensive understanding of the challenges and issues faced by the manufacturing sector of India. Following an analytical approach, a systematic review of the relevant studies has been done to provide a cohesive view of the disintegrated literature. The objective behind this initiative is to focus on transforming India into a manufacturing hub, creation of jobs , development of skills & innovation and also to encourage Public Private Partnership (PPP), Joint Ventures (JV), Foreign Direct Investment (FDI) inflow, and advancing Ease in Doing Business (EDB) so as to align India's manufacturing sector into the Global Value Chain. The study found that, there will be drastic changes in the selected 25sectors of Make In India which includes fields like automobiles, aviation, biotechnology, defense, media, thermal power, oil, gas and manufacturing sectors. Thus, we can conclude that, execution of Make In India remains a big challenge despite the fact that it came at a right time. The data has been collected from the various sources which includes other research papers , publications , government websites. Also, In the proposed study, PEST analysis for business environment for make in India campaign is conducted to identify the various aspects that have a bearing on the campaign

© 2019ICACM. Hosting by SSRN. All rights reserved.

Peer review under responsibility of International Conference on Advancements in Computing & Management.

1. Introduction

What doesMake in India Program mean?

The Make in India campaign is an initiative of the Government of India to encourage multinational, domestic as well as, companies to manufacture their products in India and it was launched and started by Prime Minister Narendra Modi in India on September 25, 2014 in a function at the VigyanBhavan. Its objective is to transform India into a manufacturing hub. After April'2015, India has become one of the top destination globally for investment, beating other states and other neighbouring countries. At the end 2014 on 29th December , Mr. Modi, his cabinet ministers and chief representatives of states as well as various industry tycoonsattended the workshop conducted by the Department of Industry Policy and Promotion It is expected that this campaign will create around 100 million job opportunities for youths in India over time. The aim is to take a share of manufacturing in country's gross domestic product from 16% to 25% by 2022, as stated in national manufacturing policy. Major objective of this scheme focuses on25 sectors which includes sectors like Automobiles, Wellness, Defense, Manufacturing, Ports, Food Processing Mining, Pharmaceuticals, Renewable Energy, Roads and Highways, Railways, Thermal Power, Oil and Gas, Space, Leather, Construction, Aviation, automobile components and etc

An elegant lion was chosen as the logo for Make in India campaign, inspired by the India's national emblemAshoka Chakra. The wheel denotes the peaceful progress and dynamism - a sign from India's enlightened past, pointing the way to a vibrant future. Theprowling lion stands for strength, courage, tenacity and wisdom - values that are every bit as Indian today asthey have ever been In Indian myth, the lion denotes the attainment of enlightenment, besides representing power, courage, pride and confidence. The campaign was dedicated by the Prime Minister to the eminent patriot, philosopher andpolitical personality PanditDeenDayalUpadhaya who had been born on the same date in 1916

India's Small and Medium-sized Enterprises (SMEs) can play a huge role in converting the nation to a manufacturing hub in the next few years. India should be more focused towards the development of the selected 25sectors, also a provisions to give benefits to these sectors should be made by the Government. As per the reports of World Bank Group in terms of ease of doing business worldwide , India ranks 130 in 2016 out of 189 countries. In India, rapid skill development can be attained by encouraging research and development for innovation

Make in India campaign differs with the Make in China ideal which has gained momentum over the last few years. China is a major rival to India when it comes to the outsourcing, manufacturing, and services business. India's lacking infrastructure and logistics act as a major hindrance from india becoming a

Certified True Copy

Jagan Nath [illegible] Jaipur

42

A Literature Review on Quality Prediction in Data Warehouse

Shailee Bhatia[a], *Renu Bagoria*[b], *Barjesh Kochar*[c]

[a]*Research Scholar, Jagannath University, Jaipur, India,* [b] *Associate Professor, Jagannath University, Jaipur, India,* [c] *Professor, Vivekananda Institute of Professional Studies, Delhi, India*

ARTICLE INFO

Article history:
Received 19 March 19
Received in revised form 28 March 19
Accepted 05 April 19

Keywords:
Empirical Validation,
Metrics,
Quality,
Quality Prediction

ABSTRACT

The data warehouse has been proved to be of utmost importance in managing large data of an organization and help managers and business analysts in making organization-wide decisions. Information in the storehouse should exist in a high-grade state as low-quality facts and data may lead to wrong strategic decisions. A bad quality in the warehouse of data can lead to adverse results from both industrial and professional point of view. Various factors for quality prediction have been undertaken in this study. It has been found that the existing systems have various gaps that need to be addressed. Thus, a novel system is proposed in the study so as to predict the qualitative aspect of the warehouse.

© 2019ICACM. Hosting by SSRN. All rights reserved.
Peer review under responsibility of International Conference on Advancements in Computing & Management.

1. Introduction

With the advancement in technology, large amounts of data are collected in every industry and application area. This data needs to be stored in order to be used for further processing. Inmon provided a solution to store this huge volume of information in terms of a data warehouse. A warehouse was an absolute solution to large data handling problems. It is a database made up of unified, subject-oriented, time-variant and non-volatile data, intended for business decisions and multidimensional querying. The datawarehouse is developed in an evolutionary way via collecting data from various internal and external data sources. A datawarehouse is an analytical database that is utilized as the premise for a choice supportive network.

It is intended for tremendous volumes of read-only information, giving instinctive access to data that will be utilized for further decisions. A datawarehouse is made as a progressing responsibility by the organisation to guarantee that the correct information is exhibited to the end client at the required time. A data warehouse contains cleaned, integrated data from various sources and transformed into one accessible structure. It is an environment that helps the business analysts to make useful decisions for the organization (Ponniah, 2004).

