# ELECTRON

**Padmabhushan
Dr. Karmaveer Bhaurao Patil
(D.Litt.)**

**Rayatmauli
Sou. Laxmibai Bhaurao Patil**

## INSIDE THIS ISSUE

**Theme for Current Issue:**

**Internet of Things**

**(IoT)**

## Inauguration of Newsletter "ELECTRON" (Volume I, Issue I)
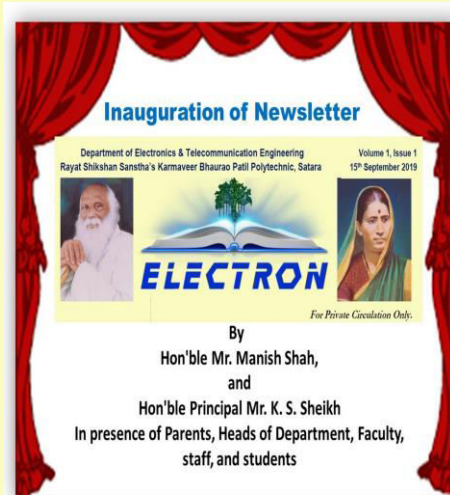




On the occasion of Engineer's Day (15th September 2019), our first Newsletter "ELECTRON – Volume I, Issue I" was inaugurated by industrialist Mr. Manish Shah (Innovative Automation Products, Satara), Principal Mr. K. S. Sheikh, Prof Dr. K. C. Shaikh, and Prof A. P. Palekar.

## NEWS FLASH



**Mr. Paras Sutar & Mr. Sourabh Landge, Winners in Circuit Mania Competition held on 18th January 2020, at TECHFEST 2K20, A State Level Competition Conducted By ABIT, Shendre, Satara**

# Message by Editor in Chief

**IoT and Agriculture**

**Prof.  J. B. Jagtap**
**(M. E. Instrumentation)**
**Editor in Chief**
**Head of Department**

I am proud to publish our second (Volume 1, Issue 2) newsletter "ELECTRON". This issue is focused on IoT. The **'Internet of Things (IoT)** has power to bring major changes in every field; agriculture has no exception. There have been many technological changes in agriculture over the years. To fulfill the requirements of very huge population, agriculture industry has no choice but to adopt IoT. Unfortunately in India agriculture is somewhat neglected field, in terms of technology. With 'IoT' in agriculture, time and effort by the farmer and labor can be minimized.

How IoT can be help agriculture field?

❖ The farming equipments can be turned ON and OFF using mobile phones.
❖ The watering pattern can be decided by checking moisture contents, with the help of sensors.
❖ The decision of which crop to be harvested can be done with the help of weather forecast.
❖ The Soil microorganisms, water and other essential or hazardous constituents can be reported and accordingly fertilizers can be used.
❖ The disease or pest infestation on the crop can be detected and controlled with the help of sensors.
❖ The profit can be increased, with accurate information of farming area, soil type, seed types, climate, time-to-market.

The adoption of IoT has begun slowly, but need to be enhanced. Everywhere same formulae are not applicable; it varies according to factors such as crop, land, location, availability of water, weather, etc. Also, one of the major hurdles in the use of 'IoT' in agriculture is the inadequate information, fear about technology. So, with appropriate facilities and training on IoT to farmers, Indian agriculture field will is become smarter.

# Industry Speaks

**IoT and Industry**

**Mr. Satish Ansingkar**
**Owner,**
**V. V. Automation, Pune**

There are certain terms coined and they become hot topics…………
**IoT** is one of them. Is it the wrong trend???? .. **NOT AT ALL**…..
But we need to take things with pinch of salt… All the more, when it comes to Indian subcontinent or Developing countries… Developed countries are the ones which determine the Technology Trends. They are in the race of "Time frame v/s Product features v/s Need of Hour v/s Competition".
Certain developments occur due to curiosity, certain occur with problems faced by human/nature, certain developments are done in order to be ahead in competition ……… And in 21$^{st}$ Century there is added factor, Cost/Time saving, for support of the product after sales.
I am discussing IoT based on practical difficulties faced by Industry for IoT and the way ahead.

