DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Guest Lecture
on
"Recent Innovations in IoT"

By Dr. R. Vijayarajeswaran, Managing Director, Vi-Microsystems, Chennai
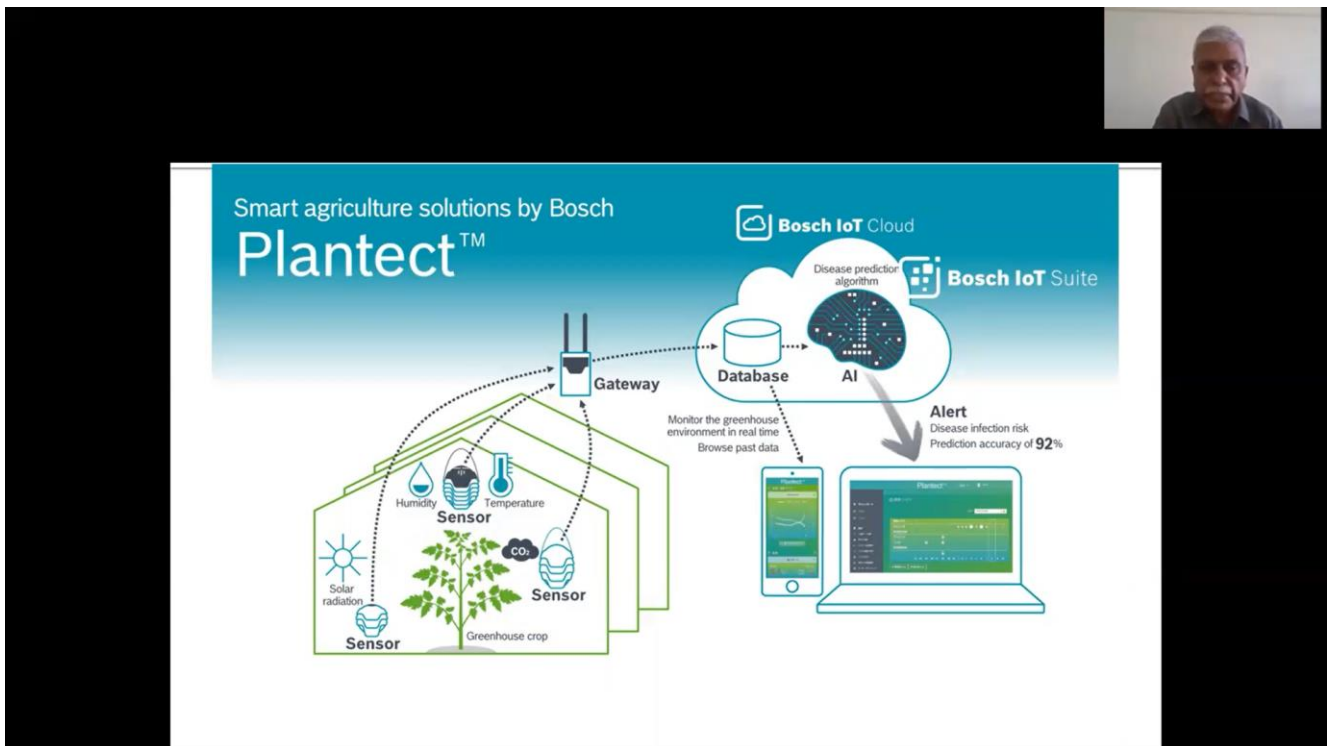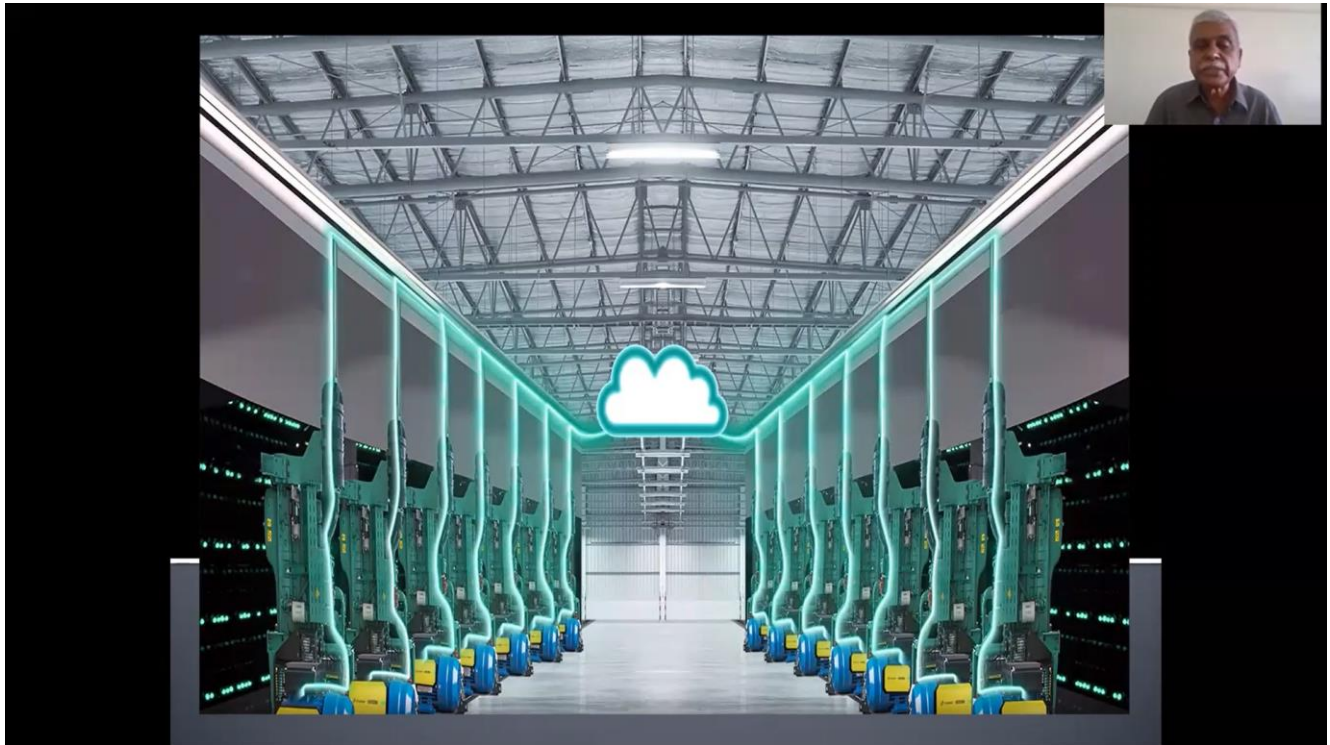
08 September, 2021

