



# INDIA INTERNATIONAL SCIENCE FESTIVAL 2019

## IISF 2019 Kolkata

## Young Scientists' Conference

## Abstract Book

### ORGANISERS



Ministry of Science & Technology  
Ministry of Earth Sciences  
Ministry of Health Family Welfare  
Government of INDIA

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# IISF KOLKATA, 2019

## Preface

The Young Scientists Conference (YSC) of the India International Science festival (IISF-2019) was held in the Biswa Bangla Convention Center (BBCC) in Kolkata during November 5-7, 2019. The grand event was inaugurated in the august presence of Prof. Ashutosh Sharma, Secretary, DST, Dr. Sekhar C. Mande, Director General, CSIR, Prof. Vijay Bhatkar, Chancellor, Nalanda University and President, VIBHA and Shri. U. Rajababu, Project Director, Mission Shakti, DRDO at the Main Hall of Biswa Bangla Convention Centre.

The conference brought near about 1500 researchers including experts from different subjects. Around 1400 young scientists/researchers/PhD scholars/post-doctoral fellows/entrepreneurs from various universities, post graduate colleges, engineering colleges, R&D organizations, national laboratories, IITs, NITs, IISERs, Industries and NGOs under the age of 45 participated YSC to discuss their research findings and exchange innovative ideas on the identified research themes such as - **Make in India, Bio Diversity, Frontier Areas of Sciences, Swachh Bharat, Swasth Bharat, Digital India, Water Crisis and Conservation.**

The conference activities were spread over three days with plenary, oral and poster sessions. There were interactive panel discussions on entrepreneurship, various aspects related to career progression, overseas education and opportunities for the young scientists. The dignitary representatives of embassies highlighted various educational programs of various countries. Near about 1000 delegates presented their scientific research through poster presentations.

This book of abstracts showcases the research findings of the brilliant minds of the country. Even a cursory look at the themes of the book of abstracts tells the huge potential and progress being made by our researchers in India.

YSC organizing committee thanks all the participants for making this event a grand success.

*"Do not be led by others, awaken your own mind, amass your own experience, and decide for yourself your own path." ~ Atharva Veda*

Coordinators, YSC

Jajati K. Nayak  
Ayan Datta

# *Prof VeeraRaghavaRao Atukuri*

Image	Delegate ID	Theme	Details
	YSC 10023	Digital India	<b>Category :</b> <b>Organisation :</b> KKR & KSR Institute of Technology & Sciences <b>Designation :</b> Professor

Now a days, security is becoming a major problem in any online delivery system. There may be chances of theft or misuse of customer ordered item. The main theme of the paper is to deliver goods in a smart and secure way without misuse of the goods. Here goods mean food. The Customer orders the food, through a mobile app and the restaurant accepts the order. When the order is ready to ship, the ordered item will be placed in a delivery box with digital locking mechanism and an OTP will be generated by respective associate of restaurant to the registered mobile number of the customer. Using OTP, the delivery boy opens the digital lock and delivers the item to the customer. With this, there is no worry to the customer about his ordered item and he gets more satisfaction. It is not only for food, it can be applicable to any online delivery products without change of item. This problem is solved by the IoT technology and Cloud Computing concepts

# Dr Biswapati Jana

Image	Delegate ID	Theme	Details
	YSC 10120	Digital India	<p><b>Category :</b> Applied Engineering</p> <p><b>Organisation :</b> Vidyasagar University</p> <p><b>Designation :</b> Assistant Professor</p>

Easy availability of the internet and the super combination of Social media has been blessings for the fakesters. It is a double-edged sword having the advantage of easily accessible, low cost and a large user base whereas, on the other hand, it is the quickest means to spread fake news and manipulated images with false information. It has a great impact on the thought process of the stakeholders of society. It has been reported that fake news on social media are consumed with ease and its effect can be verified from the 2016 US election. Various fake news and images were widely spread about the candidate to convince the voters. The erroneous information in the fake news is usually written to motivate the voters' irrational emotion and enthusiasm. The utility of the forged images are not confined, they are being used in the court of law as legal evidence, medical records, and financial documents. Conventional automatic detection and authentication approach lack scalability and the ability to capture media semantics by means of forgery. Using them in online scenarios is computationally expensive. The image or news that you are reading is either original or fake. So, in order to create a trust of the community, we need to develop a system where the user could verify the content such as fake news or images. This research helps in the following ways: • This research can help to figure out fake news and Images • This research can help to develop a portal where the community will verify the originality of the item in consideration. • This research can help to develop forgery, fake and tampering algorithms to detect tampering and fakeness of the image and news in the discussion.

# Mr Keyur Rohit

Image	Delegate ID	Theme	Details
	YSC 10262	Digital India	<b>Category :</b> Software Engineering <b>Organisation :</b> Allstate India <b>Designation :</b> Associate Consultant

An Edge Computing Based Deep Learning Approach for Autonomous Vehicular System

Keyur Rohit\*

Allstate India, RMZ Ecoworld, Bellandur, Bangalore, India - 560103

keyurrohit@gmail.com

**Abstract:** Autonomous Vehicular Systems (AVSs) will be a noteworthy part of future shrewd urban areas. Notwithstanding, understanding the genuine capability of AVSs requires ultra-low latency and reliable data analytics solutions that can consolidate, in real time, a heterogeneous blend of data originating from the AVS system and its environment. Such data analytics capabilities can't be provided by conventional cloud-centric data processing techniques whose communication and computation latency can be high. Rather, edge-centric solutions that are tailored to the unique AVS environment must be developed. In this paper, edge based architecture for AVSs is presented in which data is processed at the vehicle or roadside smart sensor level keeping in mind the end goal to beat the AVS latency and reliability challenges. With a higher capability of passengers' mobile devices and intra-vehicle processors, such a distributed edge computing architecture can leverage deep learning techniques for reliable mobile sensing in AVSs. In this context, the AVS mobile edge analytics challenges pertaining to multimodal data, autonomous control, vehicular platoon control, and cyber physical security are explored. Then, different deep learning solutions for such challenges are proposed. The proposed deep learning solutions will empower AVS edge analytics by endowing the AVS devices with powerful computer vision and signal processing functions. Preliminary results show that the proposed edge analytics architecture, combined with the power of deep learning algorithms, can provide a reliable, secure, and truly smart transportation environment.

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2. Albin Falk, "Combining Deep Learning with traditional algorithms in autonomous cars", Thesis, University of Gothenburg, Sweden 2017

# Dr Srinivasa Rao K

Image	Delegate ID	Theme	Details
	YSC 10274	Digital India	<b>Category :</b> Mathematics <b>Organisation :</b> SRI VENKATESHWARA COLLEGE OF ENGINEERING <b>Designation :</b> Assistant Professor

Alternative approach for passwords to provide security using rainbow coloring

K.Srinivasa Rao#1, R.Murali#2

srinivas.dbpur@gmail.com , muralir2968@gmail.com

#1 Department of Mathematics, Sri Venkateshwara College of Engineering, Bangalore,

#2 Department of Mathematics, Dr. Ambedkar Institute of Technology, Bangalore,

**Abstract:** The concept connectivity is perhaps the most fundamental graph-theoretic subject. Connectivity is probably the most fundamental graph-conjectural property, both in the combinatorial and algorithmic sense. There are many ways to support the connectivity property, such as Hamiltonicity,  $k$ -connectivity, imposing bounds on the diameter, requiring the existence of edge-disjoint spanning trees and so on. Among this rainbow connectivity, a natural and interesting quantifiable way to strengthen the connectivity requirement. In a rainbow coloring, we only need to find one rainbow path connecting any two vertices. In general, the number of rainbow paths between any two vertices is at least an integer  $k$  with in some edge-coloring.

Let  $G$  be a nontrivial connected graph with an edge coloring where adjacent edges may be colored the same. A path in an edge-colored graph is said to be a rainbow path, if every edge in the path has different color. An edge colored graph is rainbow connected if there exists a rainbow path between every pair of vertices. The rainbow connection of a graph  $G$ , denoted by  $rc(G)$ , is the smallest number of colors required to color the edges of graph such that the graph is rainbow connected. The rainbow connection number can be motivated by its interesting interpretation in the area of networking.

In this poster we find the rainbow connection number of some graph structures which is equivalent to the security system.