Most of the developments that happen in Europe, USA, Japan and other developed countries are way ahead of academics. Mind you, Intel developed the processor and brought in society and then later it came to academics. Same is true for Windows and internet and so on…. Internet was active in USA military several years before it was brought to general use. We all know what IoT is. Imagine a group of people each from different countries needs to communicate within themselves. What is needed is an Interpreter…. Who must understand not only language but also essence of it and then translate it. IoT was brought as the subject and it is possible that this may become the separate branch of IT. IoT is always discussed about Home Appliances, Building Automation, Camera, and so on. Let's look at Industry. It was industry

which felt its need, but faces more difficulties than other. Just assume that there are several 100 different types of machines on a shop floor, be it Lathe Machine, Plastic Injection Molding, Grinding machine, Robotic Hand, Heating Furnace, Paint Shop or so on. Each is operated by separate operator. Now the Shop in-charge needs the information of production, quality, efficiency, etc. He was needed to go to each one or call them to him. This triggered a need that management cannot depend on Individual's opinions but need the hard facts. This brought the communication port into system like Printers. This went on to further need of interconnections of Machines/Processes. It is easier for Home appliances or Mobile PCs…. to bring the Blue Tooth/WiFi, because it is much more on personal basis. Also they are high in volume, which can afford the dynamic changes without affecting other. However in industry Machines or processes are expected to run for minimum 10 to 15 years. What this means is, there could be Machines on Shop-floor which has CPUs from old generation. Old generation CPUs don't have the capacity to communicate or communicate in the fashion that is needed by the Protocol. Industry mostly has RS485, Ethernet, RS232, USB etc. on the electronic systems.

This has certain protocol. What IoT demands is the Common platform that could fetch the information. Now this Common platform will have to deal with very different inputs (hardware & software). Not only that but the Electronic system that transfers the data has to have software on it to send or receive the data in the format needed. The biggest challenge faced by Industry is, how to upgrade the CPU with communication channels without spending money or without downtime…. or whether to invest the money needed to bring this change. There is also a factor that format of the data has to be common e.g. Excel, CSV etc. IoT surely helps a lot for not only production, but also for remote support for Service Engineers. Remote problem solving is the very big advantage of IoT. However Industry from India or Developing countries, cannot switch over fully to the new platforms. This has also another angle; Indian industry has 30% of old machine bought from abroad. This means the secondary technology/ outdated technology is bought by our users, and in addition, these age old machines running for many years……………………

IoT in Industry has to be welcomed for sure but with due expectation level considering the Practical issues.

"Learn Everything that is good from others but bring it in, and in your own way absorb it; do not become others"

Swami Vivekananda

## From Alumni Desk



**Future of IoT Technology**

**Dr. Anandrao Kakade**
**Dean Research & Development,**
**Rajarambapu Institute of Technology,**
**Sakharale**
**Alumni – Batch 1998**

The internet of things (IoT) is buzz word today. The internet of things is a rapidly growing technology which aims to connect all electrical devices, electronic devices and mechanical devices to the existing Internet infrastructure for the purpose of controlling and monitoring. Many technologies we use today make use of IoT. This includes online payments, Google map, online shopping etc. However in earlier IoT applications end to end devices were limited to Computer or mobile phones. Also, in past IoT was limited by internet data speed and limited low speed cellular mobile infrastructure. End to end devices in the todays or future IoT palpations will not be limited to computer or phones only. End to end devices in IoT applications can be machines in the industry, robots, vehicles etc. In many parts of the world 5G services are started which offers highest ever wireless internet data speed which will enable many new IoT