The Department of Electronics and Communication Engineering has organized a Guest Lecture entitled "Recent Innovations in IoT" on 8th September, 2021. The target audience are the students of III B.Tech – ECE of Sree Vidyanikethan Engineering College, Tirupati.
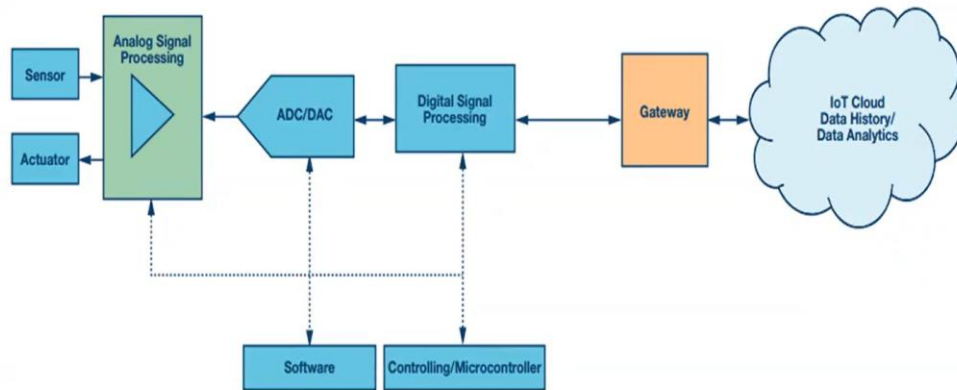
The lecture started with the essence of the need for Internet of Things (IoT). Basics of the IoT are discussed with the introduction to Arduino and their advancements. The use of these boards with the applications that are derived and deployed in industries are also discussed. The speaker has discussed the architecture of IoT, Gateways. With the introduction of Industry 4.0 and smart manufacturing, the need for IoT based architectures are increasing. The connectivity of several devices in the industry. Robots move in factory halls to transport raw materials. Products communicate with machines and initiate the next manufacturing steps. This is possible with the rapid development in and the combination of programming in Electronics and Communication Engineering. Earlier systems use analog based communications but now the digitization is on way, is the key note of the speaker.

