Proceedings

NCS-IoT: 2K18

Two Days
NATIONAL CONFERENCE
On

THE THINGS, SERVICES AND APPLICATIONS OF IoT

23rd and 24th MARCH 2018

Organized by

Department of Computer Science and Engineering

In Association with

International Journal of Computer Science and Mobile Applications
(IJCSMA)

GANDHI INSTITUTE FOR EDUCATION AND TECHNOLOGY
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On

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Edited and Compiled by

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Organized By

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Message
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MESSAGE

I am extremely delighted to know that the Department of **Computer Science and Engineering** of **Gandhi Institute for Education and Technology(GIET)**, Bhubaneswar organizes a two days National Conference on "**The Things, Services and Applications of IoT"** on 23rd and 24th March 2018 in the Institute premises.

The main objective of the proposed conference on Internet of Things (IoT) is to provide a viable solution to the challenges faced by the communication world today. The latest developments in the field of IoT will definitely solve myriads of problems of the system users. The world seems to be a smart home today because of the internet.

The two days conference will be an ideal platform for researchers to share views and experiences and learn different technologies to solve and innovate on shortcomings of intercommunication among devices and optimize the services.

I convey my best wishes to the team members for organizing the Conference and all related activities including publication of the Souvenir on such an important issue.

Prof. (Dr.) Satya Prakash Panda
Chairman
GIET, Bhubaneswar

VICE-CHAIRMAN

MESSAGE

It gives me immense pleasure to learn that Dept. of **Computer science & Engineering** of **Gandhi Institute for Education & Technology (GIET)** organizes two days National Conference titled "**The things, Services and Applications of IoT**" on 23rd & 24th March, 2018.

The topic of the conference ***Internet of Things*** (IoT) is of great importance today in the communication world. It provides efficient and effective solutions to the challenges faced by the internet community. It can help store large amount of data required to the environment as well as to the users. The main objective of the IoT is to learn more and serve more to the system users.

I hope the two days national conference will definitely provide a platform to all research scholars, academicians and students to know more about the applications of IoT.

I wish the national conference a grand success.

Prof. J. P. Mishra
Vice Chairman
GIET, Bhubaneswar

PRINCIPAL

MESSAGE

Warm and Happy greetings to all. It is a matter of enormous contentment for me that Computer Science and Engineering Department of our Institution is organizing a National Conference on "**The Things, Services and applications of IOT" (NCS-IoT:2K18)** during 23rd & 24th March 2018 and is going to publish the Conference Proceedings with the collection of various technical papers.

This Conference is an effort in the direction to give an exposure to the academicians, corporate delegates, research scholars and students on the recent developments in the field of Internet of Things. This conference also provides a platform to the students to exhibit their inherent talents both as participants and organizers.

On behalf of Gandhi Institute for Education & Technology, I heartily welcome the Honorable Keynote Speakers, eminent academicians, corporate delegates, participants and all the paper presenters to **NCS-IoT:2K18.**

I place on records with appreciation the hard work, involvement and effort by the Convener, Co-Convener, faculty members, staff members and students of CSE department for organizing this conference and wish the conference a grand success.

Prof. (Dr.) M.C. Panda
Principal
GIET, Bhubaneswar

DEAN (DSA)

MESSAGE

I am delighted to learn that a National Conference on **"THE THINGS, SERVICES AND APPLICATIONS OF IoT (NCS-IoT:2K18)"** is being organized by **Computer Science and Engineering** Department of Gandhi Institute for Education and Technology, Baniatangi dated on 23rd and 24th March,2018. Perhaps few colleges get opportunity to hold the Conference, this is why let me first congratulate the organizing team to hold and successfully accomplish the project undertaken.

Creativity and innovation are the catalyst of advancement. For the time immemorial, education emancipates. No study is complete when the scope of further research is available. Research is the fuel for advancement and development. Visit of various researchers under the roof of GIET, Baniatangi is a matter of pride and immense pleasure for arrangement of collaboration of alike minds. The theme of the conference is self-explanatory where there is a scope for the further development counting on the strengths already occupied.

Since inception GIET, Baniatangi is moving towards the heights of education and serving the society with quality education. I wish this conference could contribute positively to the issue undertaken through the topics. Once again I congratulate the convener & the organizers to undertake this opportunity to serve & contribute to the society at large.

Prof (Dr.) Jibanananda Jena
Dean (DSA)
GIET, Bhubaneswar

HEAD (RESEARCH & DEVELOPMENT)

MESSAGE

The Internet of Things promises to bring great values to our lives. By continuing to connect all the " Things" in our world, definitely we will achieve strengths to fulfill our dreams. Obviously it will be required **to think of Internet of Things as per increasing efficiency, improving health/safety, or creating better experiences. It** finds applications in nearly every field and may be responsible of collecting information ranging from natural ecosystems to buildings and factories.

In this regard the Department of Computer Sc.& Engg. , Gandhi Institute for Education & Technology, Baniatangi is organizing two days National Conference in association with International Journal of Computer Science and Mobile Applications on **"The Things, Services and Applications of IoT (NCS-IoT:2K18)** on 23rd and 24th March 2018. I am sure the deliberations in the Conference will help the participants in understanding the subject and utilize the technology in their teaching and also in research activities.

I take this opportunity to congratulate the team for their efforts in bringing out the proceedings and wish the Conference a grand success.

Dr. Sambit Kumar Mishra
Head (Research & Development)
GIET, Bhubaneswar

HOD (CSE)

MESSAGE

It's my great pleasure to welcome you to the National Conference on **"The things, services and applications of IoT"(NCS- IoT: 2K18)** which takes place in GIET, Baniatangi on 23rd and 24th March 2018. It has been a real honor and privilege to serve as the convener of the conference.

The conference would n't have been possible without the enthusiastic and hard work of a number of colleagues. A conference of this size relies on contribution of many volunteers and we would like to acknowledge the effort of our faculty members and their invaluable help during the review process. We are also grateful to all authors who trusted the conference with their work.

We look forward to an exciting insightful presentation, discussion and sharing of technical ideas with colleagues from around various engineering colleges. We thankful to the participants as well as the management for providing the support and we hope that you enjoy your session of the conference.

Dr. Anil Kumar Mishra
HOD-CSE & Convener
National Conference NCS-IoT:2K18

ABOUT GIET, BHUBANESWAR

GIET was established at Baniatangi, Bajpur, Khurda by the SPBM foundation, Bhubaneswar in May, 2009 affiliated to Biju Patnaik University of Technology, Rourkela, Odisha. The Postgraduate Centre of GIET is functioning from the year 2013.

In GIET, every effort is harnessed to realize the dream of making this educational institution as temple of learning. It is the aim of GIET to participate in the task of inculcating necessary Knowledge, Skills and Creative Attitudes and Values among the youth of the country to contribute more effectively towards establishing an equitable social and economic and secular ideal of our nation. GIET is well known for its dedicated faculty, staff and the state-of-the art infrastructure conducive to a healthy academic environment. The Institute is constantly striving to achieve higher levels of technical excellence. Evolving a socially relevant and yet internationally acceptable curriculum, implementing innovative and effective teaching methodologies and focusing on the wholesome development of the students are our concerns. The Institute currently has seven academic departments including PG departments in four disciplines of engineering, with nearly more than 50 laboratories organized in a unique pattern of functioning, Central Library with state of the art facilities, Auditorium, Student Activity Centre, Computer Centre, Indoor Games facilities, basket ball & Athletic stadium, Seminar Halls with required infrastructure etc. Faculty of repute, brilliant student community, excellent technical and supporting staff and an effective administration have all contributed to the pre-eminent status of GIET.

GIET, Bhubaneswar is almost a residential institute housed with nearly 1800 students. It has 06 hostels out of which 04 hostels for boys and 02 hostels for girls. Lovely gardens, student amenities, shopping complex, water fountain, play ground facilities etc. in the campus are of immense interest for students. The placement service at the institute is one of the best of its kind for its 1st batch of students. The alumni of the institute hold responsible and enviable positions all over and are in constant touch with the institute. Every new entrant into the portals of this institution is poised for partaking a rich heritage and tradition that is unique to GIET.

Each year, we do conduct Cricket, Football tournaments, besides the annual athletic meet. The students of the Institute also participate in various sports and games competitions elsewhere to represent the Institute. The students run many hobby clubs like Photography club, Music club, Science club, Debate club and Fine Arts club. The competitions on debate, music etc. are organized department wise, hostel wise and Institute as a whole. The Institute organizes its annual cultural festival 'SPARKLE' every year. There are many facilities for the students to engage themselves in extra- curricular activities. Sports and cultural activities have become part and parcel of the campus life.

The institute brings out a Institute Newsletter: "The Campus Focus" every quarter which publishes literary and technical articles, faculty and students achievements, publications, various activities carried out inside the campus and etc.. To motivate the students in social services, the Institute has a unit of CSR team. The students of this unit render social services in the nearby rural areas.

The Institute is well connected by road, rail and air to all national as well as international destinations. The Institute has been awarded as best Technical Institute by leading Organizations for last three years.

CONTENTS

A Performance Survey of Operating Systems In Iot Environment

Anil Kumar Mishra,Bikash Chandra Pattanaik
Gandhi Institute for Education and Technology,Baniatangi, Bhubaneswar

ABSTRACT:

This paper is a comprehensive surveyof the various operating system(OS) available for the Internet of Things (IoT) environment. At first this paper introduces the various aspects of the operat systems designed for the IoT environment wherethe resource constraintplays a huge role and problem for the operation of the general OS designed for the various computing deviceasnd also the devices for which the IoT is implemented. This paper also describes the various OS available formanaging the resource constraint IoT environment along with the various platforms each OS supports, the software developmen kits available for the development of applications in the respective OSalong with the various protocols implemented in these OS for the purpose of communication and networking.

Keywords: : IDE, IP, SDK, WSN, IoT, Survey onIoT OS.

An IOT based Architecture for Power System Integration

Sidhanta Kumar Balabantray,G.S.S.Rao
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ABSTRACT:

A term is often used in electrical engineering is “The Internet of Things” (IoT). IoT was coined in 1999, and it refers to the growth of possibilities of machines and sensors in world communicating with each other in a “mobile, and instantaneous “way, making literally everything controllable from our phones to our streetlights to our refrigerators “ Smart grid is one of the features of smart city model. It is energy consumption monitoring and management system. Smart grids are based on communication between the service provider and consumer. One of the main issues with today’s out-dated grid is efficiency. The grid are overloaded during peak times or seasons. It is also possible to hack and take free electricity. By using smart grid consumer and owner get daily electricity consumption reading and owner can cut electricity supply remotely through internet if bill is not paid. The data collected from the smart meters should not be accessed by any unauthorized entities. In case meter tempering is happening then owner and consumer get message and then owner take the action accordingly. A circuit in customer’s energy meter, from that energy consumption data can be acquired. The Acquired data is updated on cloud service, so that consumer and provider can access that data through internet. The main part of project is smart grid meter. LED in smart meter blinks 3200 times to measure one unit. Second feature of this project is one micro switch is fitted in meter. This is to prevent meter tempering. There is one hidden switching circuit in that, whenever any person try to open the meter switch will get popup and controller send the message to owner and consumer. Third feature of project is to control the meter, if bill is not paid by consumer then owner can stop the service. Acquiring of data needs human resources, we can save this critical resource by using smart grid application.

Keywords: Internet of Things; sensors; smart grid; smart meter.