# Mr Abhishek Bajpai

Image	Delegate ID	Theme	Details
	YSC 10278	Digital India	<b>Category :</b> Software Engineering <b>Organisation :</b> Rajkiya Engineering College , Kannauj <b>Designation :</b> Assistant Professor

This paper proposed a model for monitoring a group of patients having a chronic disease or ongoing health condition. Mankind has been studying human biology since the age of “Vedas”. Through this research study aim at achieving better health care services by use of IoT (Internet of Things). With IoT real-time patient data can be monitored. Nowadays due to lack of time and travel inconvenience, it is very difficult to go to hospital; patient cannot monitor his health condition properly. In this research scheme, doctors monitor the health of the patient on a regular basis with no travel no extra fatigue for doctor. Moreover it will remove the rush around the hospital which we all are habitual to see around most of the government hospital near us. In this research project, systems are monitoring various parameters of the patient using the state of art technology IoT. In the patient monitoring system, the real-time parameters of patient’s health are sent to private cloud using Internet connectivity. We will be using pulse and oxygen in blood sensor (SPO2), Airflow sensor (breathing), Body temperature sensor, and Electrocardiogram sensor (ECG) and Glucometer sensor for collecting sensing data. These sensors would be connected with a Raspberry Pi controller and the sensing data sent to a remote hospital. Using which doctors can take necessary steps and guide the patient about the issues and help in their medication and treatment. In the analysis and simulation it is clear that this model is effective than other approaches.

# Mr Sairam Vamsi Tadikamalla

Image	Delegate ID	Theme	Details
	YSC 10470	Digital India	<b>Category :</b> Electrical <b>Organisation :</b> Shri Vishnu Engineering College for Women <b>Designation :</b> Assistant Professor

Pesticides play a very important role in the yield of the crop, especially for vegetables and fruit crops. Sufficient amount of pesticides gives good yield which is healthy for humans. whereas over usage of pesticides on a particular crop may increase the yield but is not fit for humans consumption and may lead to health problems. To control this, need to develop a device linked with an mobile application, which can be used to monitor and test the level of pesticides sprayed on the crop.

A minimum threshold value of each pesticide will be given to the device and if the pesticide level exceeds the cutoff threshold value, the device has to indicate the yield produced by the crop is not edible. this data can directly accessed by the user through mobile application, that we want to develop, this mobile app gives details of

- 1)Details of the former's,
- 2)Type of crop production,
- 3)The cost at which he/she sells it,
- 4)The availability of the product,
- 5)The quality of the product ( Indicates what are the pesticides used while crop growing, which ultimately effects the quality of crop) and
- 6)Location of the product available will be displayed.

this gives the end customer have an awareness on the quality of the vegetables and fruits that he/she wants to purchase. So that we can eliminate mediators who takes crop from former's with low cost selling them to customers with high cost.

With respect to customers perspective this will helpful to get vegetables or fruits with low cost as they are taking them directly form former's. With respect former's perspective this project will helpful to get suitable cost of their product.

# Mr Brijpal Singh

Image	Delegate ID	Theme	Details
	YSC 10514	Digital India	<b>Category :</b> Others <b>Organisation :</b> DEI (Deemed University) Agra <b>Designation :</b> Faculty Librarian

The Govt. of India lunched Digital India Mission in 2015 to promote the paperless society in India. To support Digital India Mission, many reputed libraries and information Centre's are playing key role through setup and development of digital repository services in their organizations. In digital world, information is communicated and learned through a wide variety of media channels and sources, most of which are through some sort of electronic or digital device. Therefore, becoming media and information literate requires new services of digital data repositories and essential digital skills that are helpful in growing digital citizenship with the technology changes in digital world. The digital skills with open data repository services in rapidly changes technologies environment is new frontier to prepares researchers, students, patrons, and everyone in our communities to become digital citizens. Currently, Indian organizations/Universities are hosted the research, academic and policy data on their digital repositories to 24x7 delivery of digital information services on users mobile devices. The Digital Repositories are facilitating the single platform to 24x7 accesses of e-information resources and services by users worldwide. To provide the open data services, Indian reputed organizations are setup more than 86 digital repositories as per registered list on OpenDOAR as on 31st August 2019. The popular digital repositories of India are IICSSR Data Repository, Shodhganga Repository, Vidyandhi repository, CV Raman repository, National Digital library, KrishiKosh, NOPR, eGyankosh, River Ganga Repository and Bhagirathi Repository etc. The INFLIBNET Centre Ahmadabad plays a leading role to setup the digital repositories and services in Indian University libraries with the collaborative approach.. These Open data repositories are scot-free platforms to 24x7 access of information by registered users at the global level. This paper presents the changing role of information scientists to develop digital services and create programming opportunities that promote digital citizenship in communities.

# *Dr ANAND KUMAR*

Image	Delegate ID	Theme	Details
	YSC 10535	Digital India	<b>Category :</b> Software Engineering <b>Organisation :</b> JAGADGURU RAMBHADRACHARYA HANDICAPPED UNIVERSITY <b>Designation :</b> ASSISTANT PROFESSOR

As a paper presented in Young Scientists' Conference in 4th India International Science Festival 2018, I have proposed an intelligent system SWDigilIndia (Semantic Web based Digital India Applications) that will facilitate the various services and fulfill the vision of Digital India programme. This system is capable to integrate the knowledge and machine to machine interoperability to relay the desirable services to citizen of India. Hence, I have extended the work of my proposal in this paper with knowledge representation by using Semantic Web technologies i.e. RDF (Resource Description Framework), RDFS (Resource Description Framework Schema) and OWL (Web Ontology Language) for implementation of SWDigilIndia. Ontological knowledge representation will facilitate the fully utilization of knowledge for machine also in which human and machine can work with co-operation. This paper explores the representation of knowledge and their accessibility based on Semantic Web for Digital India programme that will emphasize the slogan "Make in India and Digital India: Bharat Ke Badte Kadam". We have revealed my effort to construct the ontology and its reasoning mechanism that will relevant to understand the problems and capable to solve it efficiently. The ontology-based knowledge representation will provide the semantically represented knowledge for machine as well as users also. The users can efficiently navigate to discover the desired information and services.

# Mr SURESH KP

Image	Delegate ID	Theme	Details
	YSC 10600	Digital India	<b>Category :</b> Electrical <b>Organisation :</b> SRI KRISHNA COLLEGE OF TECHNOLOGY <b>Designation :</b> Assistant Professor

## GRID INTERCONNECTED SOLAR PHOTOVOLTAIC SYSTEM FOR SMART CITY APPLICATIONS

K.P.Suresh1

Department of Electrical and Electronics Engineering,  
Sri Krishna College of Technology, Coimbatore-641042, Tamilnadu, India

S.Ramesh2

Department of Electrical and Electronics Engineering,  
K.S.R.College of Engineering, Tiruchengode-637215, Tamilnadu, India

e-mail : kpsuresheee@gmail.com

**Abstract:** This research article exhibits a utility grid interfaced Solar Photovoltaic (SPV) system for power quality enhancement in smart city application. Solar energy generation plays important role to meet out the future power demand as well as maintaining friendly environment. In this connection, power quality issues such as voltage sag, swell and harmonics are the major problem to maintain quality of power supply to all electrical and electronic loads which was used by the customers .An Adaptive Proportional Integral Derivate (APID) controller with a Unit Vector Template (UVT) is employed to generate reference current signal of shunt Active Power Filter (APF). The UVT based control scheme is used to separate the fundamental components from the load currents and to estimate the reference phase currents. These currents are used to generate Pulse Width Modulation (PWM) signal for the shunt APF. To maintain a constant DC link voltage of shunt APF an APID controller is employed in the DC link voltage regulator. This extended reference signal generation scheme of shunt APF has remarkably enhanced the system performance and also diminishes the current and voltage harmonics in the power distribution system. The presented reference current generation scheme has been mathematically examined and digital simulation results under different steady and dynamic states are presented. The solar PV system is accomplished by utilizing the incremental conductance Maximum Power Point Technique (MPPT) to increase the efficiency of the solar panel and interconnected to the utility grid. Finally the system provides uninterrupted quality of power supply to industries and residential loads in cities in terms if high reliability.

# Mr RAJAN GUPTA

Image	Delegate ID	Theme	Details
	YSC 10617	Digital India	<b>Category :</b> Software Engineering <b>Organisation :</b> DEEN DAYAL UPADHYAYA COLLEGE, UNIVERSITY OF DELHI <b>Designation :</b> ASSISTANT PROFESSOR

Smart cities are projected as one of the most ambitious projects in India under 'Digital India' movement. This study aims at determining the use cases for Advanced Data Analytics and Artificial Intelligence in the development of smart cities. As per the results of the survey, 7-8 major areas were identified from the documentation existing in western countries, which are not yet present in the Indian context. Usage of advanced data analytics like machine learning was found useful in Children's social service by measuring the level of risk being faced by children in the society; Emergency services like Fire, Ambulance and Police demand predictions (like in Braunstone Blues Programme) as well as for maintaining law and order (like the one used by HART tool); and Targeted inspections by the local government of the region for tax collections and various service provisions (like the one used to locate HMO in London). Artificial Intelligence was a prominent feature found in areas like advanced chat-bot creation for the customer care centres of local government to remove pressure of the face-to-face queries and telephone enquiries (like the one followed in UK) and usage of gadgets for Adult social care which helps in reducing the role of a human carer at home in case of installation of voice command driven automated gadgets. Similarly, an integrated platform was also identified for the citizens for a single view to their service subscriptions with the government (like 360 tool in Sunderland) and a dashboard creation was found useful for the local government in managing private service providers in the region like the one managed by Enfield Council. This study will help the Indian authorities in identifying important use cases existing in western world and will give them a direction in implementation of such solutions in the upcoming smart cities.