applications which were not possible earlier. Google Voice recognition we use on smart phone is classical example of IoT. Smart phone is not capable of processing voice recognition due to limited memory and processing speed. Also it needs special software with voice recognition algorithm. In Google voice recognition, user voice data is sent to cloud over high speed internet for detection of voice and converting voice to text. That is voice recognition and voice to text conversion is done on cloud. The converted text is sent back from cloud to user phone for Goggle search purpose. Many such applications are possible on Smart phone because of IoT. Because of tremendous advancement in IoT technology as well as in Electronics many devices and machines in the world will be remotely controlled and monitored using IoT. Industry 4.0 also referred to as fourth industry revolution, and will be based on 5G
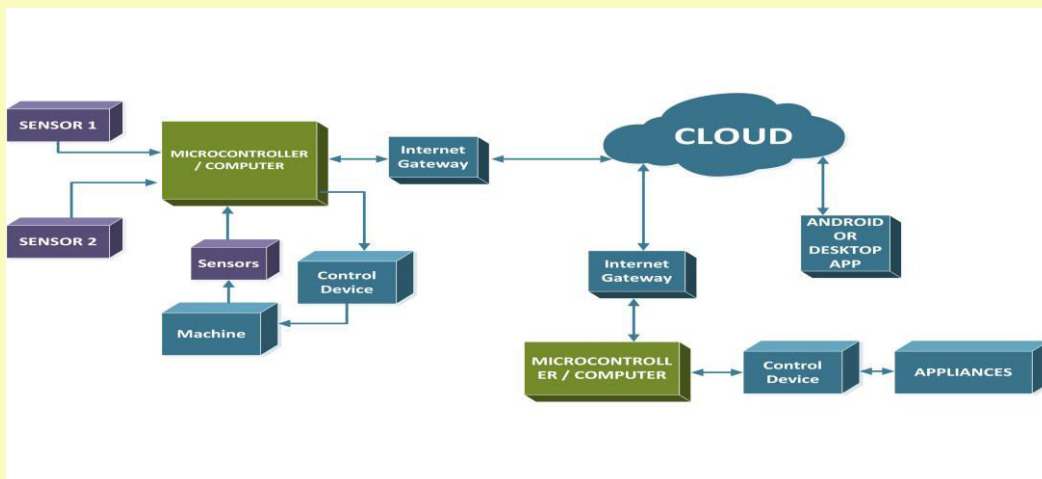
or 6G high speed internet services. In industry 4.0, machines in the industries will communicate with each other using IoT and sensors. Also machines can be controlled or monitored remotely using IoT. That will increase efficient utilization of machines and will also improve quality and quantity of production.

The applications which need large memory and more computing speed will be possible on devices with limited memory and computing speed. Such applications will be realized by making use of cloud computing and internet. Algorithms of Artificial Intelligence, Machine Learning will run on cloud. That is cloud computing will become integral part of IoT technology. Without cloud and cloud computing IoT applications are not possible to implement. Autonomous Vehicle Technology (Driverless vehicle) is becoming reality today due to advancement in computing technology, sensor technology and improved IoT infrastructure.

Today we can control all electrical appliances in home using smartphone, by making use of IoT. IoT technology will penetrate every field in the world such as healthcare, agriculture, manufacturing industries, transportation, defence, service sector etc. Following are the key benefits of IoT technology:

- ❖ IoT promotes efficient resource utilization.
- ❖ It Monitors and controls parameters and processes in risky areas without human intervention. e. g. Nuclear power plant, oil refineries etc.
- ❖ It increases accuracy in remote controlling of devices.
- ❖ It minimizes human efforts in many life aspects.
- ❖ Enabling IoT will reduce the cost of production and maximizing the returns.
- ❖ It makes analytics decisions faster and accurately.
- ❖ It boosts the real-time marketing of products.
- ❖ Provide a better client experience.

"Confidence & Hard-work is the best medicine to kill the disease called failure. It will make you a successful person."