An Optimized use of Smart Air Conditioner using Cognitive IOT

Sambit Kumar Mishra,Satya Krishna. V
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ABSTRACT

Now days, the largest power consumed by heating and cooling Air conditioners which is widely used in residential and commercial buildings. Energy utilization of Electronic equipment is large especially in Air Conditioning. At the same time, we need to able to efficiently manage the temperature of AC. Wastage of energy e.g. Sometimes few people are seating a cabin or room and temperature is chilled. Sometimes there is a large people seating in a cabin and temperature is normal or not chilled, Sometime do happen that we for get to switch off the AC, general human behavior, due to this there is waste of energy and improper temperature management. If the number of people increases in a room then automatically the room temperature should get decrease.

And if the number of people is less than the room temperature should increased or remain default temperature. Therefore it is important to optimize the energy consumption of air conditioning.

Keywords: Cognitive IOT, Raspberry Pi, Temperature Sensor, PICamera , Database

Application of Artificial Intelligence and Internet of Things in Home Automation

Mishra Jyoti Prakash, Mishra Sambit Kumar
Gandhi Institute for Education and Technology, Baniatangi

ABSTRACT

The term home automation offers remote and timer control of systems and embedded devices such as light, heating, ventilation, entertainment systems, appliances, etc., to improve comfort, convenience, energy efficiency, and security. However, the element of autonomous behaviour is lacking. So the technology associated with home automation builds on the progressing maturity of various areas and the Internet of Things evolution, adding artificial intelligence to the home automation field. The primary concept is based on distributed multi-agent architectures to overcome technological challenges. In particular, it is intended to include the basic mechanism to adapt and distribute the artificial intelligence to match the distributed system architecture in home automation. Applying the distributed architecture, a smart multi agent object may be thought of to support the artificial intelligence framework and to focus on the embedded resources, the sensor frameworks, and the employed algorithms.

Keywords: Control systems, Embedded system, Distributed system, Multi agent, Sensor, Actuator, Artificial intelligence

Big Data and Cloud Computing: An Improved Tool for Scientific Analytics and Data Governance

Hiren Kumar Praharaj,Batakrishna Tripathy
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ABSTRACT

Big Data' as term came to limelight under the extensive use of global data as a technology that is able to store and process big and varied volumes of data, providing both enterprises and science with deep insights over its clients/experiments. A new concept called cloud computing provides a reliable, fault-tolerant, available and scalable environment to harbour big data distributed management systems. This paper given as overview of both technologies and cases of success when integrating big data and cloud frameworks. This paper also contents an overview of both cloud and big data technologies are converging to offer a cost-effective delivery model for cloud-based big data analytics. It also includes:

- How cloud computing is an enabler for advanced analytics with big data
- How IT can assume leadership for cloud-based big data analytics in the enterprise by becoming a broker of cloud services
- Analytics-as-a-service (AaaS) models for cloud-based big data analytics
- Practical next steps to get you started on your cloud-based big data analytics initiative

No doubt some of our current problem is solved, it still presents some gaps and issues that arise concern and need improvement. Security, privacy, scalability, data governance policies, data heterogeneity, disaster recovery mechanisms, and other challenges are yet to be addressed. Other concerns are related to cloud computing and its ability to deal with exabytes of information or address exaflop computing efficiently.

Keywords: Big Data, Cloud Computing, data heterogeneity, exabytes, exaflop, AaaS, Security, privacy, scalability

CIA Triad for Achieving Accountability in Cloud Computing Environment

Bijaya Nanda,Aurobindo Kar
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ABSTRACT

Cloud Computing Environment fulfils the computational requirements of individual, small organizations and large organizations with minimum cost. Generally, the data are the asset of the owners and the owner always concern about the security issue which they generally face while storing their data in the cloud. Once the data are stored in cloud, user loses his control over the data. Thus, the major security issues are to maintain data confidentiality(C), integrity(I) and availability(A) which forms the CIA triad. If CIA triad can be implemented in Cloud Computing Environment then Cloud Service Provider will be held accountable for cloud user's data confidentiality, integrity and availability. This paper addresses the availability issue which is not addressed in existing research paper to achieve accountability in Cloud.

Keywords: Confidentiality, Integrity, Availability, Cloud Service Provider (CSP), Denial of Service(DoS).

Denial Of Service Attacks In Cloud-Based Secured Authentication In Information Lattices And Standard Security Requirements

Purnya Prava Nayak,Sk.Moulali
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ABSTRACT

Now A days there are large number of services based on cloud services, which need identity authentication process very carefully. These services uses gateway which are harmed by most of attackers. Denial of Service which need heavy verification processes consume application service under close look which eliminate risk factors associate with services. Here we propose an authentication protocol suite with consideration of Denial of Service threats having parameter of information lattices and standard security requirement. In this new flexible technique helps to find protocol participation with reliable users only helps the process queue efficient and helps risk of Denial of Service attack minimized.

Keywords: Denial of Service attacks, authentication protocol suite, Federated cloud system standard, Information flow security, Security Authentication Protocol, Cloud computing.

Design Of A Wideband Two-Layer Patch Antenna For Iot Applications

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ABSTRACT

In this paper, a new design of a Wideband two-layer patch antenna with bandwidth characteristics is proposed. The antenna consists two patches one is driving element and another one is radiating element. The radiating patch is further improved to enhance the bandwidth of the proposed antenna. The fractal concept is followed to enhance the bandwidth of the antenna. Sierpinski Carpet concept is followed to improve surface current density on the radiating element. With this design the return loss response is found to be below -10dB with the frequency range of 5.2 GHz to 5.87 GHz with this the antenna radiates electromagnetic waves uniformly over the frequency band. As this antenna operating from 5.2 GHz to 5.87GHz, it is a suitable candidate for IoT applications.

Keywords: Bandwidth; Ground plane; electromagnetic waves; Slotted rectangular patch

Flood Forecasting in Brutanga River– A Case Study of Hilly Region, India

Binay Kumar Panigrahi,Sudesna Baliarsigh
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ABSTRACT

Flooding in small and medium rivers is seriously threatening the safety of human beings' life and property. The simulation forecasting of the river flood and bank risk in hilly region has gradually become a hotspot. At present, there are few studies on the simulation of hilly perched river, especially in the case of lacking section flow data. And the method of how to determine the position of the levee breach along the river bank is not much enough. Based on the characteristics of the sections in hilly perched river, an attempt is applied in this paper which establishes the correlation between the flow profile computed by HEC-RAS model and the river bank. A hilly perched river in odisha, Brutanga of odisha, india, is taken as the study object, the levee breach positions along the bank are simulated under four different design storm. The results show that the flood control standard of upper reach is high, which can withstand the design storm of 100 years. The current standard of lower reach is low, which is the flooding channel with high frequency. As the standard of current channel between the 2rd and the 11th section is low, levee along that channel of the river bank is considered to be heighten and reinforced. The study results can provide some technical support for flood proofing in hilly region and some reference for the reinforcement of river bank.

Keywords: *ANN, PSO, MGB-IPH, KNN*

Review On Internet Of Things: Challenges, Smart Applications And Upcoming Technologies

K.Muralibabu,Satya Ranjan Biswal
Gandhi Institute for Education and Technology,Baniatangi, Bhubaneswar

ABSTRACT

Internet is in a continuous transformation of some new kind of technology which includes software and hardware becoming necessary for anyone. Internet of Things (IoT) gained a great attention from the researchers, as promises a smart human being life, by allowing a communications between objects, machines and every things together with peoples The IoT is an intelligent connection between the systems and devices which includes the smart machines, real-world objects, the Radio Frequency Identification(RFID) Devices ,sensor network technologies, etc. We have seen the communication between human to human (H-H) , human to machines (H-M) but IoT helps to build a communication between machine to machine(M-M), which results in huge amount of data to generate, process and store and can be used to make our day to day life easier and safer. This paper aims to discuss the various challenges incurred, smart applications and its future technologies.

Keywords: Internet of Things, RFID, IoT Applications, Future Technologies, Smart Cities, Smart Environment, Smart Energy and Grid, Smart Manufacturing, Smart Healthcare.

Intrusion Detection using IoT

Bright Anand D,G.Arul Dalton
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ABSTRACT

The Internet of Things (IoT) of smart objects are ever-growing network. It refers to the physical objects which are capable of exchanging information with other physical objects. It introduces various services and human's routine life depends on its available and reliable activities. Therefore, the challenge of implementing secure communication in the IoT network must be required. The IoT network is secured with encryption and authentication, but it cannot be protected against cyber-attacks. Therefore, the Intrusion Detection System (IDS) is needed. Some security attacks and various intrusion detection approaches to mitigate those attacks are presented.

Keywords: Internet of Things, IDS, Security.

IoT: Making Things Better

A.Pandi,Smrutirekha Das
Gandhi Institute for Education and Technology,Baniatangi, Bhubaneswar

ABSTRACT

The greatest transformation actually still lies ahead of us. Several new technologies are now converging in a way that means the Internet is on the brink of a substantial expansion as objects large and small get connected and assume their own web identity. Following on from the Internet of computers, when our servers and personal computers were connected to a global network, and the Internet of mobile telephones, when it was the turn of telephones and other mobile units, the next phase of development is the Internet of things, when more or less anything will be connected and managed in the virtual world. This revolution will be the Net‟s largest enlargement ever and will have sweeping effects on every industry and all of our everyday lives. The Internet Of Things is changing much about the world we live in from the way we drive and how we make purchases, and even how we get the energy for our homes. Sophisticated sensors and chips are embedded in the physical things that are surround us each transmitting some valuable data, data that‟s lets us better understand and how this thing work and work together. But how exactly these devices share such large quantities of data and how do we put that information to work. Whether we are improving the production of a factory, giving city resident real time update somewhere to park or monitoring our personal health. It‟s common Internet of Things platform that gives diverse information together and provides the common language for the devices and the apps to communicate with each other. The process starts with the devices themselves that securely communicates with the Internet Of Things platform.

This platform integrates the data from many devices and applies analytics to share the most valuable data with applications that address industry facility specific needs.

Keywords: Internet Of Things, Smart Homes; Home Automation; IoT-Architecture, Future Technology; Smart Transportation; Smart Healthcare; Smart Cities, Smart Energy Resources

Security Challenges and Opportunities related to Big Data in IoT

Sumit Kar,Nirjharinee Parida
Gandhi Institute for Education and Technology,Baniatangi, Bhubaneswar

ABSTRACT

The Internet of Things (IoT) is intended for global connectivity among different entities or ―things‖. Its purpose is to provide effective and efficient solutions. Sometimes the security of the devices as well as network is a challenging issue. It is growing at a fast pace with new devices getting connected all the time. The wireless sensor networks are usually good way to integrate the wearable devices in the IoT concept and bring new experiences to the daily life activities. It is also experiencing exponential growth in research and industry, but it still suffers from privacy and security vulnerabilities. Conventional security and privacy approaches tend to be inapplicable for IoT, mainly due to its decentralized topology and the resource-constraints of the majority of its devices. Over the last few years, it has been observed a plethora of Internet of Things (IoT) solutions, products and services, making their way into the industry's market-place. All such solution may definitely capture a large amount of data pertaining to the environment, as well as their users. The objective of the IoT is to learn more and to serve better the system users. Some of these solutions may store the data locally on the devices (_things‘), and others may store in the Cloud. The real value of collecting data comes through data processing and aggregation in large-scale where new knowledge can be extracted. However, such procedures can also lead to user privacy issues. This article discusses some of the main challenges of privacy in IoT, and opportunities for research and innovation along with the efforts that address IoT privacy issues.

Keywords: IoT, wireless sensor network, cloud, data aggregation, privacy in IoT.