# Mr RATUL SAHA

Image	Delegate ID	Theme	Details
	YSC 10700	Digital India	<b>Category :</b> Applied Engineering <b>Organisation :</b> Dept. of E.I.E, Narula Institute of Technology <b>Designation :</b> Student

The aim of this paper is the development of the smart street light system. In this system, the street lights are automatically on and off according to the situation. This system automatically detects the movement of objects on the street and can check the speed of the object and can turn on the lights as per the appearing of the object. In the traditional system, UR sensor is used to detect the object and measure the speed of the object. The system is connected with Raspberry-Pi3. Which has been used for sensor interfacing & processing of the signal henceforth. Our work is focused on controlling the intensity of light considering the object movement near the light. A provision has been given to detect the speed of the vehicle beforehand. Two different sensors named Light dependent resistor and ultrasonic sensor are used. Once if the sunlight goes under the visual region (at night) then the system automatically switches ON light. As soon as the sunlight is visible (at morning) then automatically switches OFF light. This smart street light system is used to reduce energy consumption and to reduce rash driving. This project is implemented by smart embedded system which controls street lights based on the detection of vehicles or any other obstacle in the street. Whenever the obstacle is detected on the street within the specified time the light will get automatic ON/OFF and speed of the object can be checked according to the obstacle detection and the same information can be accessed through the internet. So, the real-time information of street light can be accessed anytime anywhere. We use Wi-Fi here to send the data to the website and the next street light. The Wi-Fi is accessible to everyone, it helps them in any emergency.

# Mr Ashok Babu

Image	Delegate ID	Theme	Details
	YSC 10729	Digital India	<b>Category :</b> Others <b>Organisation :</b> kkr & ksr institute of technology and sciences <b>Designation :</b> Assistant Professor

## Smart Crop Protection System from Animals using Raspberry pi

P.Ashok babu1, Assistant Professor, KKR&KSR Institute of Technology and Sciences, Vinjanampadu,  
ashokece421@gmail.com, 9494899421

T.Venkatrao2, Assistant Professor, KKR&KSR Institute of Technology and Sciences, Vinjanampadu,  
venkat.t114@hotmail.com, 8125914641

## ABSTRACT

Crops in farms are many times ravaged by local animals like buffaloes, cows, goats, birds etc. This leads to huge losses for the farmers. It is not possible for farmers to barricade entire fields or stay on field 24 hours and guard it. So here we propose automatic crop protection system from animals. This is a Raspberry Pi based system which uses a motion sensor to detect wild animals approaching near the field. In such a case the sensor signals to authorized points to take action.

Here the product generate sounds an alarm to woo the animals away from the field as well as sends sms to the farmer so that he may know about the issue and come to the spot in case the animals don't turn away by the alarm. This ensures complete safety of crops from animals thus protecting the farmer's loss.

## References:

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3. M. P. Shareef and T. V. Divya, "Secret audio watermarking using empirical mode decomposition and chaotic map," 2015 International Conference on Power, Instrumentation, Control and Computing (PICC), Thrissur, 2015, pp. 1-5.

# Mr Hemang Gohel

Image	Delegate ID	Theme	Details
	YSC 10763	Digital India	<b>Category :</b> Others <b>Organisation :</b> Birla Vishavakarma mahavidyalay <b>Designation :</b> Under-Graduate computer engineering student

Smart Energy Meter is my current engineering semester project, I worked on it from 4/5 months.

Smart energy meter is aotomated system of our electric meter, it contains raspberry Pi and gsm.

Role of raspberry Pi is to fetch data unit from electric meter and transmit to it into online data storage where that data are accessible to electric utility office and user's mobile with help of internet.

If system got disconnection of internet then raspberry pi automatically send text messages to utility office and user with help of gsm module which connected to raspberry pi.

These raspberry Pi and gsm will assemble into electric meter while manufacturing.

Due to these project people can see their real time usage of application and also prevent them self from pauer thefts., and also reduce man power at electric bill generation field.

Cost of meter will be increased but these is one time investment and have security life long so better for brighter future.

# Ms Bakul Srimany

Image	Delegate ID	Theme	Details
	YSC 10849	Digital India	<b>Category :</b> Others <b>Organisation :</b> Techno India University <b>Designation :</b> Research Scholar

Agriculture continues to play a major role in the life and livelihoods of a majority of the Indian population. In present century we have noticed a radical advancement in the communication process and similarly scientific agricultural communication also become more interactive and multidimensional. Especially for agricultural extension and advisory services (AEAS), whose primary element is communication, new media and social web can be a potential goldmine. Engaging with clients online, helping rural community to gain a voice, making development bottom-up, more fruitful innovation brokering, engaging with all the actors in agricultural innovation systems on the same platform – new and social media has more than one use for AEAS. This study undertaken during May 2017 to November 2018, suggests that implementation of geospatial technology, farming apps and social media like Facebook, YouTube, blogs, open access online agricultural research papers (ResearchGate, Academia.edu) are now being used to share diverse farming based information across different parts of India. Varied forms of information across different agricultural subsectors (crops, dairy, goat and poultry) and on different aspects of production, preventive management and marketing is being shared. The present study is an online exploratory study assessing use of few most popular social media platforms, online groups of farmer members and farming based entrepreneurs, access of farming apps etc. Activity of one agricultural university of four regions (north, west, south and east) of India was explored. The paper also provides an overview on the empirical test of the trends and scenario of the scientific farming and the implementation of new media and social web for developing agricultural communication in India. It also covers a range of issues related to the use of digital and social media platform to communicate scientific farming in vernacular language also.

# Mr YUVARAJ K R

Image	Delegate ID	Theme	Details
	YSC 10912	Digital India	<b>Category :</b> Electrical <b>Organisation :</b> JAIN INSTITUTE OF TECHNOLOGY DAVANAGERE <b>Designation :</b> ENGINEERING STUDENT

The smart city design means a city is driven technologically. In this we are using various sensors for measurement of air pollution, dust bins, water level, and parking space in various areas in the city. We take information from these sensors and send to PIC controller and PIC will send this information to Controlled area network bus. Via the CAN bus this info is send to other section for detecting the problem. From there the information is sent through GSM

# Ms Mamta Tripathi

Image	Delegate ID	Theme	Details
	YSC 10916	Digital India	<b>Category :</b> Biology <b>Organisation :</b> Upper Primary school <b>Designation :</b> Assistant Teacher

EFFECT OF DIGITAL INDIA PROGRAM ON EDUCATIONAL SYSTEM IN PRATAPGARH UTTAR PRADESH-A  
CRITICAL ANALYSIS

MAMTA TRIPATHI

ASSISSTANT TEACHER

C/O MANIK CHANDRA SHUKLA,

MELA GROUND,PATT I,PRATAPGARH,U.P.230135

Email-mamtapandey300@gmail.com

Mobile-9993037135

ABSTRACT-

Digital India program is a dreams come true in field of education to ensure that education is made available for all type of citizens. Electronically by improving online infrastructure and by increasing an effectiveness of connectivity to make country digitally and economically advanced with quality of education .There are nine pillars of digital India program are- Broad band highway ,universal accessibility, public internet connection e-governance ,e-Kranti ,information for all, electronics manufacturing IT for jobs and early harvest program .Digital India program has an expectation to create of a knowledge based society and economy.In present study researcher wants to know about effect of digitization on education .Methodology used in this study is descriptive survey and questionnaire prepared by researcher ,and observation . 150 schools of block Baba Belkharnath Dham of pratapgarh district of U.P. are selected for study. Secondary source of National and International journals are used as reference. There are many challenges shown in the successful implementation of E-Education like digital illiteracy low internet speed ,lack of interest and coordination of related people .Present government of India is focusing on providing broadband services in all the rural areas of the country .If this properly implemented it will give our Nation various opportunities to become powerfull Nation in the world.