Dr. APJ Abdul Kalam

# From Faculty Desk

**IoT: The Dream world come into reality**

**Mr. Amit Nevase**

**Editor,**

**M.E. VLSI & Embedded System**

**Lecturer – E & TC Department**

In today's world, new technology comes into force. Now day's human beings are engulfed by number of things. If we study how many things around us are given by this nature? and how by human beings? You will find that you are truly in a global age where human-made things work so conveniently. Let's imagine an accident took place, and the person involved in accident is unconscious. When the person is awakened, he finds himself in the nearest hospital and the treatment is underway ... the idea seems too complicated??? But now a day it is possible ... because of Internet of Things (IoT) concept. You may be wondering, how is it possible? And what's the devil of the Internet of Things (IoT) name is? Internet of Things (IoT) is a concept that was born in 1929 by Kevin Ashton. According to concept, just as a person exchanges thoughts with themselves; so the "*things around you interact*" with each other. Once again consider example of accident.

Suppose a casualty is wearing a gadget that measures his heartbeats and is connected to the Internet. When an accident happened, person's heartbeat was increased. Also vehicles involved in accident are broken apart. The severity of the accident and the resulting injuries are communicated to ambulance. The ambulance takes quickest route to casualty, with the help of GPS. When the ambulance rushes to hospital, nearest hospitals are displayed on the screen in front of the driver and then appropriate hospital is selected. All of these things are done by IoT with selection algorithm. Till the time doctor at the hospital will check the previous reports of the patient on the Internet and will communicate initial treatment. Thus patient in ambulance survives before it reaches the hospital and further treatment is initiated. This is how everything happened because of Internet of Things (IoT). Everything is connected to the Internet. Without imagination of IoT,

if an accident happens, calls to ambulance and to all concerned may take time, and treatment may get delayed and when you reach to the hospital, the doctor may say "if you had come 5 minutes earlier, we would have saved life." The Internet of Things (IoT) can be solved by eliminating all these problems.

Three things are important in the Internet of Things (IoT).

❖ Receive information from the sensor.

❖ The information received is then processed by the algorithms or processed by the processor or cloud computing.

❖ The output is then passed to the output system for further processing.

The CISCO Company reports that there will be up to 2 billion systems on IoT. So there will be many things around you that are connected to this concept. Tomorrow, your fridge will tell you what dishes you can make from what it contains. You can easily turn ON/OFF the home-based device from your mobile. Your mobile, not just a mobile phone, will be a smart phone that will keep you connected to the Internet. Then get ready to connect to this new universe...

# Toppers of Winter- 2019 MSBTE Exam



Rayat Shikshan Sanstha's
**Karmaveer Bhaurao Patil Polytechnic, Satara**
At- Panmalewadi, Post- Varye , Satara 415015 Phone No. 9309919088
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**Department of Electronics & Telecommunication Engineering**

**MSBTE Winter 2019 Examination Topper**

*Hearty Congratulations!!*

Sourabh Landage
SYEJ- 87.77%

Ritisha Shinde
SYEJ- 87.18%

Paras Sutar
SYEJ- 87.06%

Shraddha Mane
TYEJ- 84.74%

Asmita Khare
TYEJ- 84.74%

Priti Chikane
SYEJ- 84.71%



**"Education Through Self Help is our Motto"**

**Karmaveer Bhaurao Patil**

# From Student's Desk

**Miss. Asmita M. Khare**
**Student – Third Year E& TC**

Internet is one of the needs of today's generation and is one of the networks that can be used to collect information and communication purpose. Connectivity at any time, any place, for anyone is known as internet. Whatever we use devices such as fridge, AC, TV, Oven, Laptop etc. are connected to the internet, and it is known as "Internet of Things". The IoT is the new technology, connecting the world by connecting the various types of object around us. The IoT is not only a smart phones and laptops, but connecting all devices together and exchanging the data. "The IoT is the trends of creation, that can make everyday life better and smarter". IoT has taken place in almost every industry like healthcare, manufacturing, food, and many more. Such modern technologies can be change the way of education and also improve the quality of education. IoT is becoming one of the most important and greatest technologies in today's generation. IoT made the life easy and wonderful. It has made things simple and reliable. "IoT has made impossible things possible". According to IoT there were 9.5 billion devices connected in 2019 and now expected to reach 30 billion devices connected by 2025. IOT can improve our life and there examples are smart cities, clean air and water, smart agriculture, connecting patient and peoples. Because of IoT we were all going to be connected. "The IOT has potential to change the world, just as internet did, may be even more….. ".