The Current State And Security Aspects Of Iot

Amit Gupta,G.Arul Dalton
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ABSTRACT

The Internet of Things (IoT) is a network of physical objects connected to internet over a specified path for effective monitoring of physical objects. Physical objects embedded with RFID, sensor and so on which allows object to communicate with each other. These physical objects are provided with unique identifier to make its unique identity. As the IoT is highly dynamic and heterogeneous, security is a major challenge in IoT. In this paper we analyzed the different security requirements and challenges in IoT and other research parameters. This paper is a general survey of all the security issues existing in the Internet of Things (IoT) along with an analysis of the privacy issues that an end-user may face as a consequence of the spread of IoT. The majority of the survey is focused on the security loopholes arising out of the information exchange technologies used in Internet of Things

Keywords: Security, RFID, WSN, Privacy, Denial Of Service

The Impact Internet of Things (IoT) on Big Data Implementation

Himadri Sekhar Tripathy,Prakash Chandra Jena
Gandhi Institute for Education and Technology,Baniatangi, Bhubaneswar

ABSTRACT

The IoT will massively increase the amount of data available for analysis by all manner of organisations. However, there are significant barriers to overcome before the potential benefits are fully realized. The growth in the number of devices connected to the Internet of Things (IoT) and the exponential increase in data consumption only reflect how the growth of big data perfectly overlaps with that of IoT. The team of big data in a continuously expanding network gives rise to non-trivial concerns regarding data collection efficiency, data processing, analytics, and security. To address these concerns, researchers have examined the challenges associated with the successful deployment of IoT. Despite the large number of studies on big data, analytics, and IoT, the convergence of these areas creates several opportunities for flourishing big data and analytics for IoT systems. In this paper, we explore the recent advances in big data analytics for IoT systems as well as the key requirements for managing big data and for enabling analytics in an IoT environment. We identify s the role of big data analytics in IoT applications. Finally, several open challenges are presented as future research directions.

Keywords: efficiency, data processing, analytics, and security, big data, IoT

Big Data Computing Application in Digital Forensics Investigation and Cyber Security

Satyaranjan Mishra,Bikash Chandra Pattanaik
Gandhi Institute for Education and Technology,Baniatangi, Bhubaneswar

ABSTRACT

The potential advances and applications of Digital Information Technology (DIT) in several areas of business, engineering, medical and scientific studies are resulting in information/data explosion. The demanding and growing reliance on digital media and devices has increased the volume of data creation and storage exponentially around the world [**3**], with a need of keeping logs about what data is stored and how the data is used. With overwhelming use of Digital Technology, security in Cyberspace has become a prime concern. Knowledge discovery and decision making from such rapidly growing voluminous data is becoming a challenging task for the law Enforcement and Investigative Agencies. As a new research area, Digital Forensics requires to seize the digital evidence to locate who has done it and what has been done maliciously and possible risk/damage assessing what loss it could lead to. The forensic digital analysis is unique among all forensic sciences in that it is inherently mathematical and generally comprises more data from an investigation than is present in other types of forensics. The potential of Big Data for enhanced decision making and analytic process can be seen as a tool to improve operational efficiency in digital forensic investigation with the purpose of constructing potential valuable evidence from it. So, there is a need for Law Enforcement and Investigating Agencies to have a holistic view of the Big Data challenges and opportunities for its application in Digital Forensic Domain with the objective of making robust investigation decisions. With Big Data and Data Science, this paper describes the trends of Digital Forensics served for Big Data,the challenges of evidence acquisition and further suggests the application of machine learning algorithms to process large amounts of data effectively.

Keywords: Digital Forensics, Digital Evidence, Big Data, Machine Learning, Data Science.

Internet of things for smart homes and buildings: Opportunities and challenges

Anil Kumar Mishra, Bikash Chandra Pattanaik
Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

ABSTRACT

Pervasive sensing facilitated by Wireless Sensor Networks (WSNs) technologies offers the integration of modern technology into daily routine. The smart sensing approach offers the ability to sense ambient parameters and the use of different objects in the urban environment. Identification and monitoring technologies, WSNs, wireless communication protocols and dispersed intelligence for objects are primitive elements of a smart environmental solution. The WSNs with the application of the Internet of Things (IoT) and Cloud computing are producing smart home solutions. The present research work aims to develop smart home and building solutions based on IoT and cloud computing. The research work recorded recent practical challenges and limitations encountered while designing the IoT-based smart environment. The research identifies the IoT idea, through the conjunction of WSNs, the Internet and distributed computing with data mining and machine learning, as an approach to apply in smart homes to benefit humankind.

Deployment of Modern Web 3.0 Application using Ethereum Blockchain

Sidhanta Kumar Balabantray, Bijaya Nanda
Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

ABSTRACT

Creating a Modern Web 3.0 application on the Ethereum 2.0 blockchain network to make trade and business between identified and anonymous participants easier, sometimes without the need for a middleman. The proof-of-stake technology used in this initiative speeds up transactions and lowers gas costs. Additionally, it offers a highly programmable smart contract that automates execution and makes it possible to create new digital assets and financial instruments. Additionally, it gives peer-to-peer transactions access to a very secure network. It also seeks to offer a variety of functionalities, such as DeFi transactions and the development of Web 3.0 games

Characteristic Issues for Routing Protocols inWireless Sensor Networks based on Categorization

Sambit Kumar Mishra, Chinmaya Ranjan Pattnaik
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ABSTRACT

Wireless Sensor Networks (WSNs) plays a vital rolein many real world day to day applications. The sensor nodesare placed in different locations to sense the desired data andthe consolidated data will be sent back to desired users. To complete this job we need an efficient and stable routing protocol that can select the best and optimal route between the sensor nodes and users. The environment of the sensors with low powered batteries and memory to full fill this goal. It is almost impossible to change the battery of the sensor node andit becomes big challenge to maintain the good battery life. To extend the lifetime of a wireless sensor network it need energy efficient routing protocol. I reviewed recent energy-efficient wireless sensor routing protocols. In this paper I am presenting the importance of rooting in wireless sensor networks and its environment characteristics.

Keywords: Wireless Sensor Networks (WSNs), routing protocols, Design Issues, Applications, Optimization Techniques.

A Survey on Consensus Mechanisms and Mining Strategy Management in Block Chain Network

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ABSTRACT

The ultra-dense network (UDN) is one in every of the most promising generation inside the 5th technology (5G) to handle the network device functionality difficulty. However, it's a substitute task that the character machine (UE) comfortable get admission to UDN composed of the get entry to points (APs) that characterized with autonomy, transient and dynamic. In 5G UDN, the APs are freelance and equal. The UDN are frequently concept to be a localized get proper of access to community. Compared with the ordinary base station, the AP features a smaller coverage. There has a hassle that the interplay among the UE and APs are additional common as soon as UE moves. However, the winning 4G Authentication and Key Agreement formulation (AKA) cannot adapt to the present quick and common authentication call for. If the UE actions swimmingly in an exceedingly sure APs cluster (APG) whilst now not frequent authentication, this drawback are solved all proper. So as to understand this goal, we have a propensity to recommend a protection authentication issue remember of 5G UDN supported the block chaining era. During this, Associate in Nursing APG-PBFT additives supported the block chaining generation with Byzantine Fault Tolerance (PBFT) settlement components is projected. Within the system, the settlement mechanism are optimized and an alternative opposite screening technique are embedded. In our solution, a sure chain APG are often generated with APs with the useful resource of APG-PBFT device and additionally the authentication effects are frequently shared inside the APG victimization the block chain message propagation mechanism. The precept of short authentication with APG-PBFT system is found in this the challenge count number will reduce back the authentication frequency as quickly as UE actions a few of the APs and improve the get right of entry to efficiency. Finally, we generally tend to research the performance of APG-PBFT approach and compare it with the ordinary PBFT technique. The simulation effects display that the APG-PBFT technique will improve the APG era potency and reduce lower back the authentication frequency of UE, it really is able to be valuably carried out to the UDN placing.

Keywords: Ultra-Dense Network, Block Chain, Access purpose cluster, Byzantine Fault Tolerance.

A Survey on Deep Learning: Approach for Task Offloading in Multi- UAV Aided Mobile Edge Computing

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ABSTRACT

Mobile Edge Computing (MEC) combined with Unmanned Aerial Vehicles (UAVs) has emerged as a promising paradigm to enhance the capabilities of wireless networks by providing computation & storage resources at the edge. Task offloading, the process of allocating computing tasks to appropriate resources, plays a critical role in optimizing the performance of MEC systems. In multi-UAV scenarios, where multiple UAVs are deployed to support computing tasks, task offloading becomes more challenging due to the dynamic and distributed nature of the system. we propose a deep learning approach for task offloading in multi- UAV aided Mobile Edge Computing. We leverage the power of deep learning techniques, such as convolutional neural networks (CNNs) & recurrent neural networks (RNNs), to learn efficient task offloading decisions based on various context parameters, including UAV position, network conditions, and computational resources. We present a comprehensive review of existing deep learning-basedtask off loading approaches and evaluate their performance through simulations and experiments. The results demonstrate that our proposed deep learning approach out performs traditional methods, achieving

better resource utilization and reduced latency in multi-UAV MEC scenarios. The research contributes to the optimization of task offloading decisions in dynamic and resource-constrained environments, enabling efficient utilization of UAVs in Mobile Edge Computing systems.

Keywords: Deep learning, deep reinforcement learning, Internet of Things, mobile edge computing, task offloading.

A Study On Challenges and Issues in Information Securities

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ABSTRACT'

This paper is based on the mistakes done by the human at the area of information system security. The new analysis of information safety have recently started to focus on the manual mistakes; Past researches show it to be a big part of issues in information security and maximum economic crisis are based on this problem. Now we did a small effective research on the role of human mistakes in this context, especially at the organizational level, peoples are not willing to share the private data due to safety concerns. Grounded theory has been worked to search the main reasons of manual mistakes in information security as a research methodology. A survey report which is based on some information security analysts around the world responses for develop a list of manual mistakes based on the non-ended coding. Our work is contributing our thoughts of the causes of manual mistakes in the information security. The present research has followed Glaser's & Strauss theory that approaches throughout the data gathering process to get the appropriate number of outcomes given by the researchers and their works related to the information security.

A Comparative Study on Evolutionary Model for Software Development

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ABSTRACT

There are Different software development models area unit being widely accepted as a lifecycle model of selection for economical software development method. This paper explains the concept of software developmentmistreatment in various life Cycle Models and therefore the adopted changed technique combining the benefits of all. In the current analysis work we've in contestable a combined technique towards the event innovations of a brand new software package style Life cycle considering numerous existing model specifications, their constraints and limits. Evolutionary software system development is being widely accepted as a lifecycle model of selection for software development. This paper again explains the thought of biological process software development. Its options are contrasted with those of ancient software system development models just like the body of water fall model.

Keywords: Evolutionary Software Development, Life Cycle, Evolutionary, Traditional, Shift management

A Wearable Device for Fall Detection and Heart Stroke Prediction using IoT and Machine Learning

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ABSTRACT

Over the last few decades, the most common death in worldwide because of cardiovascular disease. It is the unpredictability and random time of the occurrence that makes the disease more dangerous. The death rate will be reduced by regular supervision of clinicians and early detection of cardiac diseases. Unfortunately, people suffering from sudden cardiac arrests have low survival rates. During the COVID-19 pandemic, the personalized patient care is modernized and wearable devices are mostly incorpaorated in cardiovascular community and clinical applications to achive medical breakthroughs. The wearable devices such as sensors built in textiles, wrist watches ,ECG patch recorders and vests patches are targeted at the healthcare professions for the early detection of acute decompensation and improved prognostication. We proposed the wearable device which is used for adaptive fall detection for paralyzed patients/elders and heart stroke prediction. A real-time data of the patient such as blood pressure, body temperature, heart rate and humidity can be monitored and analyzed by machine learning algorithm. Our proposed wearable device saves the lives of patient and reduces the death rate by taking immediate care.