A datawarehouse offers us with comprehensive and unified data in the multi-dimensional view. Alongside the summed up and solidified perspective on information, the datawarehouse additionally gives us Online Analytical Processing (OLAP) tools. These analytical tools assist us in an intuitive and viable investigation of information in a multidimensional space. This examination brings about data speculation and information mining.

A datawarehouse encourages administrators to capture, manage, analyze their data for future action. Datawarehouses are broadly utilized in different fields like monetary administrations, banking administrations, purchaser products, retail divisions, controlled assembling and so forth.

The application of the data warehouse relies on the quality of the data residing in it. Information in a data warehouse should be of high quality as low-quality information may lead to wrong strategic decisions. A poor quality in the storehouse of data will lead to dreadful results from both professional and industrial point of view: loss of clients, important financial losses or discontent amongst employees (L. English, 2001).Therefore, it is very important for any company or organization to guarantee the qualitative assurance of the data stored in its DW from the early stages of the storehouse projects.

Data warehouse quality can be accomplished by achieving the high calibre of the database utilized, information models and the info stored in the warehouse, as shown in Fig.1. In data warehouse system quality, three distinct aspects could be considered: DBMSs quality, data model quality and data quality. In order to assess DBMS quality, universal standard like ISO can be administered, as the data from data warehouse are brought up from databases. Data quality is made out of data definition quality, the data content quality and the data presentation quality. Lastly, data warehouse model quality has a grand impact on the overall info value (Calero, 2001 and Sandhu, 2010).

The data models can be further classified into three models: conceptual model, physical model and logical model. Our main attention will be on the eminence of conceptual models, the more early we deal with the qualitative characteristics of warehouse, the more are the prospects for adhering to excellent standards in implementing the same.

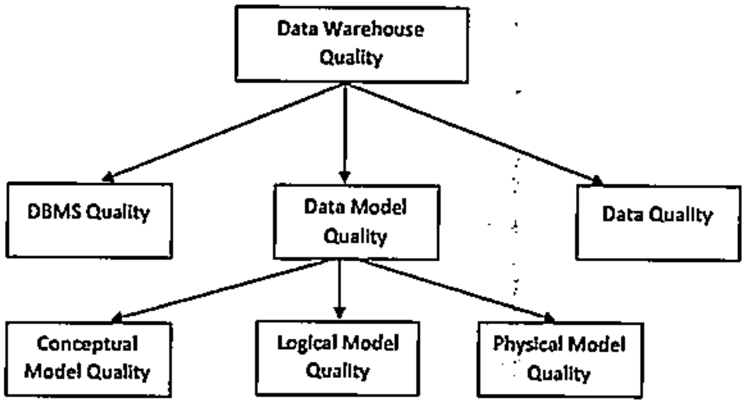


Fig.1- Data Warehouse Quality

2. Literature Survey

The literature survey here is divided into two sections: quality prediction in software and quality prediction in data warehouse.

2.1. Quality prediction in data warehouse

Calero et almade an effort to explain metrics at table, star and schema level to predict quality for data warehouses. The metrics were theoretically validated using measurement-theory based framework (Calero,2001), while no empirical validation has been provided in the study. However, some of these metrics were empirically validated by various authors eventually.

Singh and Vashishtha validated a set of metrics for multidimensional model of data warehouse, proposed by Serrano et al. A total of 10 metrics have been collected for eighteen multidimensional schemas, and 25 students from post-graduation course participated as subjects(Singh &Vashishtha,2015). All the metrics were associated with understandability. It is computed as the time taken by each subject to accomplish the job of the experimental test. For the empirical validation, statistical techniques including univariate regression and multiple regression has been used. The results demonstrate that measurements greatly affect understandability.

Gosain et al used the artificial neural network for the quality prediction for data warehouse multidimensional model(Gosain, Sabharwal& Nagpal, 2010). The metrics used for the purpose were related to understandability, proposed by Serrano et al and consisted of four metrics evaluation from star schema(Serrano, Calero, Sahraoui&Piattini, 2008). The neural network considered is multilayer feed forward network with 4 inputs, 15 hidden neurons and 1 output neuron. The system has been trained with 60% of input data set and 40% were used for testing purpose. The creators thought about the mappings and considered that the schemas, for which normal understanding time is more, will be hard to get it. Aftereffects of the investigation demonstrate that the neural system can foresee the quality of datawarehouse multidimensional model with adequate exactness and with a high estimation of correlation coefficient 'R' (more than 0.9) and low value of MARE on training as well as testing information.

Gosain predict the understandability (an attribute of quality) of OOMD model of data warehouse using decision tree(Ali&Gosain2012). The metrics taken into account were proposed by Serrano et al and defined at three different levels: class, star and diagram. The classifier is the J48 tree learningalgorithm given by the WEKA tool(Serrano, Trujillo, Calero &Piattini, 2007). The experiment-results demonstrated that a decision tree learner (J48) can yield reasonable outcomes through different values of input data.

2.2. Quality prediction in software

Techniques for quality prediction have been studied widely in past decades, Rathore and Kumar compared the performances of neural networks and genetic programming in order to predict the number of faults for fault prediction(Rathore and Kumar, 2015). Instead of just predicting the faulty or non-faulty modules, the authors focused on forecasting the quantity of faults in each module. The approaches were applied on over ten datasets from PROMISE repository. Genetic programming proved to be better prediction approach than the neural networks for the said datasets.