Intelligent condition monitoring box with NB-IoT connectivity is demonstrated. Strain and Deformation Analysis is also discussed. IoT design is a complex task involving numerous disciplines and domains including embedded design, software, networking, Gateway security, manufacturing ability, the list goes on. Mastering all those evolving pars is a challenge for IoT design team. Further, highlighting on the requirement of interconnectivity, the lecture ended with the discussion on beaglebone boards and a questionnaire from the students is dealt at the last.

218 students of III B.Tech – ECE have attended the lecture. Dr. V. V. Satyanarayana Tallapragada, Associate Professor coordinated this event under the guidance of Dr. N. Gireesh, Professor and Head, Department of Electronics and Communication Engineering.

The session ended with the oral feedback from the participants. All the participants have commended the lecture and has given a positive feedback. The screenshots of the session are as follows:
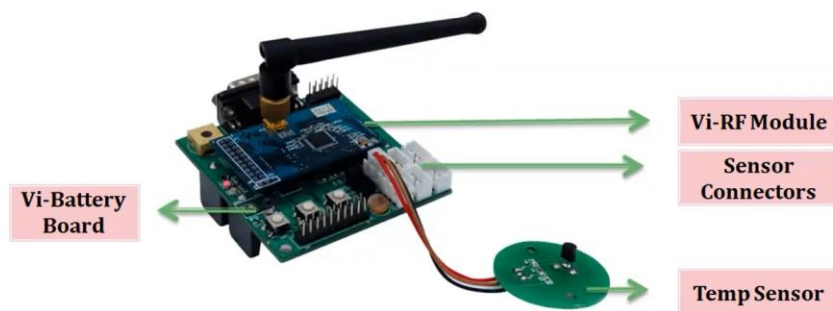
Recent Innovations in IoT

By
Dr. R. Vijayarajeswaran M.E., Ph.D.
Managing Director

Vi Microsystems Pvt. Ltd.,

DATA CENTRE

Virtual Machines

| Virtual Machine 1 | Virtual Machine 2 | Virtual Machine 3 |

Virtualization Layer

Operating System

Physical Hardware
(CPU, Memory, Storage, Network)

Cloud Computing

INTERNET

IoT System

Router

HMI   Display

Sensors

Bluetooth

GPS

PSoC 6

NOR Flash
(Optional)