# Ms Penilop PS

Image	Delegate ID	Theme	Details
	YSC 10988	Digital India	<b>Category :</b> Others <b>Organisation :</b> SAMEER-CENTRE FOR ELECTROMAGNETICS <b>Designation :</b> Scientist E

**Abstract:** The advancement of Wireless technologies increased the usage of them in the medical field, it is an emerging paradigm. Long-distance clinical care, health-related education, and Electronic Health Records (EHRs) are going to be, the center of healthcare evolution in India. Multiple challenges are faced while using wireless communication technologies in the health care environment. One of the core issues to address is the robust transmission of EHRs and other medical data. In this work MIMO (Multi-Input-Multi-Output) combined with OFDM (Orthogonal Frequency Division Multiplying) is exploited for transmission of critical electronic information in a fading channel environment, as it provides reliable transmission at high speeds. Allocating the wireless channel to e-health based devices on priority bases in the congested spectrum is another major challenge. A Cognitive Radio (CR) approach is presented to overcome this challenge and to utilize the available spectrum in an efficient way. The MATLAB Simulink model of the 2x2 MIMO OFDM transceiver link is developed for the robust transmission and it is implemented on Zynq-7000 System-on-chip (SoC) 7Z020 with radio frequency front end board, AD-FMCOMMS3-EBZ, Software Defined Radio hardware to show the Cognitive capability of the system. The performance of this link is analyzed by taking BER plots for medical data transmission at various power levels along with different modulations techniques. The simulated results show the adaptability of the developed system. The implemented wireless system, that uses the capabilities of MIMO for data transmission and CR techniques for the effective utilization of the wireless spectrum, provides a cost-efficient solution for E-Health applications.

# Ms indraja v

Image	Delegate ID	Theme	Details
	YSC 10992	Digital India	<p><b>Category :</b> Others  <b>Organisation :</b> SAMEER-Centre for Electromagnetics  <b>Designation :</b> Research scientist</p>

The advancement of Wireless technologies increased the usage of them in the medical field, it is an emerging paradigm. Long-distance clinical care, health-related education, and Electronic Health Records (EHRs) are going to be, the center of healthcare evolution in India. Multiple challenges are faced while using wireless communication technologies in the health care environment. One of the core issues to address is the robust transmission of EHRs and other medical data. In this work MIMO (Multi-Input-Multi-Output) combined with OFDM (Orthogonal Frequency Division Multiplying) is exploited for transmission of critical electronic information in a fading channel environment, as it provides reliable transmission at high speeds. Allocating the wireless channel to e-health based devices on priority bases in the congested spectrum is another major challenge. A cognitive Radio (CR) approach is presented to overcome this challenge and to utilize the available spectrum in an efficient way. The MATLAB Simulink model of the 2x2 MIMO OFDM transceiver link is developed for the robust transmission and it is implemented on Zynq-7000 System-on-chip (SoC) 7Z020 with radio frequency front end board, AD-FMCOMMS3-EBZ, Software Defined Radio hardware to show the Cognitive capability of the system. The performance of this link is analyzed by taking BER plots for medical data transmission at various power levels along with different modulations techniques. The simulated results show the adaptability of the developed system. The implemented wireless system, that uses the capabilities of MIMO for data transmission and CR techniques for effective utilization of the wireless spectrum, provides a cost-efficient solution for E-Health applications.

# Mr Naveen Tiwari

Image	Delegate ID	Theme	Details
	YSC 11045	Digital India	<b>Category :</b> Software Engineering <b>Organisation :</b> Rajkiya Engineering College Kannauj <b>Designation :</b> Assistant Professor

Smart farming is the need of the day considering an agriculture driven economy. Crop-yields and farmer's income have not grown as expected compared to past decades. Therefore, need of the hour is to switch to smart-farming to optimize the resource requirements. Smart-farming is a term collectively used to optimize almost every aspect of the farming from preparing the field for sowing to transportation of the produced. Smart-farming consists of various sensors and devices which should act on a particular condition. For example, moisture sensor can direct which part of the field need more attention and direct the flow of water. Drones can be used to take aerial-survey of the fields and detect the plants condition when trained with various types plant disease and suggest appropriate pesticides. Drones can even be programmed to perform selective sprinklers when accurate cause is known. These technologies when put together, will reduce the man-power requirement and guide the farmers to take near-perfect decision in order to optimize the overall cost.

# Mr Dilip Talgaonkar

Image	Delegate ID	Theme	Details
	YSC 11163	Digital India	<b>Category :</b> Physics <b>Organisation :</b> Yashavantrao Chavan Institute of Science, Satara <b>Designation :</b> Research Scholar and lecturer

## Abstract:

The simple and easily available chemical bath deposition (CBD) method was used for preparation of ZnO films. The deposited films have whitish in color. The as-deposited films were annealed in air atmosphere at 300 0C for 3 h. The XRD patterns of ZnO films show polycrystalline in nature. The optical properties of ZnO films were investigated using UV-Visible spectroscopic study. The UV-Visible absorption spectra shows more absorption light in ultraviolet region. The photoelectrochemical properties of ZnO films were studied in three electrode system potentiostat instrument. The films clearly display improvement in current response under light condition.

# Dr JASPAL KANDARI

Image	Delegate ID	Theme	Details
	YSC 11179	Digital India	<b>Category :</b> Others <b>Organisation :</b> AMITY UNIVERSITY UTTAR PRADESH <b>Designation :</b> DY DIRECTOR - ACADEMICS

Digital India Mission: Implications on Social Inclusion & Digital Citizenship

## ABSTRACT

The growth and welfare of a nation depends on the accessibility of its people towards economic resources. The gap between availability and utilization of resources is huge. Rural population (% of total population) in India was reported at 66.86 % in 2016, according to the World Bank collection of development indicators, compiled from officially recognized sources. Efficiently mobilizing their household saving and allocating them effectively to the growing credit requirement of the economy helps in sustainable development of the country.

According to India's National Sample Survey Organization (NSSO), for the estimated 165 million Indian rural households, there is need for investment in transportation, power and internet access to create more employment for women and youth in rural areas. Connecting people and making them a part of development is a mark of efficiency and excellence. Digital India Mission is one such initiative by the government to provide economic and social inclusion for its people.

The historic and ambitious new global development agenda recognizes that development will only be sustainable if it is inclusive. In September 2015, world leaders adopted an ambitious global development agenda, envisioning a just, equitable, tolerant, open and socially inclusive world in which the needs of the most vulnerable would be met.

Through the Empirical study inferences has been drawn on (a) Digital India Mission and its implications on social inclusion and (b) India and Digital Citizenship. An analysis has been made on achievements and concerns of Digital India Mission towards Digital Citizenship.

Keywords: Rural Population, Digital India Mission, Digital Citizenship, Sustainable Development

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# Mr Rahul Utkar

Image	Delegate ID	Theme	Details
	YSC 11235	Digital India	<b>Category :</b> Software Engineering <b>Organisation :</b> kre society arts commerce and science clg bidar <b>Designation :</b> student

Automatic Gender Identification in Child from Periocular Region

Rahul Utkar\*, Shubham Kalse, Rajmohan Pardeshi

Department of Computer Science, KRE Society's Karnatak Arts, Science and Commerce College, Bidar, Karnataka State, India- 585401

rahulutkar2017@gmail.com

**Abstract:** Biometric is the secure way to verify and identify the person. Biometric is difficult to copy and steal. Biometric has exclusive identifiers like fingerprints, retina, iris, hand geometry, voice, DNA etc. Iris based biometric person identification requires high resolution and high cooperation of subject which is not possible in our case because children are not cooperative subject. As Iris based system have such issues, periocular region getting attention of researchers. However area around the eye includes eye lid, eye lashes, and eye brows known as periocular region. Our approach is based on periocular region biometric identification of child. Periocular identification is useful in many applications where obtaining full face is difficult. Periocular recognition does not require high cooperation of subject and high resolution images. In this paper, we have presented a technique to identify the gender from periocular region of children. In our algorithm, we have applied three basic steps namely Pre-processing, Feature Extraction and Classification. In feature extraction we have computed various texture descriptors and various classifiers. We have achieved the encouraging results and recorded 88% of accuracy in our experiments.

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# Mr Ramdas Gore

Image	Delegate ID	Theme	Details
	YSC 11247	Digital India	<p><b>Category :</b> Agricultural Engineering</p> <p><b>Organisation :</b> Department of Computer Science and Information Technology, Dr.B.A.M. University</p> <p><b>Designation :</b> Research Student</p>

This paper reports the development of the soil spectral library using Analytical Spectral Device (ASD) FieldSpec 4 Spectroradiometer with a 350-2500 nm wavelength band. We have selected visible, Near Infrared (NIR), and Shortwave Infrared (SWIR) band for soil quality analysis. In this experiment, we have used a visible and Near-infrared band. The particular instrument is used to analyze the chemical properties of soil such as Carbon (C), Nitrogen (N), Phosphorus (P), and physical properties of soil such as soil texture (sand, silt, clay) and moisture content. It is observed that physical and chemical properties can be analyzed using the hyperspectral band. The soil is the backbone of the agriculture area. The database used for the experiment has 80 samples of soil which are collected from Aurangabad, Jalna, Parbhani, Hingoli, Nanded, Latur, Osmanabad and Beed from Marathwada region of Maharashtra state with their GPS coordinates. Linear Discriminant Analysis (LDA) technique is implemented for the classification of soil spectral signature of chemical properties. Soil texture of the Marathwada region comes under the silt clay loam. We got the 100% accuracy of Phosphorus content, whereas Carbon and Nitrogen content found 75%, 87% respectively for the Marathwada region.