Certified copy

Moeyersoms et al. used a comprehensive approach for effort prediction and fault prediction using data mining techniques like random forests and SVM(Moeyersoms, Fortuny, Dejaeger, Baesens& Martens,2015). The dataset analyzed is using popular online datasets, which are PROMISE repository and NASA dataset. By developing a rule extraction approach based on the data mining approaches also improved the accuracy in most cases.
Malhotra analyzed and compared various statistical and machine learning techniques which aimed at constructing software fault prediction models over a period of time (Malhotra R, 2015).Sixty-four studies from 1991 to 2013 were reviewed and analyzed based on various perspectives like datasets, techniques used, performance parameters etc. The outcomes concluded that the machine learning methods outperformed better than statistical techniques in fault prediction.
Kaur focused on the problem of imbalance data found in the datasets. The authors used sampling techniques for software metrics and code smells that help in the prediction of fault prediction in software modules(Kaur& Kaur, 2017). The study was analyzed on two open source software systems using Weka. The results concluded with the fact that the object oriented metrics came out to be the better predictors. Additionally, resample strategy furnished with bestoutcomes than no sampling by any means.
Kaur and Bajpai used a unified approach of fault prone filtering (Mizuno, Ikami, Nakaichi, &Kikuno,2007) and other module metrics in order to utilize both the programming aspects and the metrics aspect of the software (Kaur & Bajpai, 2016). The results for the combined approach was better than the approach with individual aspects of the software.

3. Proposed Methodology

3.1. Gaps in existing studies

Factors for a data model contributing to quality comprises adaptability, completeness, understandability, correctness and implement ability (Serrano, Trujillo, Calero &Piattini, 2007). It has been observed that most of the quality prediction models that have been proposed previously were based on a single quality characteristic-understandability (Gosain, 2015). Thus, other quality factors have not been yet considered, so as to predict the quality of the datawarehouse.
Also, the metrics proposed in the studies have been validated theoretically. Very few studies have worked on the empirical validation of these metrics(Moody& Shanks, 2003). Empirical validation is an important aspect of the metrics definition to demonstrate the real utility of the metrics. However, the data used for the empirical validation of the metrics is very limited, i.e. less than 20 schemas have been considered for the experiments. Though quality prediction for software has been validated using many larger projects. Thus, the quality of data models should also be validated using a larger number of schemas in order to generalize the results and achieving higher precision.
Thus, the existing gaps in the research can be summarized as follows:

1. The existing metrics are mainly related to understandability.
2. Very few studies have made an attempt to empirically validate the metrics.
3. As a part of data collection process, the existing studies used limited data for the experiment.

3.2. Proposed approach

The proposed research methodology involves three main phases as depicted in Fig.2

1.Data Collection
2.Metrics definition
3.Validation

- Theoretical Validation
- Empirical Validation

As a part of the collection process, the proposed approach aims to take up real world industrial projects and case studies in order to gather a large collection of schemas. The collected data will be used to validate the metrics that will be proposed in metrics definition phase.
The metrics definition will be the main research area in this study as the existing metrics from past studies lack in their ability to predict the quality from a broader perspective keeping into consideration multiple quality characteristics. The proposed research aims to define a set of quality indicators for the designers of the data warehouse.The measurements to be proposed plans to cover the different quality variables for datawarehouse models including adaptability, completeness, understandability, correctness and implementability.

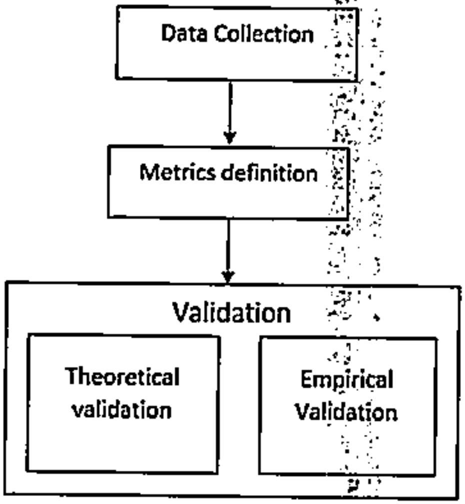


Fig. 2- Proposed Methodology

Also, the ISO 9126 standard considers the quality of software using six characteristics- functionality, usability, reliability, efficiency, portability and maintainability. These elements are likewise significant for software, so they additionally should be considered for metrics definition process with regards to information models' quality in information warehouses.

Validation is an important aspect of any research study as it validates the importance and survival of the proposed work. As mentioned in the previous sections, most of the studies for quality prediction of data warehouse models have validated the metrics theoretically only. Only a few studies have empirically validated their proposed metrics. The proposed approach aims to theoretically as well as empirically validate the metrics. For the proposed study, the metrics will be empirically validated using soft computing techniques. Soft computing techniques include neural network, genetic algorithm, fuzzy logic. Soft computing progresses in several disciplines and in many application areas. These algorithms have also been used successfully for software quality prediction. Hence, the use of soft computing methods in the quality expectation of data warehouse ought to be investigated so as to demonstrate their pertinence

4. Conclusion

The quality of the data warehouse may affect important decisions to be made by business analysts. Various data warehouse quality aspects and characteristics are considered and analyzed in the study. The existing literature lacks empirical validation on larger datasets, and thus reliability of the attributes and approaches used is always in question. The proposed approach aims to explore other quality attributes and involving soft computing methods so as to empirically validate the attributes. In future, we will try to cover all the other quality characteristics and empirically validate them.