# Teachers Day Celebration
# (5th September, 2019)

The Teacher's Day celebration started with the Teaching Competition. In the session students from second and third year Electronics & Telecommunication Engineering participated in Teaching Competition. The afternoon session started with a formal program of celebration of Teacher's Day. During this session a video clip of autobiography of Dr. Sarvepalli Radhakrishnan was shown to the students. The best performers of teaching competition were felicitated by chief guest Mr. Umesh Suryawanshi, Lecturer Sarhad College of Arts, Commerce and Science, Pune. In the program Mr. Umesh Suryawanshi addressed students on topic "Leadership and Motivation".



**Teacher's Day**

**A Tribute to**

**Bharat Ratna**

**Dr. Sarvepalli**

**Radhakrishnan**

## NEWS FLASH



**Mr. Paras Sutar, Runner Up in Poster Presentation Competition held on 18th January 2020, at TECHFEST 2K20, A State Level Competition Conducted By ABIT, Shendre, Satara**

# Engineer's Day Celebration & Parent Meet (15th September, 2019)

Engineer's Day was celebrated in our Department on 15th September 2019. Simultaneously Parent Meet was also arranged. Our alumni and industrialist Mr. Manish Shah (Innovative Automation Products, Satara) and Principal K. S. Sheikh were guests. Many speakers including parents talked about Engineer's Day & great Engineer Sir M. Visveswaraya. Mr. Manish Shah addresseed to students, faculty and parents on topic "How Engineer must be?" The parents were also made aware of different activities in the department.

**Engineer's Day**

**A Tribute to**

**Bharat Ratna**

**Sir**

**Mokshagundam**

**Visvesvaraya**



## News Flash



**Mr. Paras Sutar & Mr. Sourabh Landge Winners in Innovative Masters Competition held on 28th January 2020, at DNYANAVISHKAR - Excellance Through Innovation Conducted By Dnyanshree Institute of Engineering, Sajjangad Road, Satara**

# Three Day Workshop on
# "Android Based Automation"

The three Days Hands-On Workshop was arranged by Department of Electronics & Telecommunication Engineering in association with Dolphin Lab, Pune from 23/02/2020 to 25/02/2020. Our students completed different automation projects during the Workshop. Total 55 Students from Electronics & Telecommunication Engineering Department and Computer Engineering Department participated in workshop.



# News Flash



**Mr. Paras Sutar & Mr. Sourabh Landge, Runner Up in Circuit Master Competition & µtanat Programmer Competition held on 28/01/2020, at DNYANAVISHKAR - Excellence Through Innovation Conducted By Dnyanshree Institute of Engineering, Sajjangad Road, Satara**

# Expert Lectures

A Guest Lecture by **Mr. Shardual Bajare, Electrical Technical Officer, Sembcrop Marine Ltd.** on topic **Career Opportunities in Indian Navy and Merchant Navy** was organized on 20$^{th}$ December 2019 for Electronics & Telecommunication Engineering and Electrical Engineering students.



A Guest Lecture by **Mr. Chittaranjan Mahajan, CEO Dolphin Lab, Pune** on topic **Role of Students in Research Lab** was organized on 30$^{th}$ December 2019 for Electronics & Telecommunication Engineering and Computer Engineering students.

# Industry Visit

Industrial Visit to **AptronTech**, **Satara** was organized for our students on 06/01/2020. The industry AptronTech is commencement in the year 2013. AptronTech is acknowledged as one of the eminent organizations, engaged in manufacturing a comprehensive range of Electronic Laboratory Trainer, DC Tube light, Integrated Circuit and much more. High strength, fine finish, lightweight, easy installation and low maintenance are some of the highlighting features of their products.