# Mr Tej Yadav

Image	Delegate ID	Theme	Details
	YSC 11309	Digital India	<b>Category :</b> Software Engineering <b>Organisation :</b> Design Innovation and Incubation Centre <b>Designation :</b> Innovator

Online Village Management System is developed for Third eye of Govt. This is important step to monitor the obstructions in development of the country because of corruption ,crime and corrupted intermediates ...This is for national upliftment. This is most advanced web portal developed for statistics and documents after studying the modern time developed loop of web portals.

Government work and procedure will become easy after implementation of this web portal in government system and respected CM and PM will also have a special display system through which they can immediately get updated from each and every gram Panchayat /Nagar Panchayat /municipal corporation of the country. The unnecessary running of officers and civilians will decrease.

by this portal the detailed information of following points can be gained easily by automatic system :-

Up till now which family have not made ration card?

Who is the person without Aadhar card?

Who is the person without voter ID?

Which family does not have toilet?

Whosoever does not have LPG connection?

Which are the families that are unable to get electricity connection etc?

By bringing the web portal in use we can decrease crime by attacking the wrong thinking of criminal and corrupt people and after all it will be easy for the police to encounter the people(criminals) who keep on doing crime.

using this portal there will be no need to put camp for making voter ID , means, as soon as a person turns 18 year old his or her data will be sent to tehsil and buy one click of competent authority or officer the voter ID will be ready and will be received in the account created by the person and can be printed and kept.

Most of small and big portal's need will be fulfilled by this web portal .

# Mr Rajat Sharma

Image	Delegate ID	Theme	Details
	YSC 11455	Digital India	<b>Category :</b> Software Engineering <b>Organisation :</b> Srmu, Lucknow <b>Designation :</b> Research Scholar

Smart City Mission was launched in 2015 by Government of India as urban retrofitting and renewal plan. Traffic Management is a crucial to this mission of which parking management is biggest concern. It can be easily observed in the roads of several major cities of the nation that people are very casual in sense of parking, which leads to several great problems such as jams and snarl ups. It is also occasionally seen that many a times due to accidents and mishaps on the road produces cascading effects for people. We hereby propose a Cloud of Sensor (CoS) based mechanism in combination with the edge computing, cloud computing and Wireless Sensor and Actuator Networks (WSAN) for removing the menace of casual parking and emergency for efficient parking management. For the execution of proposed system Zeus Algorithm can be used which is best fitted for the purpose. Further Experimental approach to test the model will be validation of proposed model. When validated it would be a foolproof and improved technology of efficient and better traffic management in Smart Cities.

# Dr Arjav Bavarva

Image	Delegate ID	Theme	Details
	YSC 11548	Digital India	<b>Category :</b> Software Engineering <b>Organisation :</b> RK University <b>Designation :</b> Associate Professor

Wireless Multimedia Sensor Networks (WMSN) are designed to transmit audio and video streams, still images and scalar data. Multimedia transmission over wireless sensor networks have many attractive applications like video surveillance system, object tracking, telemedicine, theft control system and traffic monitoring. Researchers are facing many challenges such as higher energy consumption, higher bandwidth, reliability, signal detection and estimation, quality of service, security and privacy related issues to accomplish various applications of WMSN. Compressive sensing performs well on images by taking very less measurements compare to Nyquist criteria and also reconstruct in a better way at receiver side which ultimately reduce wireless bandwidth usage and energy consumption. Compressive sensing along with adaptive in nature even improves system performance in terms of bandwidth and energy consumption. Quality of Service depends on image size, the sparsity of the information, number of measurements and type of sensing matrix. Proposed algorithm detects mobility in target area. Simulation results shows tradeoff between video quality and bandwidth consumption which means video quality can be improved in terms of Structure Similarity Index (SSIM) and Peak Signal to Noise Ratio (PSNR) by increasing measurements but more measurements need more bandwidth. Furthermore, an adaptive algorithm is developed to solve this problem which automatically increases and decreases the number of measurements depends on event mobility. Sensor node decreases measurements and inform to base station if no any event or mobility occurs at target area. Algorithm applied at sensor node automatically increases measurements when event or mobility occurs at target area. Simulation results show that remarkable bandwidth consumption is reduced by proposed algorithm.

# Ms Dharna Bakotra

Image	Delegate ID	Theme	Details
	YSC 11555	Digital India	<p><b>Category :</b> Software Engineering</p> <p><b>Organisation :</b> R.K UNIVERSITY, RAJKOT</p> <p><b>Designation :</b> Ph.D scholar</p>

Wireless Multimedia Sensor Networks (WMSN) are designed to transmit audio and video streams, still images and scalar data. Multimedia transmission over wireless sensor networks have many attractive applications like video surveillance system, object tracking, telemedicine, theft control system and traffic monitoring. Researchers are facing many challenges such as higher energy consumption, higher bandwidth, reliability, signal detection and estimation, quality of service, security and privacy related issues to accomplish various applications of WMSN. Compressive sensing performs well on images by taking very less measurements compare to Nyquist criteria and also reconstruct in a better way at receiver side which ultimately reduce wireless bandwidth usage and energy consumption. Compressive sensing along with adaptive in nature even improves system performance in terms of bandwidth and energy consumption. Quality of Service depends on image size, the sparsity of the information, number of measurements and type of sensing matrix. Proposed algorithm detects mobility in target area. Simulation results shows tradeoff between video quality and bandwidth consumption which means video quality can be improved in terms of Structure Similarity Index (SSIM) and Peak Signal to Noise Ratio (PSNR) by increasing measurements but more measurements need more bandwidth. Furthermore, an adaptive algorithm is developed to solve this problem which automatically increases and decreases the number of measurements depends on event mobility. Sensor node decreases measurements and inform to base station if no any event or mobility occurs at target area. Algorithm applied at sensor node automatically increases measurements when event or mobility occurs at target area. Simulation results show that remarkable bandwidth consumption is reduced by proposed algorithm.

# Dr Harsh Vikram Singh

Image	Delegate ID	Theme	Details
	YSC 11585	Digital India	<p><b>Category :</b> Others</p> <p><b>Organisation :</b> KAMLA NEHRU INSTITUTE OF TECHNOLOGY (KNIT) SULTANPUR, 228118</p> <p><b>Designation :</b> Associate Professor</p>

Data safety is a primary concern in present Digital India scenario. The data transfer in a large amount over an efficient transmission channels are exchange between correspondent and recipient, are the main activities. The method of data interchange includes communication of several kind of data format: video, audio, images and texts. The circulation of information in an open network owing to exchange of data among many types of systems may introduce menaces for inappropriate use. So, this may cause a big trouble for digital data, which can be easily manipulated for someone own interest or for unauthorized access or manipulation. Therefore, it can be said that the confidentiality and integrity of data is a serious problem for ethical as well as for lawful reasons. One of the possible solutions for the above discussed issue is digital watermarking, which is a generally performed method to conceal the information in data as well as for authentication purpose. In Watermarking invisible information is inserted into the data that could be used to state proprietorship, amend the safety and prove the integrity of data.

In this paper a secure and robust hiding technique proposed which utilises machine learning algorithm. Additionally, it also covers algorithm for classification of RONI and ROI in the image data for secure data embedding, so that classified part remains unaffected.

Therefore a double layer security is introduced to make sure the robustness of hidden data as well as making the data scrambled into the coefficients of cover transform domain. Support Vector Machine (SVM) also used as a classifier, to classify cover media into “Non-Region of Interest (NROI)” and “Region of Interest (ROI)”.

The assessment of hiding robustness and imperceptibility of this simulated process has been made by estimation Bit Error Rate (BER) and Peak Signal to Noise Ratio (PSNR). It is shown that best calculated BER that is  $10^{-6}$  and very achievable for greater value of PSNR more than 35 dB, which is acceptable for image processing applications.

In addition proposed study carried out effects of hiding for shielding, authenticating and transmission of crucial medical data over a LTE network. The encouraging simulation results can have potential applications in secure data communication for Digital India Programme.