REFERENCES

Ponniah, P. (2004). Data warehousing fundamentals: a comprehensive guide for IT professionals. John Wiley & Sons.

English, L. P. (2001). Information quality management: The next frontier. In *ASQ World Conference on Quality and Improvement Proceedings* (p. 529). American Society for Quality.

Calero, C., Piattini, M., Pascual, C., & Serrano, M. A. (2001, June). Towards Data Warehouse Quality Metrics. In *DMDW*(p. 2).

Sandhu, P. S., Goel, R., Brar, A. S., Kaur, J., & Anand, S. (2010, February). A model for early prediction of faults in software systems. In *2010 The 2nd International Conference on Computer and Automation Engineering (ICCAE)* (Vol. 4, pp. 281-285). IEEE.

Rathore, S. S., &Kuamr, S. (2015, February). Comparative analysis of neural network and genetic programming for number of software faults prediction. In *2015 National Conference on Recent Advances in Electronics & Computer Engineering (RAECE)* (pp. 328-332). IEEE.

Kaur, I., & Bajpai, N. (2016, August). An Empirical Study on Fault Prediction using Token-Based Approach. In *Proceedings of the International Conference on Advances in Information Communication Technology & Computing* (p. 32). ACM.

Mizuno, O., Ikami, S., Nakaichi, S., &Kikuno, T. (2007, May). Spam filter based approach for finding fault-prone software modules. In *Proceedings of the Fourth International Workshop on Mining Software Repositories* (p. 4). IEEE Computer Society.

Gosain, A. (2015). Literature review of data model quality metrics of data warehouse. *Procedia Computer Science, 48*, 236-243.

Serrano, M. A., Calero, C., Sahraoui, H. A., &Piattini, M. (2008). Empirical studies to assess the understandability of data warehouse schemas using structural metrics. *Software Quality Journal, 16*(1), 79-106.

Serrano, M., Trujillo, J., Calero, C., &Piattini, M. (2007). Metrics for data warehouse conceptual models understandability. *Information and Software Technology, 49*(8), 851-870.

Singh, J., &Vashishtha, S. (2015). Validation of object oriented metrics for evaluating understandability of data warehouse models. *International Journal of Computer Applications, 118*(13).

Gosain, A., Sabharwal, S., & Nagpal, S. (2010). Neural network approach to predict quality of data warehouse multidimensional model. In *Proceedings of international conference on advances in computer science* (pp. 241-244).

Ali, K. B., &Gosain, A. (2012). Predicting the quality of object oriented multidimensional (OOMD) model of data warehouse using fuzzy logic technique. *International Journal of Engineering Science & Advanced Technology, 2*(4), 1048-1054.

Moody, D. L., & Shanks, G. G. (2003). Improving the quality of data models: empirical validation of a quality management framework. *Information systems, 28*(6), 619-650.

Serrano, M., Trujillo, J., Calero, C., &Piattini, M. (2007). Metrics for data warehouse conceptual models understandability. *Information and Software Technology, 49*(8), 851-870.

Moeyersoms, J., de Fortuny, E. J., Dejaeger, K., Baesens, B., & Martens, D. (2015). Comprehensible software fault and effort prediction: A data mining approach. *Journal of Systems and Software, 100*, 80-90.

Malhotra, R. (2015). A systematic review of machine learning techniques for software fault prediction. *Applied Soft Computing, 27*, 504-518.

Kaur, K., & Kaur, P. (2017, September). Evaluation of sampling techniques in software fault prediction using metrics and code smells. In *2017 International Conference on Advances in Computing, Communications and Informatics (ICACCI)* (pp. 1377-1387). IEEE.

37

Credit Card Frauds and Modern Techniques for Its Detection and Prevention: A Review

Akshita Gautam[a], Suraj Yadav[a]

Department of Computer Science, Jagannath University, Jaipur 303901, India

ARTICLE INFO

Article history:
Received 00 February 19
Received in revised form 05 March19
Accepted 09 April 19

Keywords:
Credit Card Fraud
Card Fraud
Card Fraud Detection
Fraud Detection Technique
Data Mining
Neural Network
Counterfeit Fraud

ABSTRACT

Credit is a technique that is used to sell goods or services to the buyer having no cash in hand. An automatic way to proffer credit to a client is a credit card. An identifying number is carried by each credit card which speeds shopping transactions. The main problem in the credit card industry is a Fraud. There are so many types of fraud. In order to prevent these frauds, many fraud detection techniques are used. In this paper, a general introduction to credit card fraud, types of fraud and fraud management developments are offered. In addition, an overview of the previous work done by many authors in this field is offered.

© 2019ICACM. Hosting by SSRN. All rights reserved.

Peer review under responsibility of International Conference on Advancements in Computing & Management

1. Introduction

The fraud alludes to achieve products services and cash by unlawful manner. The events that include criminal motives that generally are [illegible] identity, the Fraud deals with these events. Now days the credit card fraud is a major threat to the business industry. Therefore, in order to combat the fraud efficiently, initially it is necessary to understand the methods of implementing a fraud [1]. In order to commit fraud, the credit card [illegible] huge number of modus operandi. Generally, Credit card Fraud is characterized as "when a person utilizes a credit card of another person for personal reasons whereas the card owner and the issuer of the card are don't know about the way that the card is being utilized by someone else". Additionally, the individual utilizing the card has no association with the cardholder or issuer and has no goal of either reaching the owner of the card or [illegible] repayments for the buys made. Credit card frauds are submitted in the accompanying ways:

- A demonstration of criminal deception by the utilization of unauthorized account and personal data
- For the personal benefit, Illegal or unauthorized utilization of account
- In order to achieve goods and services, falsification of account data

In opposition to the mainstream ideas, merchants are undeniably more in jeopardy from credit card fraud than the card owners. While [illegible] confront inconvenience trying to achieve a deceitful charge reversed, merchants lose the expense of the products sold, pay chargeback charges [illegible] the jeopardy of having their merchant account shut [2]. Progressively, the card not present situation, for example, shopping on the web represents a more prominent risk as the merchant (the site) is never again ensured with [illegible] of physical [illegible], for example, [illegible] reasonable proof.