Keywords: Embedded System, Wearable device, IoT, Maching Learning, Heart rate

Drone Utterance Cast Analysis using Machine Learning

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ABSTRACT

Unmanned aerial vehicles (UAVs) networks square measure still untouched and much from analysis field. Security problems square measure the main issues as a result of these networks square measure susceptible to varied attacks which can cause data leak. Cyber Physical Systems (CPS) play a very important role in providing vital services in industries like autonomous vehicle systems, energy, health, producing, etc., by integration computation, physical management, and networking. Most of those systems aren't solely cyber-physical, however additionally operate in an exceedingly safety-critical application wherever a failure or malfunction may lead to injury or perhaps loss of life. An pilotless Aerial System (UAS) meets the wants of a cycle per second and safety-critical system with its dependence on wireless communication, sensors, and algorithms that job synergistically to perform its practicality. Innovation technology has followed the paradigm of enhancing performance as a main priority, with security as either AN afterthought or not thought of in the least, inflicting an absence of security against cyber-attacks in most UAVs. within the past UAVs have costly, heavy, and most typically utilized by the military, however, cost, size, and weight have cut drastically, whereas their capabilities, attributed to technology, have accumulated well.

Keywords: Unmanned Aerial Vehicle (UAV), Drone Communication, Machine Learning.

A Survey of Different Consensus Algorithm used byVarious Cryptocurrencies

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ABSTRACT

Decentralized digital money is the futureof transaction. Based on blockchain technology, they consist of a distributed ledger where the records of transactions are stored across many nodes instead of storing the information on a single central authority. Now when there are different nodes involved in transaction, we need to have some methods toauthenticate those transactions. Such methods are called consensus algorithms. And the process of authenticating each transaction is called mining. This paper discusses different consensus algorithms being used in some popular cryptocurrencies.

Keywords: Transactions, Consensus Algorithm,Cryptocurrencies

An Effective Approach for Mental Health Prediction Using Machine Learning algorithm

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ABSTRACT

The main objective of mental health prediction using machine learning is to manage and detect the social network mental disorders (SNMDs) based on the twitter data. It is aimedto quantify features and patterns from twitter to know the symptoms and risk factors of mental disorders by using methods of machine learning. In the previous system, the user would be capable of logging the form and fill it which had questions based on the data gathered. It is hard to recognize the social network mental disorders because the mental status cannot be directly examined from the online social activity logs. It leads to produce an inaccurate result. In the proposed system, user comments are gathered from twitter and trained by using a convolution neural network. It could easily predict the features of a particular class and also consumes less time that helps in predicting mental status and emotion behavior of specific users. Mental health prediction is developed by using python where Spyder serves as environmental setups. The model is executed with test data to provide a relatively accurate rate of predicting mental status of theusers by their tweets.

Keywords—Health, Stress, Support Vector Machine (SVM), K- Nearest Neighbor (KNN), Convolution Neural Network (CNN- LSTM), tweets.

Vulnerability in Android Development

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ABSTRACT

IT industry is focusing on malware and antivirus, we eliminated that risk using the security we had already. Most of the malware is removed. Main risk today, is leaky applications and vulnerable devices. Almost half of Android applications have at least one high security risk or privacy flaw. This happened as android made development easy for everyone, not just for developers, with the help of libraries and tools. Naive developers are using built in methods like loadUrl and WebView, without knowing their proper usage, making applications vulnerable to security risks. Resulting in millions of free applications being released on the Android market with serious flaws. Also, android support the development of third-party applications. These applications can use the phone's built in applications and provide a more personalised experience. Developers have the freedom to combine applications with web and use data on the android devices. These flexibilities have provided open platform for hackers to take advantage of the threats created. Security has become a major concern. In this paper, vulnerabilities in web applications are discovered using analysis tools and ways to mitigate these vulnerabilities are discussed.

Keywords: Vulnerability, Attacks, Security, Android application

Artificial Intelligence for Management of Variable Renewable Energy Systems: A Review of Current Status and Future Directions

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ABSTRACT

This review paper provides a summary of methods in which artificial intelligence (AI) techniques have been applied in the management of variable renewable energy (VRE) systems, and an outlook to future directions of research in the field. The VRE types included are namely solar, wind and marine varieties. AI techniques, and particularly machine learning (ML), have gained traction as a result of data explosion, and offer a method for integration of multimodal data for more accurate forecasting in energy applications. The VRE management aspects in which AI techniques have been applied include optimized power generation forecasting and integration of VRE into power grids, including the aspects of demand forecasting, energy storage, system optimization, performance monitoring, and cost management. Future directions of research in the applications of AI for VRE management are proposed and discussed, including the issue of data availability, types and quality, in addition to explainable artificial intelligence (XAI), quantum artificial intelligence (QAI), coupling AI with the emerging digital twins technology, and natural language processing.

Keywords: digital technologies; forecast; hybrid system; optimization; renewable energy

A Review of Cloud Generation with Cloud and Cloudlets and AWS Service

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ABSTRACT

The international public cloud services market is forecast to develop 20 percent in 2022 to general 266.F our billion, upfrom227.8 billion in 2019. The expression “cloud administrations” gives to a wide scope of administrations followed through on request to organizations and clients over the web. These administrations are intended to give simple, usable admittance to applications and assets, without the requirement for inside framework or equipment. From browsing email to teams up on reports, most representatives use cloud administrations all through the average working day, regardless of whether they’re mindful of it.Distributed computing with its three key features (i.e., Framework as-a-Service, Platform-as-aService, and Software as-a-Service) and its huge benefits (e.g., flexibility and adaptability) actually faces a few difficulties. The distance between the cloud and the cloudlets may be an issue for latency sensitive applications like content disaster management and conveyance applications. This paper introduces a detailed analysis of cloud computing security problems and challenges focusing at the cloud computing services and the service delivery types and also cloudlets and AWS services. Index Terms—AWS, EC2, S3, Dynamo DB, RDS, LAMBDA, Aurora

Keywords: Auditor, Encryption, Admin, Cloud, Security

Accuracy Enhancement during A trial Fibrillation Detection using Hybrid Machine Learning Algorithm and Echo Peak Detection Algorithm

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ABSTRACT

The medical instrument Electrocardiogram (ECG) shows the heart functioning. Monitoring and analysis of ECG signal is important for diagnosing the cardiac disorders like Atrial fibrillation (AFib). AFib is a quivering or irregular heartbeat that can lead to blood clots, stroke, heart-failure and other heart related complications if gone untreated. Poor signal quality is the chief limitation of efficacy of biological signal analysis. The accuracy of AFib detection is to be increased by detecting and reducing the false alarms during patient monitoring. The peak points from ECG are detected using the Pan Tompkins Algorithm. It gives amplitude and location information. AFib Detection Algorithm is necessary for statistical measures of the peak points. Threshold values are used for atrial fibrillation detection. Deep belief networks (DBN) are the classifiers used to detect accuracy of the readings. An accuracy of 85% is possible by making use of a hybrid DBN. The software used for implementation is MATLAB. Application of Potential Detection Algorithm will detect echo peak present in the signal and amplified accuracy can be obtained. The raise in accuracy through Atrial Fibrillation detection ensure patient protection and preventfright for monitoring staff.

Keywords: Electrocardiogram(ECG), Atrial Fibrillation(AFib), Echo Peak Detection, Hybrid DBN, Accuracy

Android and Bluetooth Network based Approach to Detect Students: using AI (Student Attendance System)

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ABSTRACT

This system approach is used to spot the students throw the Smart phones by using network. This system is taking the particular number which is attendance in class. The Student attendance is very important because so many successful industries, schools and Universities want to engage the students and making sure that they will come regularly in the school. Automated Attendance System performs the daily job of attendance marking and analysis with reduced human intervention. In this research paper the student attendance system is designed and implemented based on the Android operatingsystemandNetwork.Incomparisontootherattendancesystemthis system provides the faster, cheaper, and ONETIME ATTENDANCE and generate the daily, monthly and yearly reports. Maintenance and monitoring of attendance records plays a needed role in the analysis of performance of any organization.

Keywords*:* Android, Engage, human intervention, ONETIME ATTENDANCE, Monitoring, job-activity, needed-vital

Detection of Suspicious Activity on an E-Commerce Application

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ABSTRACT

With the quick utilization of web, web applications and internet web applications are rising as well. It is often the case that e-commerce applications face various suspicious activity such as slow loading of pages, unexpected pages displaying and SQL injection vulnerabilities. This paper addresses one such suspicious activity that is slow loading of pages resulting from imposing too many requests on the server. The results will be classified as low, medium and high suspicious activity by executing LCS and SVM algorithm.

Keywords*:* LCS; Suspicious Activity;

Enhancing Face Recognition through Super Resolution Method using Singular Value Decomposition (SVD)

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ABSTRACT

Super Resolution method produces a high resolution image at the output from multiple numbers database images which may be blurred or aliased low resolution images as input to get an efficient face recognition method. It produces a super resolution image using various methods like super resolution method, morphological method, two dimensional principal component analysis method with reduced memory. We propose face recognition scheme using singular value decomposition. The two orthogonal matrices obtained from singular value decomposition contain the leading information of a face image. Principal component analysis method is implemented on the two orthogonal matrices to recognize the face. Eigen transformation of feature based super resolution method by 2DPCA retains the same combination of weights but low resolution samples are substituted with the corresponding high resolution face samples. The earlier methods suffer from pose, alignment, facial expression and illumination variations. This paper proposes a better method to overcome these problems for recognition of face images

Keywords: Super resolution, Singular value decomposition, two-dimensional principal component analysis.

Research on Algorithm for Network Security

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ABSTRACT

Network security is a concept of securing data through wireless transmission with the help of cryptography. The Network administrator performs the task of securing data while transmission, avoid unauthorized access of data, avert data misuse and modification of network resources. Network security is used in various computer network sectors such as private and public. Networks used in the organizations, enterprises, institutions etc. are in the form of private or public. Cryptography is concept of securing data with the help of secret keys. Cryptography is the encryption and decryption of data with secret keys using various algorithms. In this paper network security are described on the basis of the services of security. The security services are as confidentiality, authentication and integrity, digital signature, web security, email security, IP security and authentication applications. This paper gives detail study of network security algorithms and their applications. The algorithms are as follows: 1.DES 2.AES 3.RSA 4.MD5 5.SHA- 512 6.HMAC 7.DIGITAL SIGNATURE 8.SSL 9.SET 10.PGP 11.ESP 12.AH

Secure cloud-based storage and retrieval using Symmetric Searchable Encryption

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ABSTRACT

Cloud computing plays a dominant role in the growth of the country's economy. A security challenge has become a major threat in the modernization economy. This makes the problem in rapid economy. Cloud computing techniques are the better choices for this purpose. Cloud computing has many techniques for the purpose of secure protection. TrustedCloud Based technique involves symmetric key encryption forthe safe and secure retrieval of data and files using the keyword. K-means clustering is used for the faster retrieval ofdata. It will be helpful in faster and secure retrieval of data.

Keywords: Cloud computing; client; Multi-keyword; Admin; clustering.

The fusion of Big Data, Machine Learning, and Cyber Security

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ABSTRACT

This paper contributes to a new system, which is capable of using Big Data to strengthen Cyber Security. It fills a methodological void between three domains: Big Data, Machine Learning and Cyber Security by introducing a new system. The aim is to protect every system from a data leak by analyzing current data sets and using history of attacks, if any. The paper emphasizes on analysis of attacks and live streaming data to gather footprints of attacker. Since, data is growing in both size and multitude; hence there arises a need to protect that data from unauthorized access. Its time, a system should be intelligent enough to do the analysis and yield useful results. The ultimate goal is to automate the method of Cyber Crime Detection.

Keywords- Big Data, Machine Learning, Cyber Security,APTs

The Innovative Approach to Image Conversion

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ABSTRACT

With the evolution of digital concepts the need for image conversion arises. Many softwares are available in this regards but many improvements are required. As concept of digitization are increasing day by day so as the challenges of file compression. In regards of this one government of India department has taken responsibility to digitize its department. In that regards we have design an image convertor to cater their requirements.

