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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

REPORT ON

Hands on Training on Application of IoT Using Blynk and Google Firebase Cloud

IEEE BANGALORE SECTION

Organized by IEEE Student Branch & SS Technologies

Topic: Hands on Training on Application of IoT Using Blynk and Google Firebase Cloud.

Date of event: 8-7-2023 to 9-7-2023

Venue: Computer Networks Lab, Dept of ECE, KSSEM

Number of participants: 75

Targeted Audience: 2nd year ECE students

Event Coordinator: Mrs Jayashree G R & Mrs Bhargavi V S, Assistant Professor, Dept of ECE, KSSEM

The IEEE Student branch in association with the ECE department, of KSSEM, had organized a Hands on training on **"Application of IoT Using Blynk and Google Firebase Cloud"** from 8-7-2023 to 9-7-2023 at 9:00am IST.

The Hands on Training was conducted at K.S School of Engineering & Management, Bangalore. The training was given by Mr Srinivas Shetty, Founder SST Technologies. Dr.K Senthil Babu, HoD of ECE, graced the event with their presence. The Hands on training was attended by both faculty members and students.

Topics Covered:

The training covered various aspects of interfacing. Some of the topics discussed were:

- Introduction to ESP Board
- LDR Control through Cloud
- LED Control through Cloud
- LED Control through Bluetooth
- Blinking of LED
- Serial Communication (UART)

Introduction to ESP Board

ESP8266EX is capable of functioning consistently in industrial environments, due to its wide operating temperature range. With highly-integrated on-chip features and minimal external discrete component count, the chip offers reliability, compactness and robustness.

The ESP8266EX microcontroller integrates a Tensilica L106 32-bit RISC processor, which achieves extra-low power consumption and reaches a maximum clock speed of 160 MHz. The Real-Time Operating System (RTOS) and Wi-Fi stack allow about 80% of the processing power to be available for user application programming and development.

LDR Control through Cloud

An LDR or light dependent resistor is also known as photo resistor, photocell, and photoconductor. It is a one type of resistor whose resistance varies depending on the amount of light falling on its surface. When the light falls on the resistor, then the resistance changes. These resistors are often used in many circuits where it is required to sense the presence of light. These resistors have a variety of functions and resistance. For instance, when the LDR is in darkness, then it can be used to turn ON a light or to turn OFF a light when it is in the light.

This resistor works on the principle of photo conductivity. It is nothing but, when the light falls on its surface, then the material conductivity reduces and also the electrons in the valence band of the device are excited to the conduction band. These photons in the incident light must have energy greater than the band gap of the semiconductor material. This makes the electrons to jump from the valence band to conduction.

LED Control through Cloud

An LED display cloud system is a type of software platform that allows users to remotely manage and control LED displays through a cloud-based interface. These systems typically consist of two main components: the LED display hardware and the cloud-based software platform.

The cloud platform provides a web-based interface that allows users to remotely control the content displayed on the LED screens. This interface can be accessed from any device with an internet connection, such as a computer or smart phone. Through the platform, users can upload and schedule content to be displayed on the LED screens, monitor the performance of the displays in real-time, and receive alerts if any issues arise.

LED Control through Bluetooth

Bluetooth is a short-range wireless technology standard that is used for exchanging data between fixed and mobile devices over short distances and building personal area networks (PANs). In the most widely used mode, transmission power is limited to 2.5 mill watts, giving it a very short range of up to 10 metres (33 ft). It employs UHF radio waves in the ISM bands, from 2.402 GHz to 2.48 GHz. It is mainly used as an alternative to wire connections, to exchange files between nearby portable devices and connect cell phones and music players with wireless headphones.

Blinking of LED

Light-emitting diode (LED) is a semiconductor device that emits light when current flows through it. Electrons in the semiconductor recombine with electron holes, releasing energy in the form of photons. The color of the light (corresponding to the energy of the photons) is determined by the energy required for electrons to cross the band gap of the semiconductor. White light is obtained by using multiple semiconductors or a layer of light-emitting phosphor on the semiconductor device.

Serial Communication (UART)

UART (Universal Asynchronous Transmitter Receiver), this is the most common protocol used for full-duplex serial communication. It is a single LSI (large-scale integration) chip designed to perform asynchronous communication. This device sends and receives data from one system to another system.

Fig 1. Inauguration of Hands on training on Application of IoT Using Blynk and Google Firebase Cloud.

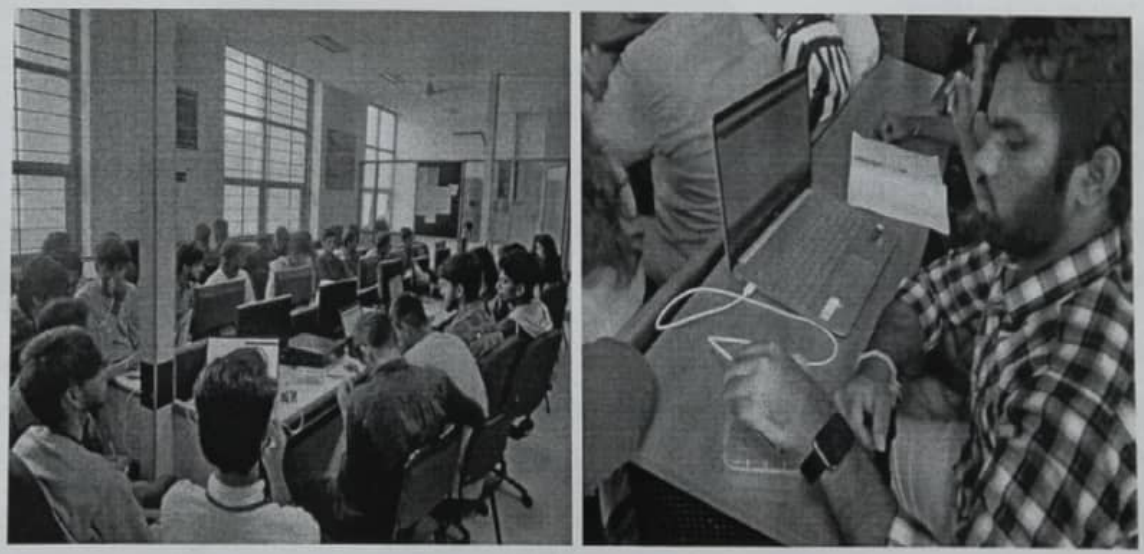

Fig 2. Students Interfacing various sensors and to Arduino

Fig 3. Guest Speaker, Faculties and Students present in the Event

Coordinator
Mrs Jayashree G R
Mrs Bhargavi Vijendra Sangam

Signature of HoD, ECE
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