# Ms Trisha Bakshi

Image	Delegate ID	Theme	Details
	YSC 11643	Digital India	<p><b>Category :</b> Others</p> <p><b>Organisation :</b> Vidyasagar University</p> <p><b>Designation :</b> PhD Scholar</p>

“Stay Tuned”: ICT for Older Adults

Trisha Bakshi

PhD Scholar

117S, Diamond Harbour Road, Barisha, Kolkata – 700008

trishabksh@gmail.com

Abstract:

ICTs have touched the lives of the elderly like never before. The older adults are the fastest growing group of Internet users who purchase computers at a higher rate compared to any other age group. Researchers have predicted that this trend is likely to increase with an increase in the proportion of a tech-savvy generation coupled with a decrease in the cost of information and communication technology (ICT). However, this segment of the population largely remains excluded from enjoying the fruits of digitalization of services since the rate of adoption or usage of ICTs is relatively low among the elderly when compared to the younger generation. The older adults' perception towards ICT and social media use has been the subject of little research as they continue to constitute the digitally marginalized section of the society. This paper aims to reflect upon the perceptions of the seniors about the use of ICT, explore how it fits into their daily lives and tries to put in evidence some of the challenges they encounter while handling such a new technology. This qualitative study was conducted to investigate the relevance of ICT in the daily lives of the urban elderly of Kolkata, West Bengal, comprising of respondents belonging to the age group of 60 years and above, currently residing independently in home settings. Findings from the empirical research reveal that since the aged are a heterogeneous group having differential preferences, not all of them find social media and ICT use necessary and interesting but many have embraced ICT for performing routine tasks with ease and use social media for staying connected to friends and family. The paper presents some policy recommendations for program developers to help design elderly-friendly technologies to help them overcome present barriers in technology adoption and hopes to make important contribution for future research on the use of ICT by the older adults to enhance active ageing.

Keywords: Older adults, Technology, ICT, Internet, Social Media, Digital Inclusion

# Mr Suvankar Dutta

Image	Delegate ID	Theme	Details
	YSC 11957	Digital India	<p><b>Category :</b> Chemical Engineering</p> <p><b>Organisation :</b> Aditya Birla Science &amp; Technology Company Pvt. Ltd.</p> <p><b>Designation :</b> Sr. Scientist</p>

Integrated Platform for Process Optimization through Digital-Twin (IPPOD) framework is developed for creating value in terms of people, planet and profit. Critical components of IPPOD framework considered here are Data validation, Data processing, Predictive and Prescriptive Analytics with process control. Key features of predictive and prescriptive models are amalgamation of system physics, real time data from cognitive sensors and operational know-how of the process. Eventually, IPPOD framework is a digital-twin in manufacturing as an exact replica of physical asset in digital world. In staple fibre manufacturing process, moisture is one of the main quality parameter for finished staple fibre product. Fibre moisture is controlled by the drying operation at the end of process but upstream moisture variability due to many production disturbances (feed rate variations, tow cutting, tow leaving, tow wrapping, squeeze roller pressure variation, air quality, etc.) and environmental conditions has potential to impact final fibre moisture quality. Manual control of dryer zone temperatures based on delayed measurement of the final fibre moisture post packaging typically leads to over or under action. IR thermal imaging system is introduced at drying stage to capture the real time temperature spectrum over fibre surfaces. Generated temperature spectrum is then processed through deep learning algorithm along with other key process variables to predict the fibre moisture in advance. Dynamically, all information is processed through a Uniform Resource Locator (URL) which is hosted at cloud. Artificial Neural Network is used to process this information through pre-trained model. Ultimately, model predicts fibre moisture at least 15 minutes before the final packaging. Digital twin of the dryer is developed through data driven and physical model which essentially control the fibre quality automatically in narrow moisture range (+/-0.5%). Developed model is also capable to forecast the maximum production capability under a given atmospheric condition and help to take decision at enterprise level. Hence to improve the quality of fibre at the end of drying operation and incorporate automation of dryer using 'Internet of Things' based concept, IPPOD integrates a model driven approach to support moisture prediction and prescriptive control of Conveyor belt dryer. This approach successfully includes development of simulation- based digital twin that combines data driven moisture prediction, mathematical modelling of drying process and optimization of control variables.

# Prof Hiren Kathiriya

Image	Delegate ID	Theme	Details
	YSC 11979	Digital India	<p><b>Category :</b> Applied Engineering</p> <p><b>Organisation :</b> RK University</p> <p><b>Designation :</b> Assistant Professor</p>

The term Industry 4.0 incorporates a new industrial revolution to advanced manufacturing techniques with the Industrial Internet of Things (IIoT) to frame manufacturing systems for industrial revolution that focuses heavily on inter connectivity, automation, machine learning and real-time data. Impact of internet of things has greatly increased in the manufacturing sector with constraints in energy efficiency, self-powered sensor nodes and security for practical implementation. By reviewing on going researches in IIoT, one of the key challenges which needs to be addressed is to develop an energy efficient routing protocol for sensor nodes which sink energy from ambient energy sources for processing of gathered data to align the goals of industry 4.0 revolution. We proposed Enhanced MODLEACH protocol to improve energy efficiency of wireless sensor network. We introduce that clustering reduces energy consumption in Wireless Sensor Network. LEACH was first clustering protocol and there are several protocols based on LEACH introduced with their advantages and disadvantages in this report. Proposed protocol for homogeneous and for proactive network is explained. Our Protocol used different cluster head election equation and algorithm in which limits number of cluster heads and increases lifetime of network as well as different power levels introduced for reduce energy consumption as well as sleep and awake schedule introduce for removing energy hole and better stability period so energy consumption is reduced and lifetime increases. We see reactive ness using soft threshold (A-MODLEACHST) and hard threshold (A-MODLEACHHT) reduces the number of transmissions and saves energy. According to simulation results and analysis of proposed schemes, we say that our proposed Enhanced MODLEACH protocol performs better than LEACH, MODLEACH and few other modified MODLEACH protocols. We enhance proposed protocol by using better cluster head selection method and better sleep, and awake schedule and better energy hole removing mechanism.

# Mr Rudra Narayan Dash

Image	Delegate ID	Theme	Details
	YSC 12004	Digital India	<b>Category :</b> civil Engineering <b>Organisation :</b> IIT BBSR <b>Designation :</b> Project assistant

In the developing new India, there is a rapid growth of infrastructure development in the country. For determining the foundation type and size, there is a requirement of examining the foundational strata at the base of the construction. This scrutinizing procedure encompasses vital information regarding the Safe Bearing Capacity (SBC) of the soil which determines the maximum amount of load that can be resisted by the soil at the foundation level present in the area of construction. Lack of this information can affect the safety and durability conditions of the structure.

Although this study is very important, most of the non-engineered construction does not go for finding out the SBC of the soil at the sites, and at present, there are mainly based on the judgment of the mason.

Hence, a pilot study has been taken up in the Bhubaneswar City region to prepare a web-based application, by which one can find the SBC of the soil at his/her construction site, without going for detailed soil investigation. To facilitate this, different types of soils from different locations of Bhubaneswar up to a certain depth were collected and taking those soil samples from field laboratory tests was conducted for their characterization and calculation of safe bearing capacity. After calculation of bearing capacity values, a database has been prepared followed by the development of software and hosting the same through a website for giving access to anyone in need.

From this present study, it can be considered that this pilot study was very successful and can be scalable for many major cities or localities, where the un-organized, non-engineered sector of infrastructure development can use this tool for their own locality and greatly be benefitted.

# Mr Chandra shekhar Yadav

Image	Delegate ID	Theme	Details
 <p>CHANDRA SHEKHAR YADAV</p>	YSC 12042	Digital India	<p><b>Category :</b> Software Engineering</p> <p><b>Organisation :</b> Standardisation Testing and Quality Certification (STQC), MeITy</p> <p><b>Designation :</b> Scientist B</p>

In India approximate 10% people are suffering from different kind of health issues, due to that they face problems from day to day activities. Due to digitization of data and digital India mission most of the services from Pension, Passport, Bank, Railway Reservation, Aadhar card-based services etc. are online accessible. But due to large number of disabilities (now 21 disabilities recognised by The Rights of Persons with Disabilities Act-2016) the scope and range of these services becomes restricted in limited domain. To increase wide coverage of all the services and information the Web accessibility plays a crucial role to empower its own citizen and gives equal chance of all age people, with or without disability. Making website accessible puts extra financial cost in development and testing. The cost of GIGW-2018 (Government of India guidelines for websites-2018) compliance implementation can be reduced if developer follow general and accessibility guidelines like the proper structuring of HTML; provide proper alternate text for Images, Input methods; Label for input methods; caption or transcription for audio, video content; proper color contrast ratio. In this work we are presenting requirements of Accessibility guidelines not only for disabled person but temporary disable person due to accident, ageing, and acid attack. A comparative study is conducted based on 98 different accessibility measures for top Indian university with top USA, UK, Chinese, and Russian universities to check fulfilment of the accessibility guidelines. Along with this study the solution is suggested how to mitigate from these challenges and make cost effective accessible websites and applications.