Keywords: Image Conversion, Image Compression words

VANET located Communication on Vehicles for Accident Pre vention

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ABSTRACT

The condition of the road surfaces consider as a major indicator of quality of the roads. In fact, classification of a road as either safe or dangerous, more often than not taken into consideration the surface condition of the road. Typically, parameters such as potholes, bumps and slipperiness consider asthe distinguishing features of quality of the road surfaces . As a result, this is an area where systems for monitoring road conditions are critical to improvement of safety in roads, decreasing accident rates and protection of vehicles from getting damaged as a result of poor surface road conditions. This project describes the Monitoring Vehicle Communication and Road Condition in Vehicular Ad-hoc Networks and accidentalert system. Based on ambulance system give the alert for to vehicle.Traffic has controlled before ambulance come that particular area. This system control the traffic and accident in future system.

Keywords: VANET, traffic, network, vehicles, transmit, accident

Artificial intelligence powered large-scale renewable integrations in multi-energy systems for carbon neutrality transition: Challenges and future perspectives

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ABSTRACT

he vigorous expansion of renewable energy as a substitute for fossil energy is the predominant route of action to achieve worldwide carbon neutrality. However, clean energy supplies in multi-energy building districts are still at the preliminary stages for energy paradigm transitions. In particular, technologies and methodologies for large-scale renewable energy integrations are still not sufficiently sophisticated, in terms of intelligent control management. Artificial intelligent (AI) techniques powered renewable energy systems can learn from bio-inspired lessons and provide power systems with intelligence. However, there are few in-depth dissections and deliberations on the roles of AI techniques for large-scale integrations of renewable energy and decarbonisation in multi-energy systems. This study summarizes the commonly used AI-related approaches and discusses their functional advantages when being applied in various renewable energy sectors, as well as their functional contribution to optimizing the operational control modalities of renewable energy and improving the overall operational effectiveness. This study also presents practical applications of various AI techniques in large-scale renewable energy integration systems, and analyzes their effectiveness through theoretical explanations and diverse case studies. In addition, this study introduces limitations and challenges associated with the large-scale renewable energy integrations for carbon neutrality transition using relevant AI techniques, and proposes further promising research perspectives and recommendations. This comprehensive review ignites advanced AI techniques for large-scale renewable integrations and provides valuable informational instructions and guidelines to different stakeholders (e.g., engineers, designers and scientists) for carbon neutrality transition.

Keywords: Artificial intelligent techniques**,** Renewable energy**,** Large-scale integration**,** Energy transition**,** Carbon neutrality

Voice Recognition Robot for Surveillance

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ABSTRACT

A method of communication which could be easily recognized is speech when it acts as an interface for processes it becomes an additional advantage in artificial intelligence. In this paper, speech is used to control a robot with voice commands. Voice commands is a set of instruction given to the computer through microphone. Microcontroller Atmel 328 plays the major role in receiving samples as pulse width modulation(PWM) .The signals are transmitted and received using RF module. Raspberry pi 3 module acts as the brain of the robot, converts the signals into a set of programming language (python coding) recognized by robot. The movement of robotic vehicle is controlled by motor driver (L293d), DC gear motor, robotic wheel, and robotic ball. Motion of the robotic vehicle can be viewed through pi camera (capable of night vision) attached to the raspberry pi module and viewed in pc at the user end. Therefore, the proposed approach in this paper improves the robotic models used in surveillance to achieve greater robustness.

Voice Automated Web Application

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ABSTRACT

Automation in voice- controlled systems have changed the way of interaction of human with computer and other systems. Speech recognition systems allow user to interact with the computer and make hands-free requests with the help of natural language processing. User make hands- free request to computer and computer process the request of the user and respond accordingly. After so many researches and development in the field of machine learning and speech recognition, we are able to interact with voice controlled or voice automated systems and devices. A voice automated web application will be more helpful for the human. This type of web application can be of great interest for the people, as its hands-free feature will grabs user interest towards it. It can be more useful for the visually disabled people as it can be controlled and operated by one's voice. Thus, voice controlled web application be very advantageous to control and operate the functionalities of web application.

Keywords: Speech Recognition Systems, Voice Recognition Systems, Speech-to-Text, Text-to-Speech, Word Error Rate, Recognition Rate, IBM Watson, Google API, Amazon Alexa.

Real-Time Big Data Visualization Using Sentiment Analysis

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ABSTRACT

Sentiment Analysis and Opinion Mining is a prominent field for analyzing and extracting information from text data from many sources such as Facebook, Twitter, and Amazon, among others. Initials computational analysis of an individual's purchasing behavior, followed by the mining of his ideas on a company's corporate entity. User-generated content, such as reviews, ratings, and comments, can be analyzed for better business insights. E-commerce was investigated cognitively in this study. The twitter data set used in this research was obtained from a data set source. Then we must put the pre-processing strategies into action. The system is then constructed using NL Approaches. Then we must put the machine learning method, such as Logistic regression, into action. The accuracy is demonstrated by the experimental findings.

Keywords: Big Data, Machine Learning, Sentiment Analysis, NLP, Logistic Regression, Opinion Mining

Utilizing Artificial Intelligence Technique to Combine a Waste Reduction Process

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ABSTRACT

One of the most effective ways of minimizing wastes from their sources is to design an environmentally clean process which provides a satisfactory level of control lability. In the present work, a systematic module-based synthesis approach is developed to design such a process with minimal waste generation. This approach is featured by adding the dimension of structural controllability to the conventional capital and operating cost functions, and elaborating waste minimization strategies as constraints. Due to insufficient information and in completed at a regarding the mechanism of waste generation at the process design step, artificial intelligence techniques are utilized to represent waste minimization strategies and evaluate structural control lability. The efficacy of the proposed approach to waste minimization is illustrated by synthesizing a cost- effective and highly controllable process capable of minimizing phenol containing waste streams in an oil refinery

Keywords: Waste synthesis, Minimization approach, Inplant waste minimization stratagy, Module ased synthesis approach

The Algorithm for Back Propagation Using Artificial Neural Networks

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ABSTRACT

Back Propagation Algorithm is currently a very active research area in machine learning and Artificial Neural Network (ANN) society. It has gained huge successes in a broad area of applications such as image compression, pattern recognition, time series predication, sequence detection, data filtering and other intelligent tasks as performed by the human brain. In this paper, we provide a brief overview of ANN and BP algorithm, how they work and highlight some of the current research efforts and the challenges with them.

Keywords: Artificial Neural Network; Back Propagation Algorithm; Applications; Image Compression; Challenges

Task Computation Approximation on Virtual Platform Using Evolutionary Approach

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ABSTRACT

The concept of cloud computing practically is associated with most demanded as well as powerful infrastructures to be constrained to mobile devices in the network. The applications in such cases require better processing with real time data. In such scenario, it is somehow essential to perform higher scale computations in cloud with the existing data sources. In some cases, fog computing provides better methodologies in this domain. Basically, fog computing is associated with dynamically instantiated resources. Moreover, its infrastructures sometimes are linked with mobile devices as well as cloud. It is seen that as compared with cloud computing, fog computing provides an efficient and dynamic support towards various heterogeneous physical devices. Also, the dynamisms in the services need the instances of data with application while predicting the patterns as well as access data. Considering the cloud infrastructure, the data associated with IoT devices are processed with proper scalability. In this case, when the IoT devices are connected to fog devices, these will be located closer to users and will be quite reliable towards computation and storage. However, the main challenge while being associated with the application is associated with resource allocation and task scheduling.

Keywords: Big data, Fog computing, Virtual machine, Data centers, Fog nodes

Social Network Data Analysis using Big Data and Tools

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ABSTRACT

Streaming and extracting useful information and knowledge through data analysis in real time is becoming complex, fastest and more efficient techniques are required. This paper discusses on the current and future trends of mining evolving data streams using big data concepts. The work also include briefing on structured and unstructured data and the challenges that the field will have to overcome during the coming.

Keywords: Data Analysis, structured data, unstructured data, Big Data

Efficient Privacy and Data Confidentiality usingA Trusted Outsourced Database

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ABSTRACT

Any software-based cryptographic constructs then deployed, for server-side query process on the encrypted information, inherently limit query quality. Traditionally, as shortly as confidentiality became a priority, need arises to encrypt data before outsourcing to a service supplier Here, Trusted data base has been introduced, an outsourced database prototype that allows client to execute SQL queries with privacy and beneath restrictive compliance constraints by leverage server-hosted, tamper-proof trusted hardware in important question process stages, thereby removing any limitations on the sort of supported queries. Despite the value overhead and performance limitations of trusted hardware, it has been shown that the prices per question are orders of magnitude less than any potential future software-only mechanisms.

Keywords: Database architectures, security, privacy, special- purpose hardware

Edge Adaptive Gradient Action Descriptor and Kernel Discriminant Analysis for Human ActionRecognition

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ABSTRACT

Human Action Recognition is a challenging issue in the real time constraints where the action videos or images are contaminated with several side effects like noises, moving backgrounds, multiple views, hindered movements etc. Under these constraints, to recognize an action, we have developed a new Human Action Recognition system. Under this system, an edge efficient action descriptor called as Laplacian Histogram of Gradients is proposed through which the all-possible movements of an action are extracted. Further, to ensure a perfect discrimination between different action descriptors, we have employed kernel discriminant analysis. The proposed recognition model is evaluated systematically on a standard action dataset, IXMAS. Experimental results prove that our method outperforms the existing methods in terms of recognition accuracy.

Keywords: Human action recognition, Laplacian Gradient, Histograms, Kernel Discriminant Analysis, Support vector Machine, Recognition Accuracy.

A Look into Cloud Security: Methods, Difficulties, and Solutions

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ABSTRACT

Cloud computing is an internet-based computing where we store, manage, access and protect our data on a network of remote servers hosted on the internet. The securityof the data stored on cloud is always been one of the major issues. In this paper, we will discuss about the available security techniques for cloud and the challenges the world is facing for security and privacy of data on cloud. We have also conducted a survey to see the outlook of the people over the cloud storage. The results will be discussed and some of the solutions to avoid the possible attacks on the data over cloud are proposed.

Big Data Feature Selection Model for Data Analytics-Based Intrusion Detection

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ABSTRACT

Today a huge amount of data is present in the internet as the network technology and the information technology has been developing rapidly. With the lack of knowledge on threats and security providing sources for the big data, it has been a big challenge for the Intrusion detection. It is a time taken process to search for the related features in the intrusion detection system which is a big challenge in developing big data in it. In this paper, big data feature selection model for intrusion detection using data analytics is proposed. First, features search space is converted into binary vector from a continuous vector space by using a sigmoid function to be suitable for the feature selection problem. The random initialization of the parameters for the algorithms can be achieved by implementing the tent chaotic maps. Then the behavioral and content features are generated for analyze the characteristics of network traffic and information present on payload. The features selection can be done in parallel using the k-means clustering and big data methods with deployment of multiple machines in the network. Then deep learning-based FCN, CNN, and RNN classifiers are used to train the model in parallel. This effectively reduces the time taken to build the proposed model. The proposed model achieves better accuracy of classification and intrusive attack detection rates can be increased by using this model in comparison with the other earlier model approaches.

Keywords: Big data, Intrusion Detection System (IDS), feature selection, deep learning.

Big Data Analytics in Cyber Security

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ABSTRACT

Big data analytics in security involves the ability to gather massive amounts of digital information to analyze, visualize and draw insights that can make it possible to predict and stop cyber-attacks. Along with security technologies, it gives us stronger cyber defense posture. They allow organizations to recognize patterns of activity that represent network threats. In this paper, we focus on how Big Data can improve information security best practices.