2. Type of Frauds

Several sorts of frauds are illustrated in this work are Credit card frauds, computer intrusions, Theft fraud/counterfeit fraud, B[illegible], telecommunication fraud, Bankruptcy fraud, Application fraud [4]

2.1. Credit Card Fraud

The credit card fraud is alienated into a couple of sorts that are illustrated below as

- Online Fraud: Online fraud is the type of fraud that can be commended through the internet, shopping, phone, and web or in the absence of the cardholder.
- Offline fraud: The offline fraud is the type of fraud that can be done through utilizing a stolen physical card at a call center or some other place.

2.2. Telecommunication Fraud

The other type of fraud is telecommunication fraud that is utilized to do other types of fraud. Business, Communication service provider and [illegible] victims.

2.3. Computer Intrusion:

The act of entering with no warrant or invitation is known as Intrusion which implies that "potential probability of unapproved endeavor to get to Information, Manipulate Information Purposefully". Intruders might be from any condition. A Hacker and an insider who knows the design of the system [3].

2.4. Bankruptcy Fraud:

In this type of fraud, a credit card is being utilized while being absent which is known as Bankruptcy fraud. One of the most difficult sorts of fraud to expect is Bankruptcy fraud [3].

2.5. Theft, Fraud/ Counterfeit Fraud:

Theft Fraud is the fraud in which you are using another person's card. Once the owner provides some detail by contacting the bank, the bank will find the thief as soon as possible. Also, where just credit card details are required the counterfeit fraud can take place as the credit card is utilized remotely [4].

2.6. Application Fraud:

Application fraud is a fraud where a credit card is applied by someone with fake information. A couple of diverse situations have to be categorized in order to detect application fraud. Duplicate Fraud means if the same details are utilized by the same client more than once. Identity Fraudsters mean if the same details are used by different users. Application fraud can be described [5] as an "illustration of identity crime, happens when application forms contain conceivable, and synthetic, or genuine yet additionally stolen identity data".

2.7. Lost/ Stolen cards:

Lost/Stolen cards are the other type of fraud in which a card is achieved by a legitimate account holder and loses it or the card is stolen by someone for criminal purposes. This kind of fraud is generally the most effortless path for a fraudster to get hold of the other user's charge cards without interest or innovation. It is additionally maybe the hardest type of conventional credit card fraud to handle.

2.8. Account takeover:

Account takeover is a fraud that happens in time a fraudster unlawfully achieves a valid user's personal data. By giving the user's account number or card number, the fraudster can take over a legitimate account. Afterward, the fraudster can contact the card issuer as impersonating a real card [illegible] mail be redirected to a novel address. A card lost can be reported by a fraudster through which the fraudster can request for a replacement [illegible].

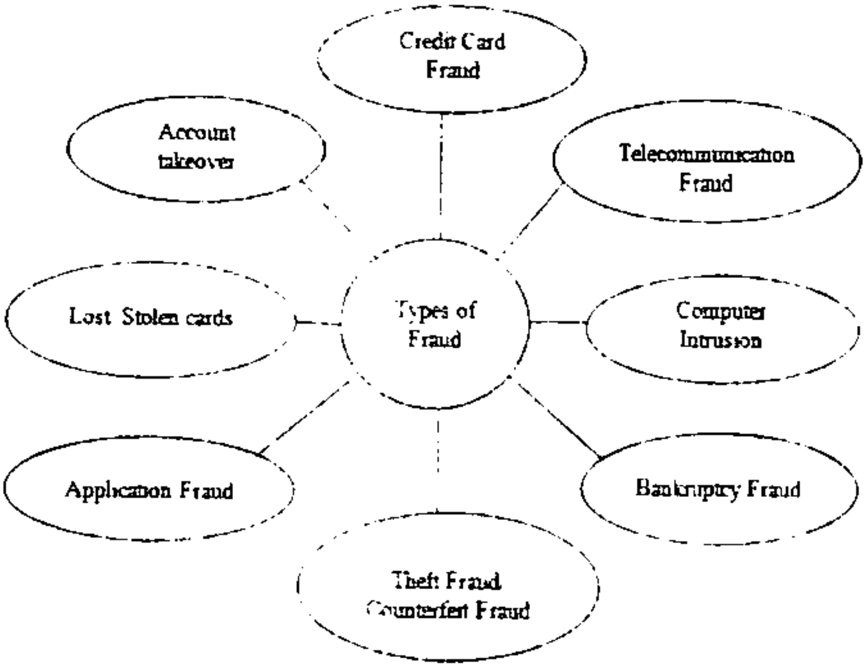

Credit Card Fraud
Account takeover
Telecommunication Fraud
Lost Stolen cards
Types of Fraud
Computer Intrusion
Application Fraud
Bankruptcy Fraud
Theft Fraud Counterfeit Fraud

Fig. 1 - Types of frauds [3]