# Dr Arjav Bavarva

Image	Delegate ID	Theme	Details
	YSC 12182	Digital India	<b>Category :</b> Software Engineering <b>Organisation :</b> RK University <b>Designation :</b> Associate Professor

The term Industry 4.0 incorporates a new industrial revolution to advanced manufacturing techniques with the Industrial Internet of Things (IIoT) to frame manufacturing systems that focuses mainly on inter connectivity, automation, machine learning, and real-time data. Impact of internet of things has greatly increased in the manufacturing sector with constraints in energy efficiency, self-powered sensor nodes and security for practical implementation. By reviewing ongoing research in IIoT, one of the key challenges which needs to be addressed is to develop an energy efficient routing protocol for sensor network which sink energy from ambient energy sources for processing of gathered data to align the goals of industry 4.0 revolution. We proposed Enhanced MODLEACH protocol to improve energy efficiency of wireless sensor network. We introduce that clustering reduces energy consumption in Wireless Sensor Network. LEACH was first clustering protocol and there are several protocols based on LEACH introduced with their advantages and disadvantages. Mathematical model of the proposed protocol mainly focus on different cluster head election equations and algorithm which limits the number of cluster heads and increases the lifetime of the network. Furthermore, different power levels are introduced to reduce energy consumption as well as sleep and awake schedule is introduced to remove energy hole and better stability period so, energy consumption is reduced and lifetime increases. We see reactive ness using soft threshold (A-MODLEACHST) and hard threshold (A-MODLEACHHT) reduces the number of transmissions and saves energy. Results shows that proposed Enhanced MODLEACH protocol performs better than LEACH, MODLEACH and few other modified MODLEACH protocols. We enhance proposed protocol by using better cluster head selection method and better sleep, and awake schedule and better energy hole removing mechanism.

# Dr Kavita Taneja

Image	Delegate ID	Theme	Details
	YSC 12204	Digital India	<p><b>Category :</b> Software Engineering</p> <p><b>Organisation :</b> DCSA, Panjab University, Chandigarh</p> <p><b>Designation :</b> Asstt. Prof.</p>

Abstract: One of the major pillars of Digital India is eKranti that advocates electronic delivery of services to common man. The vision of Digital India roots to integrating citizen centric services and information technology. The major hurdle in digital India dream coming true is that a large portion of nearly 1.369 billion Indians are still unfriendly to multifaceted applications that need to be customized for effortless and convenient representation of user's requirement. Particularly, the Indian insurance industry is regarded as one of the most complex and information rich sphere that is experiencing phenomenal growth with the escalation in products in insurance companies, policy price comparison websites and digital revolution. As declared in Union Budget of India 2019-20, India has become the sixth largest economy in the world. The budget sets the vision for \$5 trillion economy driven by investment. Government focusing on insurance sector has increased the foreign investment limit on insurance intermediaries to 100% from 49% earlier. Also, on global platform life insurance growth prospects are brighter with increase in net investment income by 4.4%. But this vision can be geared toward successful accomplishment only if our masses are not distant to the digitized life insurances selection primarily due to the complexities and time involved in selection of appropriate policies. Presently, maximum contribution of policy selling goes to agents that may be biased. The literature study reveals that the recommendation systems in insurance domain still needs many improvements because of lack of localized public datasets and complexity. One's decision to select a life insurance policy solely depends upon the purpose and priorities of the user. The proposed study reveals that there is need of efficient user preference oriented framework to improve the quality of recommended life insurance policies. The customized mobile application aims to provide a neutral, personalized life insurance recommendation based on defined preference specifications on a single mobile click thereby freeing the user from tedious computations and complexities of various life insurance products. This intended framework implemented as open source may free the common man from tedious job of life insurance policy selection. An interface for convenient representation of user's details and preferences for policy features will contribute in a long way to digitize the insurance sector and empower technology to all for assistance in taking life term investment decisions.

# Dr Harmunish Taneja

Image	Delegate ID	Theme	Details
	YSC 12213	Digital India	<p><b>Category :</b> Software Engineering</p> <p><b>Organisation :</b> DAV College, Sector 10, Chandigarh</p> <p><b>Designation :</b> Asstt. Prof.</p>

Abstract: Every citizen of India irrespective of social, economic and educational background must have equal access to technology so as to accomplish Digital India vision in true sense. India is a land of diversity highlighted primarily by literacy gaps and geographical differences. Citizen empowerment in terms of 24x7 technology access suffers majorly due to infrastructural bottlenecks. Ad hoc networking is the need of the hour as it creates dynamic and multi-hop networks of mobile devices for data communication purposes. It enables access to digital resources anytime-anywhere. Majorly, mobile computing represents a convenient enhancement to wired local area distributed systems by the elimination of time-and-place boundaries imposed by desktop computers and wired networks. In the last decade, the storm of economic smart phones and convenient mechanisms for browsing Internet resources has engendered an explosive growth in the use of these resources. The ability to access them all times through mobile computing allows their use to be integrated into almost every aspect of life and has further accelerated the demand for high speed data and network services on the fly. The prime challenge for network designers for digital India is network connectivity and data speed. Even in urban areas, data network connectivity is emerging as major concern these days due to uncontrolled data traffic which proves available spectrum as deficient. During the course of the evolution of public transportation system in India, traffic control and road management mechanisms were implemented and something as basic as multilane roadways has played a major role in efficient land transportation. Similarly, the challenges faced by network service providers can be addressed by incorporating mechanisms for utilizing the existing bandwidth spectrum through efficient medium access control protocols. Such reforms promise to provide equal technology access as a basic right to every citizen. The basic idea is to improve the capability of existing spectrum for data transfers through efficient multi channel medium access control framework that can enhance the capabilities of data communication for diverse business, personal, social and enterprise processes. This is indeed the pivotal objective of the network engineers watching the growth of Digital India from packet radio communication to today's global social networks expanding at exponential rate. Simulation results clearly suggest improved network performance in terms of higher throughput for proposed work.

# Dr SHIRISH KHEDIKAR

Image	Delegate ID	Theme	Details
	YSC 12363	Digital India	<p><b>Category :</b> Software Engineering</p> <p><b>Organisation :</b> India Meteorological Department</p> <p><b>Designation :</b> Scientist</p>

In India, total casualties due to road accidents is around 1,50,000 per year which is equal to 1 accident every 4th minute. But over several decades, no definitive measure has been taken by the responsible authorities. If impact of weather is considered, then the majority of the accidents happened during rainy season as well as poor visibility due to bad weather. There are lots of problems in logistics and transport systems due to lack of real-time warning systems, road and transport practices are static in India. There is no dynamic traffic management to mitigate weather and time effect in transportation and health; hence high cost is involved in transportation. Moreover, Time-consuming transportation and inefficient storage of agro-products makes loss to Agro-Producers as well as market and valuable consignments that ultimately make loss in economy. No alternate transport allotment mechanism available in our country based on bad weather, pollution, traffic etc. To overcome these problems an intelligent self-adjustable logistic support system is prepared to optimise use of Weather information (in advance) in Road and Transport issues. "Hi-wayther (Hi-weather)" is an Artificial Intelligent based extra advanced road and transport solution where different available routes are analysed based on current and future weather hazards, pollution, traffic etc. The system is able to monitor bridges, landslide, river flow on real-time basis; it can give Agro-logistic support in advance to optimise storage, transportation in food processing and agro markets. Timely delivery is crucial factor for farm produce and perishable goods, it is found that drivers involved in carrying these types of goods more prone to accidents. This system has ability to suggest nearest shelter warehouses and health support based on severe weather climatology and hazard inputs. It can also suggest nearest markets, cold storage, railway stations, ports, airport, cargo hubs, hospitals, police stations etc. Various options are given in the application to suggest route based on requirements and logistic hazards. This GPS based application uses Artificial Intelligence and weather forecast services together to track the route and suggest necessary changes in route based on future possible situations. Application allows rider/ driver to avoid heavy rain, floods, lightning, thunders, cloudy weather, high temperature, pollutions, fog, land-slide, high-traffic etc. based on requirements of consumer and supplier. This application, can ultimately serve various requirements of the user by suggesting safe and optimised route and helping economy by saving lives and resources, especially helping farmers in food and agro-market.

# Ms Sana Afreen

Image	Delegate ID	Theme	Details
	YSC 12365	Digital India	<p><b>Category :</b> Others  <b>Organisation :</b> Sam Higginbottom University of Agriculture, Technology and Sciences  <b>Designation :</b> PhD Scholar</p>

Formulation, Development and Evaluation of an E-learning platform for nutritional planning and food composition studies  
Sana Afreen\*, Prof. (Dr.) V. Paul\*\* and Dr. M. A. Usmani\*\*\*

\*Ph.D. Scholar, sanaafreen849@gmail.com

\*\*Professor, virginia.paul@shiats.edu.in

\*\*\*Associate Professor, minhajsmn@gmail.com

Food is something which interests everybody as we strive on it. Humans have evolved to the times where we know the exact amount of micronutrient required by our bodies in a day and the likewise. With the wave of detailed and complex data coming, the art of eating has become complex for a common man. An issue faced by practicing dieticians is the unavailability of authentic sources in easily accessible formats for nutrition planning. Keeping the advancement of the digital age in mind a web based platform was formulated. This way people could check the nutritional value of Indian foods in a click and also formulate a diet plan.

