Internship (ECE/EEE/EIE/CSE/IT) – (20 Hours)

3 days – 6 hours/day | 5 days – 4 hours/day | 10 days – 2 hours/day

Course structure (ARDUINO (Atmega-328pu))

1. Overview

Embedded System (Arduino) introduction & Software installation

- ➢ Introduction to Embedded System (Arduino)
- ➢ Introduction to Arduino platform & Family
- ➢ Introduction to Microcontroller
- ➢ Introduction to Programming Language
- ➢ Introduction to software tool chain

2. Learning of I/O with Real time implementation

- ❖ *Experiment 1: Single GPIO access*
  - ❖ Single port register access - Single LED toggle
- ❖ *Experiment 2: Multiple GPIO access*
  - ❖ Full port register access   - Bar graph LED toggle
- ❖ *Experiment 3: 7-Segment LED display interface*
  - ❖ Single port register access method - 7-Segment display
- ❖ *Experiment 4: 7-Segment LED display interface*
  - ❖ Full port register access method (Hexadecimal method)
- ❖ *Experiment 5: Button interface*
  - ❖ Digital input sensing – Push button interface
  - ❖ Pull-Up logic & Pull-Down logic
- ❖ *Experiment 6: Test task*
  - ❖ Combination of Digital input and output
- ❖ *Experiment 7: 16*2 LCD interface*
  - ❖ 4bit data mode & Scrolling display
- ❖ *Experiment 8: 16*2 LCD interface task*
  - ❖ Increment counter & Decrement counter
- ❖ *Experiment 9: ADC on LCD*
  - ❖ Variable resistor (analog input reading)
  - ❖ 8Bit ADC calculation and resolution talk

- ❖ *Experiment 10: Sensor interface*
  - ❖ Current sensor interface
  - ❖ Sensor calibration & Sensor sensitivity calculation
- ❖ *Experiment 11: Test task*
  - ❖ Combination of ADC and LCD task
- ❖ *Experiment 12: HW/SW Serial port initialize*
  - ❖ 9600 baud rate, 8-Bit data, No parity, 1-stop bit configuration
- ❖ *Experiment 13: Serial communication method*
  - ❖ Synchronous & Asynchronous Serial Programming
  - ❖ UART Tx & Rx interrupt
- ❖ *Experiment 14: ADC on serial port*
  - ❖ Sensor data on serial port
- ❖ *Experiment 15:Hand shacking serial port*
  - ❖ Serial port request and acknowledgement method
- ❖ *Experiment 16: Test task*
  - ❖ Sensor HUB design task
- ❖ *Experiment 17 : DC motor control*
  - ❖ DC motor ON/OFF
- ❖ *Experiment 18 : DC motor direction control*
  - ❖ DC motor forward
  - ❖ DC motor Reverse
- ❖ *Experiment 19 : DC motor speed control*
  - ❖ PWM pulse generation & Duct cycle calculation
  - ❖ DC motor speed control
- ❖ *Experiment 20: Buzzer control*
  - ❖ Digital Buzzer ON/OFF
- ❖ *Experiment 21: Push button interface*
  - ❖ Single button interface
- ❖ *Experiment 22: Matrix keyboard interface*
  - ❖ Matrix button interface
- ❖ *Experiment 23: Password matching*
  - ❖ OTP generation & OTP verifying and access control

❖ *Experiment 24: Switch interrupt*

  ❖ Switch read Polling method

  ❖ Switch read interrupt method

❖ **Task competition**

  ✓ On spot logical task in embedded program

  ✓ Time level completing task

  ✓ Performance evaluation

MESSAGE FROM FOUNDER & CEO

Dear Client,

Greetings from our aspect,
  We are providing the best solutions for the evergreen technologies like
- ➢ *EMBEDDED SYSTEM's*
- ➢ *ROBOTICS*
- ➢ *INTERNET OF THINGS (I.O.T)*
- ➢ *MATLAB*
- ➢ *FPGA*
- ➢ *RASPBERRY PI*
- ➢ *DATA MINING*
- ➢ *BIG DATA*
- ➢ *JAVA*
- ➢ *ANDROID*
- ➢ *DOTNET*

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  2. **Hands on experience.**
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Thanks & Warm Regards...
GOPALAKRISHNAN SUBRAMANIAM,
FOUNDER & CEO,
ACTIVE GALAXY.