Keywords: Big Data, Cyber Security, Privacy, Database

Using CNN and MSER for Automatic License Plate Recognition

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ABSTRACT

Automatic license plate recognition has become very important in daily life because of increase in the vehicles which makes it impossible to track and monitor in some areas like parking toll, traffic rule violation etc. There are many challenges in recognition of the license plate which includes different orientations, size, broken plates, fonts, images taken in different environments etc. The system includes different types of techniques, like object detection, image processing. The vehicle's license plate may be in different shapes, in different languages and characters can be of different fonts. This paper introduces Automatic License Plate Recognition system which uses Maximally Stable Extremal Regions (MSERs) technique to locate the license plates in an image, image processing techniques to segment characters and convolutional neural network to recognise the characters segmented from the license plate.

Keywords: MSER (Maximally stable extremal region), SWT (Stroke width transform), CNN (Convolutional neural network)

Attacks Causing Denial of Service in Wireless Sensor Networks

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ABSTRACT

The wireless sensor network (WSN) represents a verypromising domain in term of science and technology. They consist of number of autonomous sensor nodes which are deployed in various areas of interest to collect data and cooperatively transmit that data back to a base station. Wireless Sensor Network can be used in a large variety of application due to their easy deployment and their low cost of construction. They are used in Military application, Environmental monitoring application, Health care application etc. Wireless Sensor Network are subject to variousform of failures including hardware and different type adversary attacks. However, in hostile scenarios, the network is likely to come under attack from malicious entities which seek to compromise rooting diversity in these environments. Adversaries range from a hacker with laptop to corporation and governments who have a vested interest in compromising the proper operation of an unwelcomed sensor network. Adversaries can launch different type of attack and cryptography is used to counter those attacks. Denial–of– Service (DOS) attack is one of the most common attacks used by different adversaries for creating a fault in any Wireless Sensor Network. The intent of this paper is to present challenges in security of WSN's along with classification of different type of Active (Denial of Service) DOS attack. The problem of security in main type of active DOS attack is also discussed in this paper.

Keywords – Wireless Sensor Network, Denial-of-Service attack, Active attack, Wormhole attack, Hello Flood attack, Security

An Overview of Cloud Security: Methodologies, Difficulties, and Solutions

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ABSTRACT

Cloud computing is an internet-based computing where we store, manage, access and protect our data on a network of remote servers hosted on the internet. The securityof the data stored on cloud is always been one of the major issues. In this paper, we will discuss about the available security techniques for cloud and the challenges the world is facing for security and privacy of data on cloud. We have also conducted a survey to see the outlook of the people over the cloud storage. The results will be discussed and some of the solutions to avoid the possible attacks on the data over cloud are proposed.

Keywords: Cloud computing, security, techniques, challenges

Analyzing Mind Tendencies using Brainwaves

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ABSTRACT

We are making use of measured data through EEGdevice to find one's attributes and tendencies, to maintain him/her in a certain state of mind for a specific type of functioning and to find his/her mind's response to various situations/acts. The paper presents how to control brainwaves and examining cerebrum information for doing some usable things in regular day to day existence. Mind information is gathered by a headset with terminals and some EEG hardware.

Keywords: EEG, brainwaves, cerebrum information

Analyzing Bitcoin as a Virtual Currency

G.S.S.Rao, Batakrishna Tripathy
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ABSTRACT

Cryptographic currency is an encoded, distributed method to encourage advanced trading. It is an innovation that started more than a decade ago. Bitcoin is among the first and most popular digital currency, due to its central value which remains constant throughout the world, it has created a lot of disturbance in the existing traditional system of monetary value, which has been in play for a very long time. Digital forms of money cannot replace the physical form of money at this present stage but it can change the entire way the exchange of money works over the internet and through various platforms. This is something which should be encouraged with proper regulations as it has a huge scope in the coming future. Cryptographic forms of exchanges will change the very notion of how money is exchanged in the world. Digital money exchanges are unknown, untraceable and have made a specialty for unlawful exchanges, similar to tranquilize dealing. Since the money has no focal store, law authorization and installment processors have no ward over bitcoin accounts. For digital money supporters, this obscurity is an essential quality of this innovation, in spite of the potential for unlawful maltreatment, as it empowers a move in influence from foundations to people.

Keywords: Crypto currency, Bitcoin, Encrypted, Currency, Exchange Rates.

An Iterative Frequent Subgraph Mining Algorithm with Load Balancing Based on Mapreduce

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ABSTRACT

Health plays a major role in human's life. Healthcare insurance is provided by insurance company in order to reduce the financial costs. Nowadays, frauds in healthcare insurance were occurring and it has caused huge dollar losses all over the world. It is mainly due to the disease that occurs for more than three months which is called as chronic disease. If the investigators understand the evolution of disease earlier means they can save their insurance amount by detecting the insurance frauds earlier. In the existing method, Frequent Subgraph Mining Algorithm is used. Firstly, a graph for each patient is constructed. To mine the subgraph from that graph, Frequent Subgraph Mining is used. By using that subgraph, the base disease is found. If the base disease and chronic rules satisfies means the insurance is claimed. But it won't solve all type of problems. That means for the same chronic disease, different medication stages are not considered. All the process is done in single system whatever the system capability is and the overall time efficiency is less. In the proposed method, Load Balancing Algorithm is used along with the Frequent Subgraph Mining Algorithm. Before the nodes are assigned for mapper process, they are equally balanced by using Load Balancing. That is in the sub graph, small graphs are assigned to node A and one big graph is assigned to node B. Here for the same chronic disease, different medication stages is considered. The time efficiency is increased by balancing the process of the system.

Keywords: Evolution of disease; subgraph mining; chronic disease

An Examination of Bitcoin as a Cryptocurrency

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ABSTRACT

Cryptographic currency is an encoded, distributed method to encourage advanced trading. It is an innovation that started more than a decade ago. Bitcoin is among the first and most popular digital currency, due to its central value which remains constant throughout the world, it has created a lot of disturbance in the existing traditional system of monetary value, which has been in play for a very long time. Digital forms of money cannot replace the physical form of money at this present stage but it can change the entire way the exchange of money works over the internet and through various platforms. This is something which should be encouraged with proper regulations as it has a huge scope in the coming future. Cryptographic forms of exchanges will change the very notion of how money is exchanged in the world. Digital money exchanges are unknown, untraceable and have made a specialty for unlawful exchanges, similar to tranquilize dealing. Since the money has no focal store, law authorization and installment processors have no ward over bitcoin accounts. For digital money supporters, this obscurity is an essential quality of this innovation, in spite of the potential for unlawful maltreatment, as it empowers a move in influence from foundations to people.

Keywords: Crypto currency, Bitcoin, Encrypted, Currency, Exchange Rates

An Empirical Investigation of Security Concerns in Cloud Computing Settings

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ABSTRACT

Cloud computing is a promising technology to facilitate development of large-scale, on-demand, flexible computing infrastructures. But without security embedded into innovative technology that supports cloud computing, businesses are setting themselves up for a fall. The trend of frequently adopting this technology by the organizations automatically introduced new risk on top of existing risk. Obviously putting everything into a single box i.e. into the cloud will only make it easier for hacker. This paper presents an overview and the study of the cloud computing. Also include the several security and challenging issues, emerging application and the future trends of cloud computing.

Keywords: Cloud Computing, Security treats, Cloud service user, Cloud service provider

An analysis of the ambient intelligence system and a look at its uses

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ABSTRACT

Ambient Intelligence is a perception of future information socially stemming from the convergence of ubiquitous computing, universal communication andintelligence user-friendly interfaces [7]. Ambient Intelligence (AMI)has emerged in the past 10 years as a multidisciplinary field within ubiquitous computing, attracting considerable research, funding and public attention and leading to many research groups, and conferences specifically focused on Ambient Intelligence topics.[6] Ambient Intelligence bring intelligence to our everyday environment and making it more sensitive to us. In this paper we will give the brief review of some case studies on AMI. The AMI contributing area have shown rapid growth in their respective field. AMI research is growing and the resulting technologies augur well to transform daily human life by making people's surrounding feasible and adaptive [1]. Application include in AMI is at home, care of elderly, healthcare, commerce and business and the group decision making.[3]

Keywords: Ambient Intelligence, Context Awareness, Embedded, Adaptive, Anticipatory, ubiquitous computing

An Analysis of MANET Security

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ABSTRACT

Networks formed for specific applications are called ad-hoc networks. In an ad-hoc model wireless devices can communicate with each other without the need of any central entity. All the devices that are in range of each other can discover and communicate to each other. Ad-hoc networks are flexible in every way, means they can be constructed, partitionedor merged with any other of the type on the go. In ad-hoc network, nodes are mobile in nature and uses wireless communication. In this case these are called as Mobile Ad-hoc Network (MANET). For these networks to find peer-to-peer path between working nodes, several protocols have been proposed. These routing protocols are supine to attack by the malicious nodes. The need of time is to detect and prevent the attacks caused by the malicious nodes without abruption in network services. In this paper, we present the study about various threats in security of MANETS and their detection and prevention techniques.

Keywords: Ad-hoc networks, MANET, Wireless network,malicious node, Routing Protocols, Security

An Analysis of Diverse Workflow Scheduling Techniques in Cloud Computing

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ABSTRACT

Cloud computing technology is one of the fastest growing technologies in IT industry and which is used in different fields for different purposes such as storage, compute and network virtually which are given to the user nondemanding the form of services. Provisioning and deprovisioning of these virtual resources based on Service Level Agreement made between Cloud user sand provider. Mapping of virtual resources to workflow in cloud computing is a tedious task as incoming workflow varies with respect to time. In Cloud computing, mapping of these workflows to virtual resources which were resided in physical hosts is to be fulfilled by a scheduler which assigns work flow automatically to virtual resources without any human intervention. In this paper, we have reviewed various workflow scheduling algorithms and studied different parameters which effects scheduling algorithms in cloud computing.

Keywords: Cloud Computing, Work flow Scheduling, SLA

A Contemporary Approach to Stock Prediction Compared to Conventional Techniques

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ABSTRACT

Prediction of stock prices have always been a buzz word when it comes to Machine Learning (ML). Precise prediction of future stock prices would help an investor to comeup with a firm and confident decision regarding in whichmarket segment to invest. ML techniques have taken over the traditional method of predicting stock market whose accuracy was not substantial, which in turn resulted in rise to the risk factor. The existing research papers focus on analysis or prediction of stock prices which do not consider political tenures, financial budgets which affects the fluctuations ofstock market. Our proposed model will help an investor or anyindividual from a non-financial background to make secured investments. Our model will make use of Support Vector Machines (SVM) for classification, Long Short-Term Memory(LSTM) which will help us to classify and predict time-series data as the proposed model should not lag in terms of periodic factors. The proposed model will be trained with last 20 years of data making the model more robust. Data mining techniqueswill also be used to get the hidden insights company-wise and will be able to calculate the risk of market growth. Thus, the above proposed model will help earn trust of people in investing into stocks confidently.

Keywords: Stock Prices, Machine Learning, Support Vector Machines (SVMs), Long Short-Term Memory (LSTM).

A Smart Precision Agriculture System employing Machine Learning Techniques and Deep Learners

Sk.Moulali, Bright Anand D
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ABSTRACT

Precision farming is the latest trends in the agriculture sector which makes use of information technologyto integrate all the procedures of farming from analyzing the soil-moisture intelligent irrigation scheduling system, weather forecasting and the quality of seed to predicting the real-time harvesting. Basically, it focuses on the important aspect of inter-field and intra-field variability for growing crops. India is an agrarian country where agriculture is the backbone of economy and precision farming could be quite useful. Our paper enhances farming efficiency and increase sustainability through targeted management of agriculture land. Based on the real time field information and decision making, precision farming can optimize both farm productivity and profitability, which is the key goal of every successful farmer. This technique is implement using machine learning algorithm (Support Vector Machine).