Industrial Visit to **M/s Sai Industries, Satara** was arranged for Second and Third year students of Electronic & Telecommunication Engineering Department on 06/01/2020. M/s Sai Industries, Satara is an ISO 9001-2008 certified firm engaged in offering High End Electrical Solutions to their clients. They are also suppliers and service provider of Manufacturing Setup, PCB Assembly, Electronics PCB Assembly, Brush Holder Assembly, Electronics Circuit Boards, Heat sink Assembly (Auto Components), Cover and Brush Holder Setup, etc. The company is established in the year 2001 by Partners Mr. Nitin Sankpal, Mr. Nandkumar Chavan and Mr. Sudhir Sawant.

# PolyQuest 2K20



The State Level Technical Competition was organized by Karmaveer Bhaurao Patil Polytechnic, Satara on **17th February, 2020**. The Department of Electronics & Telecommunication Engineering conducted Technical Paper Presentation and Technical Quiz Competition. The session started with inaugural of **PolyQuest 2K20** at the hands of **Chief Guest Principal Dr. A. C. Attar, Principal, Karmaveer Bhaurao Patil College of Engineering, Satara and Principal Mr. K. S. Sheikh.**
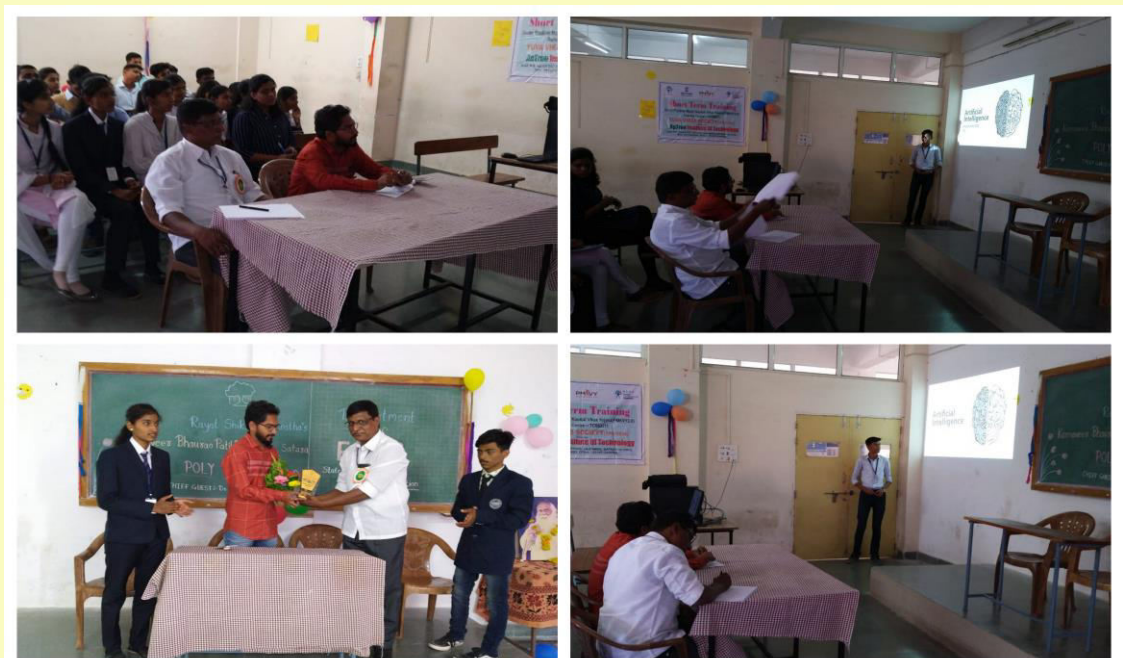


**Mr. C. S. Pawar and Mr. J. B. Jagtap** worked as Expert for Technical Paper Presentation Competition.

# PolyQuest 2K20



**Mr. Suhas More (Aptron Tech, Satara)** Chief Guest for Prize Distribution of PolyQuest 2K20

## Theme for Volume 2, Issue 1

# Virtual Reality

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