The effectiveness of the website was checked by the feedback form that every user filled after using the website. The results of the study were encouraging. The website made its way in everyday life of a person, specially a diet planner.

Out of 107 respondents, the overall impression of the website was rated "Good" by majority of respondents i.e. 50 (46.73 %) and 44 (41.12%) found the website "Excellent". 70 respondents (68.63 %) said that KNOW YOUR DIET (the website) improved the accessibility and availability of authentic sources of diet planning material more easily while 24(23.53 %) replied partial improvement.

Thus the outcome of the study indicates nutrition education can be imparted successfully and effectively via such platforms.

Keyword- Nutrition, website, diet planning, digitization, Food

\*Research Scholar, Department of Food Nutrition & Public Health, SHUATS, Prayagraj.

\*\*Professor, Department of Food Nutrition & Public Health, SHUATS, Prayagraj.

\*\*\*Associate Professor, Department of Home Science, Isabella Thoburn College, Lucknow.

# Mr VED PRAKASH SINGH

Image	Delegate ID	Theme	Details
	YSC 12408	Digital India	<p><b>Category :</b> Agricultural Engineering</p> <p><b>Organisation :</b> India Meteorological Department, MoES</p> <p><b>Designation :</b> Scientist-C</p>

In current era of advance Image Processing and Artificial Intelligence (AI/ ML), agriculture has also been benefited effectively to facilitate resources and services to the agro-users. We have also attempted to build a mobile application to integrate agro-services and agro-met advisories in an intellectually automated and customized manner for (1) recognizing plant diseases and impact analysis of treatment provided so far in r/o particular disease, (2) auto-indication of drought/dryness and need for irrigation, (3) identify plant growth through vegetation analysis and check for pest/ fertilizers, (4) customization of agro-meteorological advisory at the level of farmer in their language, and (5) smart work schedules for farmers to save them from undesired hazards viz. lightning and hailstorms. In the proposed application, facility for recording the plants pictures is provided to asses real time status of crop growth, vegetation, soil colour and dryness. Further, the same is uploaded to server where AI based data analytics takes place to recognize disease in crop if any, spread probability of disease, need for pesticide, fertilizers and irrigation in well advance (10-15 days) etc.

India Meteorological Department issues district level agro-meteorological advisory, which is neither customized to farmer, nor includes ground level real-time solution. With the proposed solution through an application named Krishidoot, one can capture and send the pictures time to time to server to assess the impact of disease and treatment. The application will be very useful in automatic recognition of disease for uneducated farmers as well as for the prediction of non-regional disease in the plants. A cloud server has real time videos/ images, predefined dataset for the purpose of matching the data, being provided by different users and some ex-situ observations which is updated by experts. Here, a multi-layer Deep learning model is designed for large-scale classification of plant and soil images, which are collected from various farmers, are analyzed with predefined images using machine learnings algorithms for the indication of plant diseases, drought and pest infection along with its various parameters including crop organs status, crop-stage, disease name etc. After crop status and weather analysis, customized advisory is issued to user through application either in visual or audio form. At present, the proposed application provides solutions for the pests, drought and diseases of wheat & betel leaves along with estimated loss, smart irrigation (helping in saving water) for the States of Madhya Pradesh and Maharashtra.

# Dr SHUBHASIS DAN

Image	Delegate ID	Theme	Details
	YSC 12428	Digital India	<p><b>Category :</b> Others  <b>Organisation :</b> MAKAUT  <b>Designation :</b> Faculty, Dept. of Pharmaceutical Sciences, School of Natural &amp; Applied Sciences</p>

Background: The Patient Information Leaflet (PIL) is the leaflet included in the pack with a medicine, which provides information on using the medicine safely. The document is called 'prescribing information' or 'package insert' (PI) and layperson's document is called the patient package insert (PPI) (USA). In Europe this technical document is called as the 'summary of product characteristics' (SmPC) and the document for end-users is called the 'patient information leaflet' (PIL) or 'package leaflet'.

Problems associated with the PIL

Content-related problems

- Too many medical terms; Instructions of use hard to follow • Overall complex text, Hard to understand the message
- Lack of information for the elderly patients; Volume of the text; too much text • Difficult to understand for low literate patients; Ambiguous information

Layout-related problems:

- The most important information is not in the beginning • Length/Structure of leaflets; A single template doesn't suit all patients in all countries
- The visual design is unattractive and unappealing; Font too small, Hard to read • Difficult to find answers; Size of the leaflet too long
- Not using pictures / tables / graphs; Key-information not highlighted

To overcome the problems • Inclusion & highlighting key information as well as use of pictures / pictograms / tables; using lay language, without using medical terms. Information for patients who have problems with various allergies; Information related to (healthy) lifestyles that can improve the condition • Explanation of the reasons why certain advise in the PIL is given in a particular way • Present adverse effects by incidence; Pharmacovigilance should be more pointed out. • Summary of the information presented; Comparative information, e.g.: how does this drug relates to placebo or other medicines used for the same indication. • PILs should be targeted at a reading age of 7; Harmonized structure

Solution: Digital Approach

- Providing the designing and content of PIL in compliance with the QRD-template? PIL summary will be provided with the product
- ? Linking the PIL via QR code
- ? Detailed information can be obtained by QR Scanning
- ? Revision and timely updating of the PIL

- PIL can be linked with the Investigators Brochure (IB) if required
- PIL repository
- Flesch-Kincaid Grade Level Readability user test ([www.webfx.com/tools/read-able/](http://www.webfx.com/tools/read-able/)).

Reference: Different Guidelines- WHO, EMA, USFDA, CDSCO

# Ms Anto Merline Manoharan

Image	Delegate ID	Theme	Details
	YSC 12434	Digital India	<b>Category :</b> Electrical <b>Organisation :</b> Anna University <b>Designation :</b> Ph.D. Research Scholar

With the rapid advancement of smart devices on the Internet of Things (IoT), a huge amount of data is exchanged during the Information Transfer in a dumb area. This may cause large transmission delay and heavy packet loss that results in network congestion. Therefore, Constrained Application Protocol (CoAP) and Advanced Congestion Control algorithm for CoAP (CoCoA+) is currently being specified by Internet Engineering Task Force (IETF) to ensure proper and timed communication in the IoT networks. In this paper, an enhanced congestion control protocol called EnCoCoA++ is proposed to address the problem of network congestion towards IoT application. In the proposed protocol we integrate Timely-RTT (Round Trip Time) based congestion control algorithm with CoAP. The proposed protocol is implemented and Tested using the Cooja network simulator provided by Contiki OS. We observe that Timely-RTT based congestion control algorithm give a more accurate measure of congestion and the Retransmission Time Out (RTO) is reduced significantly, thereby leading to reduce the number of retransmissions, while guaranteeing throughput and delay corresponding to those of CoAP and CoCoA+. In addition to the congestion issue, Security is one of the major threats in IoT implementation. In this proposed system along with EnCoCoA++, a new enhanced security encryption algorithm is used in the IoT nodes to encrypt the data from the IoT end devices. Triple AES encryption algorithm is the proposed protocol which is implemented and Tested using the Cooja network simulator provided by Contiki OS. The proposed system with EnCoCoA++, Triple AES gives a secure and congestion less data transmission between the IoT devices which improves the performance of the IoT system.

# Mr BISWAJIT DEBNATH

Image	Delegate ID	Theme	Details
	YSC 12436	Digital India	<b>Category :</b> Others <b>Organisation :</b> Jadavpur University <b>Designation :</b> Research Scholar

The Digital India Mission launched by the government of India is an important steps towards globalization. It is imperative to adapt and move along with the new developments in the technological world. The Digital India Mission also encompasses the smart city mission as internet and ICT equipment are the main enablers of these mission. However, there are certain issues and challenges that will arise with the implementation of the Digital India Mission such as the mammoth issue of e-waste as well as the security issues pertaining to it. Security issues may arise from other electronic gadgets and their peripherals as well. In the long run, if proper preventive measures are not taken, the common people may fall prey to malpractices of the cyber world. Additionally, e-waste scenario may get worse without proper plan. In this study an attempt has been made to find the solutions to these issues. A solution framework has been proposed which help in handling these issues. Additionally a detailed discussion has been provided from the perspective of sustainability. The solution architecture is expected to be helpful to the policymakers and other stakeholders.