Keywords: Precision Farming, machine learning, Support Vector machine.

A Review of Privacy Preserving Methods for Monitoring and Publishing Health Care Data

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ABSTRACT

This manuscript focuses on the state-of-art related to privacy preserving data publication. Usually, data is classified into Relational data, Transactional data, Set-value data, Trajectory data and Social Network data etc. In this script video surveillance data and healthcare data is considered. This manuscript is divided into two parts. First, different privacy preserving anonymization operations on video surveillance data is discussed. Second, the existing personal privacy preserving methods of healthcare data publication are given. Finally, the pros and cons of existing privacy preserving models in surveillance and continuous medical data publication are discussed.

Keywords: surveillance data, health care data, privacy preservation.

A Novel Distributed Accountability and Auditability Framework for Cloud Computing Data Storage

Sumit Kar, Bikash Chandra Pattanaik
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ABSTRACT

Considering the openness and cross-domains of cloud computing, the normal privacy preserving technology cannot be applied in cloud computing expeditiously. In this, inspired by the accountability idea, we planned an accountable privacy-preserving mechanism supported Identity-Based Encryption (IBE) for cloud computing, which focuses on constraining the illegal network behavior by performing answerability to guard the privacy for cloud participants. Firstly, based on the description logic, we have a tendency to defined the basic privacy concepts about the privacy guarantee (PG), privacy request(PR), privacy attribute(PA), privacy exposure condition(PEC) for cloud system, at an equivalent time, the system architecture for the proposed responsible privacy- preserving mechanism is presented; secondly, combining the planned accounting and auditing approaches, the integrated accountable privacy-preserving mechanism for cloud computing is proposed; and so, based on the possible two typesadversary attacks against the projected mechanism, the elaborate security analysis and proof for the projectedmechanism are given; finally, we provide intensive experimental results and potential irresponsibleness implementation to demonstrate the efficiency of the projected mechanism.

Keywords: Privacy Preserving, Security, Accountability, TrustedCloud Computing, IBE.

A Comprehensive Look at Deep Learning for Large Data and Its Uses

Sumit Kar, Satyajit Mohanty
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ABSTRACT

Although Machine Learning (ML) has become synonymous for Artificial Intelligence (AI); recently, Deep Learning (DL) is being used in place of machine learning persistently. While machine learning is busy in supervised and unsupervised methods, deep learning continues its motivation for replicating the human nervous system by incorporating advanced types of Neural Networks (NN). If we apply Deep Learning to Big Data, we can find unknown and useful patterns that were impossible so far. Deep Learning is applied in self-driving cars, visual recognition, healthcare, transportation etc. Nowadays, companies have started to realize the importance of data availability in large amounts in order to make the correct decision and support their strategies. Big Data means extremely huge large data sets, which is heterogeneous whose characteristics (large volume, different forms, speed of processing), analyzed to find the patterns, trends. This paper provides an introductory tutorial to the domain of deep learning for Big Data with its history, evolution, and introduction to some of the sophisticated neural networks such as Deep belief network, Convolutional Neural Network (CNN) and Recurrent Neural Network (RNN).

Keywords— Artificial Intelligence, Deep Learning, Machine Learning, Neural Networks, Convolutional Neural Network, Deep Belief Network, Recurrent Neural Network. Big Data.

A Comprehensive Framework for Bigdata Analytics-Based Smart City Prediction

Smrutirekha Das, Satyajit Mohanty
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ABSTRACT

Smartness is an important direction for future cities to push forward. Smart city is a developed urban city that includes intelligent systems to improve the quality of citizen's life by providing the smart services. Smart city as a concept envisions building of smart services in heterogeneous domains like healthcare, waste management, traffic management by intelligently managing and controlling web of interconnected heterogeneous end systems. We also need a smart service that can predict what might happen in the near future. Smart city requires development of technology that leverages data generated from Internet and also to control these end systems in a smart manner. We propose a system to prevent such risks, provide a good healthcare, smart service management system and to enhance the wellness of the city. This paper focuses in the collection of the huge amount of data preprocessing it, building predictive models to predict the status of what the city will be in the near future. No matter how much of data we have raw datais of no use, this is where big data analytic plays a major role, by providing meaningful results and predictions out of the given data. Prevention is better than cure. Instead, if worrying about a Disastrous event, that might occur in near future, it's better to take proper measures to prevent it from occurring. Our system provides a way to do this, with the help of the predictive models, we're able to predict, what the status of the city will be in the future. Better ways to enhance the city is possible, as the problem is tackled before it gets too large to handle.

Keywords: Smartcity, healthcare, wastemanagement

Estimating Personal Energy Use with Machine Learning Models

Smrutirekha Das, Satya Ranjan Biswal
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ABSTRACT

Accurately estimating one's own energy use is a crucial task in a time when environmental issues and the value of energy conservation are highly visible. This journal article offers a thorough method for predicting a person's energy use by utilizing machine learning algorithms. Data gathering, pre-processing, model selection, training, assessment, deployment, and result interpretation are all included in the study. The main goal is to provide utility companies and individuals with essential insights into anticipating and optimizing energy usage, which will lessen the impact on the environment and increase energy efficiency.

Keywords: Machine Learning, Energy Consumption, Regression Analysis, Feature Engineering, Model Evaluation

Mobile Phone and Gesture Controlled Wheelchair

A.Pandi, Satya Ranjan Biswal
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ABSTRACT

There exist individuals with diverse forms of impairments. Among these, physical disability is most prevalent. For their everyday needs, the majority of those individuals rely on additional resources such a wheelchair, another person, handle support, etc. Most of the time, there should always be someone else to help those individuals. This prevents them from achieving their goals and stands in the way of their accomplishment at all times. This essay offers a solution to assist those individuals, allowing them to travel as they like on their own or, in the event that outside assistance is needed, enabling that person to manage the process using a cell phone. The users' movements are only limited by the gestures they make. In order to identify the accelerometer gesture.

Keywords: - Accelerometer, Arduino UNO, Ultrasonic sensor, Wi-Fi module, Motor Driver, Buzzer

Real-Time Facial Expression Recognition for Online Auditioning

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ABSTRACT

In every line of business, the merit debate is quite important. A person's work can be a masterpiece if they are given the role that best suits their interests and skills. This also applies to casting directors' jobs, yet we can all agree that "To err is human." This paper employs a video emotion identification system that has the potential to transform the film and television industries. It has never been easy to find the right guy for the appropriate job, but our goal is to create an online casting system where anyone looking for an artist for a role may post an advertisement with the script, and anyone interested in the work can then post a video.

Keywords: Emotion Recognition, Facial Expression Recognition, Real Time Audition

Wearable antenna operating at 4.65 GHz for low-power wireless applications

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ABSTRACT

This work presents the design and testing of a wearable rectenna for 4.65 GHz wireless and wearable sensor systems. The copper tap serves as the conducting element, while the wearable antenna substrate is made of textile material. The fabricated antenna is 40 x 40 mm2 and bends well around the human body. The same textile material is also used to build the rectenna element, and its RF-to-dc communication is examined at power levels ranging from -20dBm to 15dBm. With a gain of 7.5dBi, the wearable antenna covers a 46% measured impedance bandwidth, or 3.01GHz to 5.30 GHz. At a power level of -5dBm, the maximum conversion efficiency is 55% in the flat position and 42.84% in the bent position.

Keywords: rectenna; RF-to-dc; wearable antenna; wireless sensor system

Environmental Monitoring for Smart Cities

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ABSTRACT

This paper presents an innovative, multidisciplinary, and cost-effective ecosystem of ICT solutions able to collect, process, and distribute geo-referenced information about the influence of pollution and micro-climatic conditions on the quality of life in Smart Cities. The system has been developed and experimentally evaluated in the framework of the research project Smart Healthy Environment, co-funded by the Tuscany Region (Italy). Specifically, an innovative monitoring network has been developed, constituted by fixed and mobile sensor nodes, which provided comparable measurements in stationary and mobile conditions. In addition, sensor data have been enriched with those generated by citizens through the use of a dedicated mobile application, exploiting participatory sensing and mobile social network paradigms.

IoT based Asset Tracking System

Anil Kumar Mishra, Bikash Chandra Pattanaik
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ABSTRACT

Asset tracking is the method of asset of tracking an asset either by scanning barcode labels attached to the assets or by using tags using. These technologies can also be used for indoor tracking of equipment wearing a tag. The GPS systems are today most well known location tracking systems. These systems are not capable of pinpointing exact locations or locations of an entity within a building or on a particular floor or room. So we propose a smart asset tracking system it allows tracking the location of object.. In the proposed system it makes use of RF technology along with IoT to achieve this system. This system has the location tracking capability to exact room it is currently located in.

Keywords: Asset tracking, Internet of Things (IoT)

Blockchain Technology: Introduction, Integration, and Security Issues with IoT

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ABSTRACT

Blockchain (BC) was mainly introduced for secure transactions in connection with the mining of cryptocurrency bitcoin (BTC). This chapter discusses the fundamental concepts of BC technology and its components, such as block header, transaction, smart contracts (SCs), etc. BC uses the distributed databases, so this chapter also explains the advantages of distributed BC over a centrally located database. Depending on the application, BC is broadly categorized into two categories; permissionless and permissioned. This chapter elaborates on these two categories as well. Further, it covers the consensus mechanism, and it is working along with an overview of the Ethereum (ETH) platform. BC technology has been proved to be one of the remarkable techniques to provide security to IoT devices. An illustration of how BC will be useful for IoT devices has been given. A few applications are also illustrated to explain the working of BC with IoT.

An internet of things-based smart homes and healthcare monitoring and management system: Review

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ABSTRACT

Since the term of a smart city was proposed, Internet of Things (IoT) has been considered as the infrastructure's key in a smart city. Huge research consideration is an emphasis on remote wellbeing observing system dependent on IoT technology. IoT is the internetwork of physical objects or "things" that are embedded with software and sensors to collect and send data between them and central servers with minimum human intervention. This term can assist decline with constraining on medical clinic system and healthcare suppliers, decrease insurance costs, and improve healthcare. In the modern healthcare environment, IoT is being used in various medical areas like real-time monitoring, patient information management, medical emergency management and blood information management. Over these years a number of advanced applications based on IoT have been proposed for convenience of patients, doctors and caregivers in the healthcare sector. Therefore, the current study describes the applications of IoT technologies in medical and healthcare field. Moreover, the it highlights the huge potential of this process and future directions for further research.

Green Internet of Things: The Next Generation Energy Efficient Internet of Things

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ABSTRACT

The Internet of Things (IoT) is seen as a novel technical paradigm aimed at enabling connectivity between billions of interconnected devices all around the world. This IoT is being served in various domains, such as smart healthcare, traffic surveillance, smart homes, smart cities, and various industries. IoT's main functionality includes sensing the surrounding environment, collecting data from the surrounding, and transmitting those data to the remote data centers or the cloud. This sharing of vast volumes of data between billions of IoT devices generates a large energy demand and increases energy wastage in the form of heat. The Green IoT envisages reducing the energy consumption of IoT devices and keeping the environment safe and clean. Inspired by achieving a sustainable next-generation IoT ecosystem and guiding us toward making a healthy green planet, we first offer an overview of Green IoT (GIoT), and then the challenges and the future directions regarding the GIoT are presented in our study.