Microphone (Optional)   Vibration Motor

WiFi/Bluetooth

IoT Gateway

Embedded Controller with Sensors & WiFi

Smart agriculture solutions by Bosch

Plantect™

Bosch IoT Cloud

Bosch IoT Suite

Disease prediction algorithm

Gateway

Database

AI

Monitor the greenhouse environment in real time
Browse past data

Alert
Disease infection risk
Prediction accuracy of **92%**

Humidity Temperature

Sensor

Solar radiation

CO₂

Sensor

Sensor

Greenhouse crop

Signal chain of the IoT

Temperature Sensor Connected with ZigBee

Vi-RF Module

Sensor Connectors

Vi-Battery Board

Temp Sensor
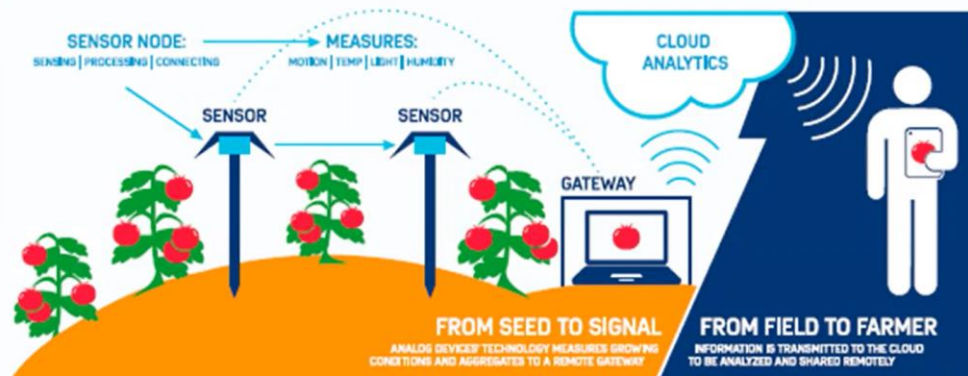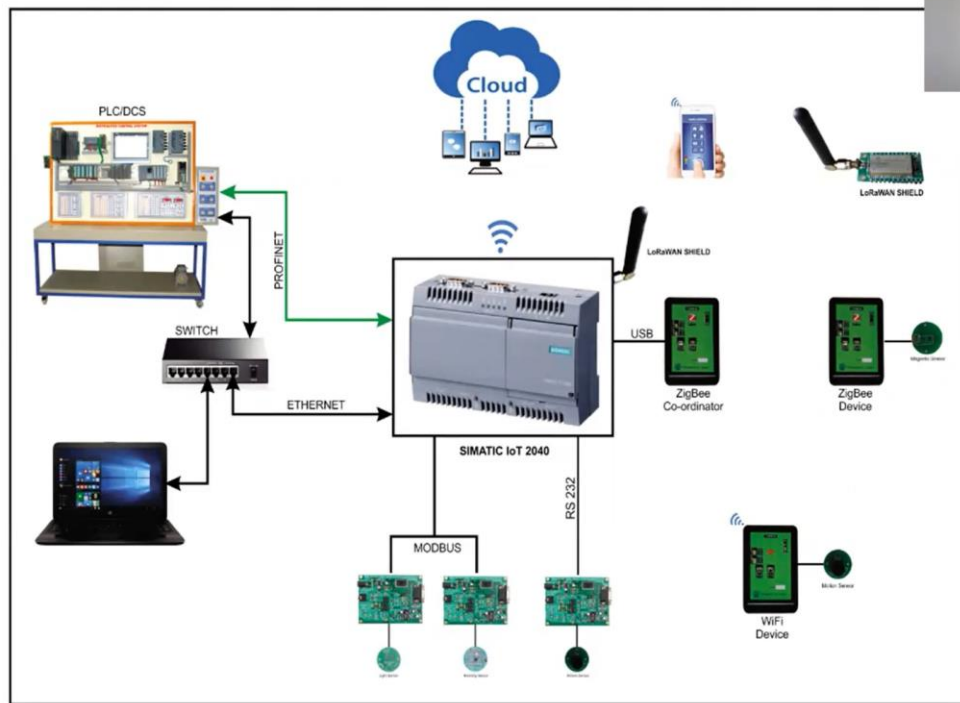
THE INTERNET OF TOMATOES:
PUTTING IoT INTO ACTION

IoT 2040

❖ Open Platform for collecting, Processing and transferring data directly during manufacturing.

❖ It transfers data from the production unit to the cloud and vice versa.

❖ With varied communication protocols and HLL programming allows for tailored solutions.

❖ IoT 2040 can easily be integrated into the existing plant, SCADA, PCS7

❖ IoT 2020 offered for training market.

IIIC Coordinator   **HOD, ECE**
Dr. V. V. Satyanarayana T
Associate Professor