3. Fraud Management Developments

In order to investigate the credit card frauds [illegible] various methods that are employed by [illegible] Some of the techniques are illustrated [illegible]

3.1. Simple rules systems

The formation of [illegible] their principle in order to filter incoming [illegible] transactions. On the basis of a set of expert rules [illegible] are deliberated in order to identify certain sort of [illegible] transactions. By utilizing the information of what characterize fraud [illegible] rules are formed [7-9]. For example a standard could be like = If the transaction amount is > $100 and card acceptance [illegible] high-risk nation. Fraud rules empower to [illegible] the screening [illegible] the information [illegible] with respect to the [illegible] of both false and genuine transactions [illegible] framework. It ought to be clear [illegible] that eventually the adequacy of the framework relies upon the information and mastery of the individual designing the rules [10]. The demerit of this [illegible] likelihood [illegible] nonetheless, there are routes by which [illegible] separated transactions [illegible]

3.2. Risk scoring technologies

Risk scoring tools occur on the basis of statistical [illegible] transaction on the basis of several indicators [illegible] the transaction features [illegible] being fraud [illegible]

Certified True Copy
Registrar
Jagan Nath University, Jaipur

more suspicious if the score is higher. One of the most effective fraud prevention tools is offered by Risk scoring mechanisms. The major [illegible] scoring is the comprehensive computation of a transaction being captured by a single number [12]

3.3. Neural network technologies

The expansion of risk scoring methods is the Neural Network method. They are occurring on the basis of 'statistical knowledge' included in broad databases of historical transactions, as well as fraudulent ones in specific [13]. These neural network models are essentially 'trained' by utilizing instances of both real and deceitful transactions and can connect and weigh different fraud indicators to the event of fraud. A neural network is an electronic framework that sort information consistently by performing the accompanying errands:

- Buying of card owners and fraudulent activity patterns are identified
- Through trial and elimination, the data is processed
- In the patterns and current transaction data, the relationships are found

The standards of neural networking are inspired by the functions of the brain – particularly pattern recognition and associative memory. The neural system identifies comparable examples, anticipating future qualities or occasions depending on the acquainted memory of the examples it has learned [14, 15]. The preferences neural systems offer over different procedures are that these models can gain from the past and along these lines, improve results over the long haul. They can likewise extricate rules and anticipate future actions dependent on the present circumstance. By utilizing neural systems viable, banks can identify false utilization of a card, quicker and all the more proficiently [16]

4. Related Work

Johannes Jurgovsky, Michael Granitzer et al., 2018, [7] In this paper the author had phrased the fraud detection issue as a sequence classification task and use LSTM networks in order to integrate transaction sequences. The author had additionally incorporated modern characteristic aggregation systems and reports the outcomes with the help of conventional retrieval metrics. A connection with a baseline random forest (RF) classifier exhibited that the LSTM improved recognition exactness on disconnected transactions where the card-holder was physically present at a vendor. Both the sequential and non-sequential learning methodologies advantage powerfully from manual feature aggregation techniques. A consequent investigation of genuine positives uncovered that the two methodologies be liable to distinguish diverse frauds, which recommends an arrangement of the two. The author had concluded the investigation with a discourse on both useful and logical difficulties that stay unsolved.

Alex G.C.de Sá Adriano, C.M. Pereira Gisele et al., 2018, [8] in this paper the author had represented a customized Bayesian Network Classifier (BNC) algorithm, a Fraud-BNC, for a genuine credit card fraud detection issue. The operation of generating Fraud-BNC was automatically presented through a Hyper-Heuristic Evolutionary Algorithm that arranges the information regarding the BNC paradigms into taxonomy and investigates for the finest arrangement of these components for a given dataset. By utilizing a dataset from PagSeguro, the Fraud BNC was automatically created, the well known Brazilian online payment service, and tested together among a couple of techniques for dealing along with cost-sensitive categorization. The simulation results were evaluated with seven more paradigms and examined in view of the data categorization issue, as well as the economic effects of the mechanism. In order to offer a better trade-off in both perspectives, enhancing the present economic effectiveness of the company in up to [illegible] Fraud-BNC represented itself as the finest [illegible]

Alejandro Correa Bahnsen, Djamila Aouada, 2016, [9] In this paper the author had illustrated that currently, in order to address the issue, many authors have projected the utilization of machine learning and data mining methods. Therefore, various studies utilized various types of incorrect categorization measures to estimate the diverse resolutions and did not consider the real financial costs connected to the fraud detection procedure. Also, while building a credit card fraud detection model, it was critical how to remove the correct highlights from the transactional information. This was typically done by collecting the exchanges so as to monitor the spending personal conduct standards of the clients. In this paper, the author had extended the transaction accumulation system and proposed to make another arrangement of highlights dependent on examining the intermittent conduct of the time of a transaction utilizing the von Mises distribution. At that point, utilizing a genuine credit card fraud dataset given by a vast European card preparing organization, it was analyzed modern credit card fraud detection models and estimated how the diverse arrangements of highlights affect the outcomes. By including the proposed periodic highlights into the techniques, the outcomes demonstrate a normal increment in reserve funds of 13%.

Akila S, Srinivasulu Reddy U., 2018, [10] In this work the author had illustrated the credit card fraud had presented a major threat for arrangements

Certified True Copy
Jaipur
Jagan

because of the possibility of large losses connected to it. The author had presented a [illegible] Risk Induced Bayesian [illegible] credit card fraud investigation. A Risk Induced Bayesian Inference mechanism [illegible] protected that was a new bagging architecture incorporating a [illegible] bag creation mechanism.