Internet of Things Applications in Precision Agriculture: A Review

Hiren Kumar Praharaj, Bijaya Nanda
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ABSTRACT

The goal of this paper is to review the implementation of an Internet of Things (IoT)-based system in the precision agriculture sector. Each year, farmers suffer enormous losses as a result of insect infestations and a lack of equipment to manage the farm effectively. The selected article summarises the recommended systematic equipment and approach for implementing an IoT in smart farming. This review's purpose is to identify and discuss the significant devices, cloud platforms, communication protocols, and data processing methodologies. This review highlights an updated technology for agricultural smart management by revising every area, such as crop field data and application utilization. By customizing their technology spending decisions, agriculture stakeholders can better protect the environment and increase food production in a way that meets future global demand. Last but not least, the contribution of this research is that the use of IoT in the agricultural sector helps to improve sensing and monitoring of production, including farm resource usage, animal behavior, crop growth, and food processing. Also, it provides a better understanding of the individual agricultural circumstances, such as environmental and weather conditions, the growth of weeds, pests, and diseases.

Keywords: *Internet of Things; Precision agriculture; Data management; Crop monitoring; Smart farming*

Improving Supply Chain Visibility Using Iot-Internet Of Things

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ABSTRACT

IoT solutions convert dark, unintelligent & silo assets into illuminated, smart and connected assets. There is a need to use upcoming technologies, like IoT for supply chain visibility improvements. IoT applications guide business for making decisions by providing actionable intelligence from real-time and old (pseudo or non-real time) data mashup. Applications are the interface that allows users to experience the power of IoT. This paper involves understanding pain areas in the supply chain for enhancing visibility. End-to-end visibility into supply chain is more important now-a-days with more complex network, multimodal distribution and increasing number of stakeholders. The changing scenarios of economics in different industries like manufacturing, inventory and shipping need latest technologies that fill visibility gaps to lesser cost, improve speed & efficiency, prevent loss and gain competitive levels of customer service & satisfaction. Shorter product cycles, complex products, lessening vertical range of manufacture, worldwide procurement, unstable markets, and a rising number of natural disasters - these are other factors that make it increasingly stimulating to manage a supply chain.

Internet of Things in Smart and Intelligent Healthcare Systems

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ABSTRACT

Independent and convenient healthy living is the prime goal of everyone. Unfortunately, there are limitations to this idea due to various factors such as age, illness, and pandemics. Through health-monitoring systems, people can easily and safely monitor their vital health parameters. Modern technologies have enabled people to live a healthy and independent life. Internet of things (IoT)-based health-monitoring systems have evolved to enable healthcare providers and patients to connect and coordinate with each other, allowing patients to monitor their vital health conditions and make informed decisions. IoT technology combined with various other technologies such as blockchain, cloud computing, artificial intelligence, and so on is gradually increasing the grip of smart systems on several other tasks in the healthcare sector. Modern smart healthcare systems are becoming more prevalent due to the emergence of smart home technologies. The healthcare module of the smart home automation system will allow people to receive better care even at home, minimizing the loneliness that often accompanies hospital visits. Also, such systems have facilitated remote healthcare governance with utmost accuracy. Also, in light of COVID-19, the need for such systems is becoming higher. The reality is that such systems are taking the load off medical personnel and providing a safer contact-free environment. Also, when it comes to clerical and administrative tasks, IoT-based smart systems have proved their mettle over the years. Even though such technology is in a stage of rapid growth, the reach is still minimal due to certain challenges that persist when it comes to the implementation side. The future is expected to be controlled by such modular technologies, and thus, extensive research both from the side of academia and industry is expected to revolutionize the technology even more soon.

IoT based smart parking system

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ABSTRACT

In recent times the concept of smart cities have gained grate popularity. Thanks to the evolution of Internet of things the idea of smart city now seems to be achievable. Consistent efforts are being made in the field of IoT in order to maximize the productivity and reliability of urban infrastructure. Problems such as, traffic congestion, limited car parking facilities and road safety are being addressed by IoT. In this paper, we present an IoT based cloud integrated smart parking system. The proposed Smart Parking system consists of an on-site deployment of an IoT module that is used to monitor and signalize the state of availability of each single parking space. A mobile application is also provided that allows an end user to check the availability of parking space and book a parking slot accordingly. The paper also describes a high-level view of the system architecture. Towards the end, the paper discusses the working of the system in form of a use case that proves the correctness of the proposed model.

An IoT System for Remote Health Monitoring in Elderly Adults through a Wearable Device and Mobile Application

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ABSTRACT

With the increase in global life expectancy and the advance of technology, the creation of age-friendly environments is a priority in the design of new products for elderly people healthcare. This paper presents a proposal for a real-time health monitoring system of older adults living in geriatric residences. This system was developed to help caregivers to have a better control in monitoring the health of their patients and have closer communication with their patients' family members. To validate the feasibility and effectiveness of this proposal, a prototype was built, using a biometric bracelet connected to a mobile application, which allows real-time visualization of all the information generated by the sensors (heart rate, body temperature, and blood oxygenation) in the bracelet. Using these data, caregivers can make decisions about the health status of their patients. The evaluation found that the users perceived the system to be easy to learn and use, providing initial evidence that our proposal could improve the quality of the adult's healthcare.

Keywords: older adults; nursing homes; Internet of Things; wearable computing

IoT Applications on Secure Smart Shopping System

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ABSTRACT

The Internet of Things (IoT) is changing human lives by connecting everyday objects together. For example, in a grocery store, all items can be connected with each other, forming a smart shopping system. In such an IoT system, an inexpensive radio frequency identification (RFID) tag can be attached to each product which, when placed into a smart shopping cart, can be automatically read by a cart equipped with an RFID reader. As a result, billing can be conducted from the shopping cart itself, preventing customers from waiting in a long queue at checkout. Additionally, smart shelving can be added into this system, equipped with RFID readers, and can monitor stock, perhaps also updating a central server. Another benefit of this kind of system is that inventory management becomes much easier, as all items can be automatically read by an RFID reader instead of manually scanned by a laborer. To validate the feasibility of such a system, in this paper we identify the design requirements of a smart shopping system, build a prototype system to test functionality, and design a secure communication protocol to make the system practical. To the best of our knowledge, this is the first time a smart shopping system is proposed with security under consideration.

IoT-Driven Water Quality Management System using Deep Q-Network

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ABSTRACT

The ongoing process of digital transformation is revolutionizing organizations across various sectors, leading to significant operational changes. This study introduces a novel IoT-based water quality management system, powered by advanced machine learning algorithms, to ensure the safety and well-being of individuals within organizations. The proposed system deploys strategically positioned IoT sensors within the water control center, continuously monitoring water quality parameters. These sensors detect a range of harmful substances, including chlorides, sulfates, nitrates, nitrites, heavy metals, iron, manganese, and hardness minerals. When pollutant levels exceed predefined thresholds, a Deep Q-Network (DQN) algorithm is activated to assess the severity of the situation. By embracing digital transformation, organizations can enhance their ability to mitigate health risks and foster safer working environments. The system's real-time monitoring, proactive alert mechanisms, and swift response capabilities showcase the advantages of leveraging digital technologies in revolutionizing water quality management practices. This study contributes to the ongoing digital transformation journey by demonstrating the practical implementation of smart, self-regulating systems to ensure water safety in organizational settings.

Upgrading the manufacturing sector via applications of Industrial Internet of Things (IIoT)

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ABSTRACT

Now a day's manufacturing has become more intelligent and data-driven. A smart production unit can be thought of as a powerful connected industrial system with materials, parts, equipment, tools, inventory, and logistics that can transmit data and communicate with one another in the age of the Industrial Internet of Things (IIoT). This IIoT refers to linked devices, sensors, and other equipment that may be networked in the industrial environment to provide remote access, effective monitoring, better data collecting, analysis, & exchange etc. In Industry 4.0, IIoT is fundamental to transforming cyber-physical systems and production processes through big data and analytics. This paper provides an overview of the IIoT and the technologies that underpin it. The primary benefits and features of IIoT in manufacturing are discussed in detail. Smart Transformations made into the manufacturing field through IIoT Culture are discussed diagrammatically. Finally, twenty-nine significant applications of IIoT in the field of manufacturing are identified and discussed. IIoT can monitor the transport, supply of the goods, consult details on things in warehouses, and check the conditions related to product storage and delivery and allow all dispersed and outsourced operations to be monitored. Therefore, the industry is being revolutionised by IIoT, altering the way industrial enterprises function daily to improve efficiency and performance levels.

Keywords: Industrial internet of things, Applications, Features, Manufacturing, Internet of things

Internet of Things based adaptive traffic management system as a part of Intelligent Transportation System (ITS)

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ABSTRACT

Traffic congestion and higher average waiting time has been a problem for a very long time. The purpose of this project is to design and implement a traffic system that is adaptive to nature of the traffic in respective lanes. Most of traffic signals are having counters according to which the traffic lights of different lanes get changed one by one. To solve this problem of fixed wait time, counter for any traffic, we proposed this adaptive traffic system which is connected to internet so that different lanes can be monitored constantly. The data obtained from different lanes are examined and controlled by Central Traffic Control Office from one place. Data obtained thus gives value of traffic congestion in particular lane, according to which traffic lights are programmed to work. If the first lane is having less traffic than other lane, then the signal lights will be decided on the basis of less wait time and less pollution. This system also gives idea to drivers to choose the path with less congestion. This system is also useful in emergency and VIP clearance and in traffic survey. This increases the efficiency of traffic clearance. This also reduces pollution and traffic congestion, thus being an Adaptive Traffic Control System using Internet of Things.

Smart City Waste Management through ICT and IoT driven Solution

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ABSTRACT

The growing population and mass relocation of citizens from urban and semi-urban areas to Smart Cities have resulted in exponential growth in Smart Cities and thereby certain challenges. One of the major challenges Smart Cities are facing is to control, manage and process waste generation on a daily basis. Waste collection and processing at a wider scale is not an easy job. The growing population and resource constraints in waste management activities are the primary reasons, which have made waste management a tough job. To deal with this challenging process, Smart Cities use Smart Waste Management System. This paper has provided an overview of a typical Smart Waste Management system and a review of selected research papers on Smart Waste Management. We tried to identify areas of improvement with existing Smart Waste Management Solutions and proposed an innovative solution called "iSmartWMS" for carrying out waste management specifically for Smart Cities. The paper has discussed in detail the architecture and building blocks of the proposed Smart Waste Management System, along with the details of software tools, sensors, and technologies proposed in iSmartWMS. The Paper has finally discussed results with respect to the prototype implementation of iSmartWMS and also future plans to further improve the iSmartWMS smart waste management system. Design/Methodology/Approach: iSmartWMS software prototype was built using IoT sensors and Cloud based Server running with custom software incorporating specialized algorithms and a graphical user interface. A model was simulated on a local machine network to check if the required goals can be met and if the proposed solution serves the purpose. Findings/Result: The proof of concept prototype for iSmartWMS Solution is found working well at a limited scale. It is clear that the solution can very well serve the purpose of waste management if it is implemented as per specified architecture at wider scale considering the large number of stakeholders. Originality/Value: Using IoT Sensors for waste monitoring and through Cloud based Server software running with specialized algorithms, it is possible to automate waste management end to end activities. This paper has described in detail the proposed iSmartWMS software solution as a Smart Waste Management tool for Smart Cities. Paper Type: Prototype and Simulation based Research

Keywords: Solid Waste Management, Smart Waste Bin, IoT, Sensor Fusion, Image Processing, Data Analytics

Disaster management using Internet of Things

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ABSTRACT

A disaster is a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental loss and impacts, which exceeds the ability of the affected community or society to cope using its own resources. Researchers have been studying disasters for more than a century, and for more than forty years disaster research. When discussing disaster management, there are a few processes that form the links in the chain and work in tandem to complete the emergency management lifecycle. The process starts with identification of risks, disaster preparedness, emergency response, resources allocation, reaction planning, and lastly disaster recovery. Fortunately, iothas the solution to help the disaster management agencies at every stage of the process.

There is no secret to success
it is the result of preparation,
hardwork and learning from failures.

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