



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

UNIVERSITY COLLEGE OF ENGINEERING, VIZIANAGARAM

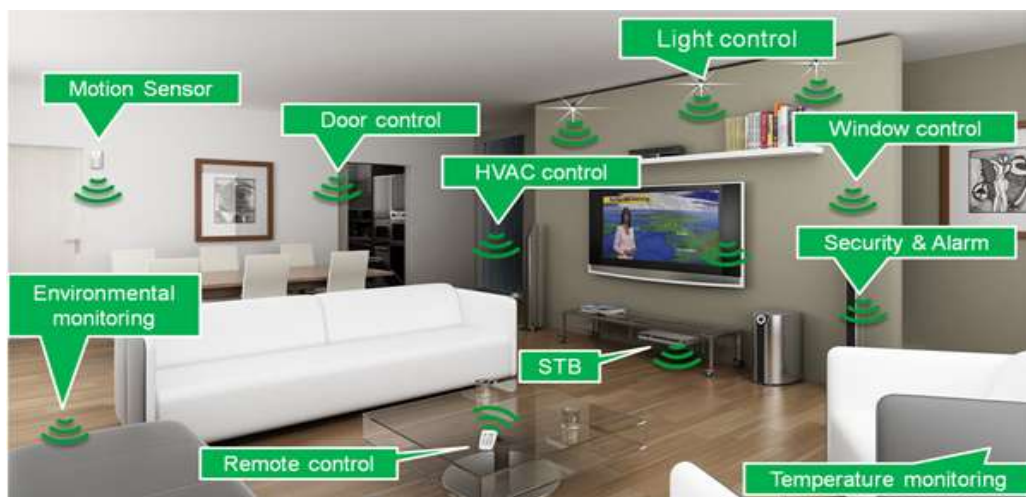
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING



ECENTRA

A TWO-DAY NATIONAL LEVEL TECHNICAL SYMPOSIUM

[HOME AUTOMATION



ABOUT WORKSHOP

Internet of Things is a new revolution of the Internet. A world where the real, digital and the virtual are converging to create smart environments that make energy, transport, cities and many other areas more intelligent. A device become a smart device is called IOT. Now a days there are many android and server based application. In this system, value of sensor (e.g. temperature sensor, motion sensor, accelerometer sensor etc.) will be shown on GUI or web server or android application through wireless communication and device will be controlled automatically. Device will be operated on GSM/GPRS.

PREREQUISITES

- Basics of electronics
- Basic knowledge of computers
- Basic knowledge of programming language(like c)

DAY 1

SESSION 1

- Introduction to Robotics.
- Future aspects and career in the field of Robotics.
- Introduction to Embedded systems.
- Wide description about Microcontrollers & ICs.
- Memory organization & architecture.

- Input & Output peripherals interfacing.
- Pin outs of ATmega8 Microcontroller.
- Introduction to programming in embedded.
- Basic practical exposure with interfacing peripherals.
- Interfacing of LEDs and Buzzer.
- Writing first program in Embedded C.
- Kit Distribution.
- **Practical 1:** Blinking of LED
- **Project 1:** Burning the program on Hardware with some different LED patterns
- **Practical 2:** Turn ON/OFF Buzzer at desired delay
- Integrated Chips
- Interfacing Relays with Microcontrollers
- Introduction to Relay Driver IC
- **Project 2:** Turn ON/Off AC appliances with MCU at some delay

SESSION 2

- Serial communication
- UART in microcontrollers.
- Accessing internal UART.

- **Practical 3:**Transferring data serially from PC to Microcontroller.
- Introduction to ADC.
- How to detect the sensor values.
-
-
- Introduction to LM35.
- **Project 3:** Display sensor data on Hyper Terminal.

DAY 2

SESSION 3

- Introduction To Wi fi.
- Introduction to ESP 8266 module.
- **Practical 4:** How to configure AT Commands.
- **Project 4:** How to send message/call.
- Introduction to GPRS.
- Introduction to TCP/IP.
- **Project 5:** Automatic Updates/uploads of sensor value on IP/web.
- **Project 6:** Real Time monitoring of sensors on a particular IP Address/server.

SESSION 4

- Server Based Decisions
- Communication with the Web Servers.

- Web server & IOT.
- Web server for Sensor Management.
- **Practical 7:** Acquire a control signal from an IP.
- **Project 8:** Automate the AC/household appliances from an IP.

KIT DETAILS

- Mini Tron board
- Wi Fi module
- USB to TTL board
- USB asp programmer
- LM 35 temperature sensor
- Relay board
- Bulb, holder, wire
- Dc adapter
- 1 pin Relimate wires
- 6 pin double sided female relimate

WORKSHOP DETAILS

WORKSHOP FEE:-

- 800/- per person.
- Each team consists maximum of 5 members (4000/- per team).

LAPTOP NEEDED:-

- Yes, each Team should carry one laptop.

LEARNING OUTCOMES:-

- Current scenario/job opportunities of embedded industries.
- Detailed knowledge about power supply.
- Difference between Micro-processor and micro-controllers.
- About ATmega8 MCU.
- Programming of MCU and reading the environmental parameter.
- Can design any practical based on Relay, GSM module.

CO-ORDINATORS

- G.BHAGATH - 8466082021
- A.VENKATA GOVARDHAN - 7075640122
- K.S.D.POOJITHA – 7659822333
- K.VIJAYVARDHAN – 8106467917

-----X-----