Fabrizio Carcillo, Andrea Dal Pozzolo, 2018. [11] In this paper the author had illustrated that the extension of the electronic [illegible] enhancing the confidence of customers in electronic accounts make the fraud detection [illegible] Distinguishing frauds [illegible] requests the structure and the usage of adaptable learning procedures ready to ingest and dissect [illegible] streaming [illegible] advance in the examination and the accessibility of open source answers for Big Data stockpiling and handling open new points of view [illegible] detection field. In this paper the author had presented a Scalable Real-time Fraud Finder (SCARFF) which coordinates Big Data [illegible] Spark and Cassandra) with a machine learning approach that manages irregularity, nonstationarity [illegible] Test results [illegible] genuine credit card transactions demonstrate that this [illegible] effective and exact [illegible] stream of transactions.

Ugo Fiore, Alfredo De Santis, 2017. [12] In this paper the author had illustrated that [illegible] online installments had developed [illegible] business [illegible] to actualize a [illegible] fraud recognition [illegible] performing information mining on tremendous [illegible] Machine learning [illegible] accounts a standout amongst the most encouraging [illegible] spotting unlawful exchanges by recognizing [illegible] classifiers using managed parallel [illegible] pre-screened test datasets. Nonetheless, in such a particular application area, datasets accessible for preparing were firmly imbalanced, with the class [illegible] extensively less spoke to than the other. This fundamentally lessens the viability of parallel classifiers, unfortunately biasing the [illegible] the overall class, while the author was keen on the minority class. Oversampling the minority class had been embraced to reduce [illegible] strategy [illegible] had a few downsides. Generative Adversarial Networks were general, adaptable and ground-breaking generative procedures [illegible] that have made progress in delivering convincing [illegible] looking [illegible] The author had prepared a GAN to [illegible] which were then converged with preparing information [illegible] of a classifier can be improved. [illegible] demonstrate that a classifier prepared on the increased set [illegible] classifier prepared on the first information, particularly as far as the [illegible] concerned, bringing about a successful extortion [illegible]

Suraj Patil, VarshaNemade et al., 2015. [13] In this paper the author had illustrated that [illegible] credit card and online [illegible] E-commerce application mechanism transactions are accomplished. Among novel assaults and mechanisms, these mechanisms [illegible] alarming rate. Fraud detection in managing an account is one of the imperative viewpoints these days [illegible] data is expanding as far as Peta Bytes (PB) and to improve the execution of expository [illegible] building, the author had had an [illegible] structure with Hadoop which can peruse information [illegible] and provide for diagnostic [illegible] expectation. In this paper the author had examined a Big data [illegible] structure to process [illegible] and executed different [illegible] fraud recognition and monitored their execution on benchmark dataset to identify frauds on the ongoing premise thereby giving [illegible] satisfaction.

Nuno Carneiro, Gonçalo Figueira et al., 2017. [14] In this paper the author had illustrated that the credit-card fraud had directed to billions of dollar in losses for online merchants. With the advancement of machine learning calculations, researchers had been finding progressively [illegible] recognize fraud, however commonsense usage is seldom detailed. We depict the improvement and organization of a fraud detection [illegible] extensive e-tail merchant. The paper investigated the [illegible] and [illegible] grouping [illegible] of knowledge [illegible] procedure and [illegible] This paper [illegible] to support analyst and researchers [illegible] data [illegible] based framework [illegible] The [illegible] had contributed [illegible] framework [illegible] in addition with [illegible] knowledge to the fraud investigators for improving [illegible] process [illegible] general superior performance.

Table 1 - An example of a table.

Parameters Techniques	Method	Fraud Detection FP%	Accuracy	Processing Speed	Cost	Research Issues Addressed	Research Challenges
Artificial Neural Network	Artificial Intelligence Machine	[illegible]			[illegible]	[illegible] Fraud [illegible] Computer Networks [illegible] Applicable [illegible]	[illegible] training [illegible] well as [illegible]

Certified True Copy
Registrar
Jagan Nath University, Jaipur

	Learning					commerce	time is needed
Fuzzy Darwinian detection	Genetic Programming Fuzzy Logic	100%	Very High	Less	More Costly	Simply investigate stolen Credit card frauds. Examine Suspicious and Non-suspicious data	Execution is complicated and it is not applicable in E-commerce
Support Vector Machine	Clustering	70%	High	Moderate	Costly	The transaction must be suspicion only if a test case lies outside the hyper-sphere	Back Propagation has better performance in large data
K-nearest Neighbor	Clustering	80%	Moderate	High	Costly	Classify through evaluating the closest point if the closest neighbor is fraudulent, therefore the transaction is classified as fraudulent	On the basis of the measure of distance accuracy is occurring
Naive Bayes	Probabilistic Classifier	66%	Moderate	Moderate	Costly	In order to evaluate the possibility of the exact class, the categorization is accomplished with the help of the Bayes' rule that demonstrates better performance	If the fraudulent transaction is unprocessed the fraud cannot be detected by this technique

5. Conclusion

Credit card fraud can be alienated into a couple of sorts that are inner card fraud and external card fraud. The main concern of Inner card fraud is to deceive the money. External card fraud is primarily encapsulated at utilizing the stolen phony or fake credit card to expand, or utilizing cards to get money in hidden manners. In previous years, the credit card fraud has become growingly uncontrolled which is a criminal act. In this paper, the author has offered an overview of the research that has been done in the credit card field. Several sorts of fraud and fraud detection techniques are demonstrated in this work.

REFERENCES

1 Chunzhi Wang, Yichao Wang, Zhiwei Ye, Lingyu Yan, Wencheng Cai, Shang Pan "Credit card fraud detection based on whale algorithm optimized BP neural network", IEEE, pp 614-617 (2018)

2 Deshe Wang, Bintong Chen, Jing Chen "Credit card fraud detection strategies with consumer incentives", ELSEVIER(2018)

3 Linda Delamaire (UK), Hussein Abdou (UK), John Pointon (UK) "Credit card fraud and detection techniques: a review", Banks and Bank Systems, vol 4, Issue 2(2009)

4 Khyati Chaudhary, Jyoti Yadav, Bhawna Mallick, "A review of Fraud Detection Techniques: Credit Card", International Journal of Computer Applications (0975 – 8887) vol 45- No 1 (2012)

5 Vladimir Zaslavsky and Anna Strizhak, "Credit card fraud detection using self-organizing maps", Information & security: An International Journal, Vol 18, (2006)

6 Suman and Nutan, "Review Paper on Credit Card Fraud Detection", IJCTT, vol 4, Issue 7, pp 2206-2215 (2013)

7 Johannes Jurgovsky, Michael Granitzer, Konstantin Ziegler, "Sequence classification for credit-card fraud detection", ELSEVIER, vol 100, pp 234-245, (2018)

8 Arora, Amandeep Singh, Linesh Raja, and Barkha Bahl. "Data Centric Security Approach: A Way to Achieve Security & Privacy in Cloud Computing." (2018)

9 Gupta, Shaurya, et al. "Tier Application in Multi-Cloud Databases to Improve Security and Service Availability." Handbook of Research on Cloud Computing and Big Data Applications in IoT. IGI Global, 2019. 82-93

10 Poonia, Ramesh C. "Internet of Things (IoT) Security Challenges." Handbook of e-Business Security. Auerbach Publications, 2018. [illegible] 223

11 Singh, V. et al. "Source Redundancy Management and Host Intrusion Detection in Wireless Sensor Networks." Recent Patents on Computer Science 12.1 (2019)

Certified True Copy
Jagan [illegible] Jaipur

2019 - ① 3.4.6

दण्ड प्रक्रिया, किशोर न्याय तथा अपराधी परिवीक्षा कानून

(Criminal Procedure, Juvenile Justice and Probation of Offenders Act)

Certified True Copy
Registrar
Jagan Nath University, Jaipur

डॉ. मिथिलेश विश्वकर्मा | आचार्य (डॉ.) महेन्द्र तिवाड़ी
डॉ. नीतेश [illegible]

दण्ड प्रक्रिया, किशोर न्याय तथा अपराधी परिवीक्षा कानून

(Criminal Procedure, Juvenile Justice and Probation of Offenders Act)

लेखकगण

डॉ. मिथिलेश विश्वकर्मा
एल-एल.एम.,पीएच.डी.
उपनिदेशक, सीडलिंग स्कूल आफ लॉ एण्ड गवर्नेन्स,
जयपुर नेशनल यूनिवर्सिटी, जयपुर।
पूर्व- प्राचार्य, आई.एम.एस.लॉ कालेज, नोएडा (उ.प्र.)

आचार्य (डॉ.) महेन्द्र तिवाड़ी
अधिष्ठाता विधि संकाय,
महाराज विनायक ग्लोबल
विश्वविद्यालय, जयपुर
पूर्व अधिष्ठाता, विधि संकाय,
जगन्नाथ विश्वविद्यालय, जयपुर।

डॉ. नीतेश सारस्वत
सह आचार्य,
दिल्ली विश्वविद्यालय, दिल्ली
पूर्व सह एमिटी लॉ स्कूल,
एमिटी विश्वविद्यालय, जयपुर।

SPECIMEN COPY

यूनिवर्सिटी बुक हाउस (प्रा.) लि.
जयपुर

Certified True Copy
Registrar
Jagan Nath University Jaipur

प्रकाशक
मैसर्स यूनिवर्सिटी बुक हाउस (प्रा.) लि.
79, चौड़ा रास्ता, जयपुर-302 003
फोन : 0141-2311466, 2313382 फैक्स : 0141-4013697
email : uni_bookhouse@yahoo.com

आई.एस.बी.एन. : 978-81-8198-488-3

सप्तम संस्करण : 2019

© सर्वाधिकार प्रकाशक व लेखक द्वारा सुरक्षित

लैजर टाइपसैटिंग एवं मुद्रक
विशाल कम्प्यूटर्स एवं सलोनी प्रिन्टर्स, जयपुर

All right reserved. No part of this work may be copied, adapted, abridged or translated, stored in any retrieval system, computer system, photographic or other system or transmitted in any form by any means whether electronic, mechanical, digital, optical, photographic or otherwise without a prior written permission of the copyright holders. M/s University Book House (P) Ltd., Jaipur.

This book is sold subject to the condition that it, or any part of it, shall not by way of trade or otherwise, be sold, re-sold, displaying, advertised, or otherwise circulated, without the publisher's prior written consent, in any form of binding, cover or title other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser(s).

Any breach of any of these rights or conditions will entail civil and criminal action without further notice.

While every effort has been made to avoid any mistake or omission, this publication is being sold on the condition and understanding that neither the author nor the publishers or printers would be liable in any manner to any person by reason of any mistake or omission in this publication or for any action taken or omitted to be taken on advice rendered or accepted on the basis of this work.

Rights of Publi

Certified True Copy
Registrar
Jagan Nath University, Jaipur