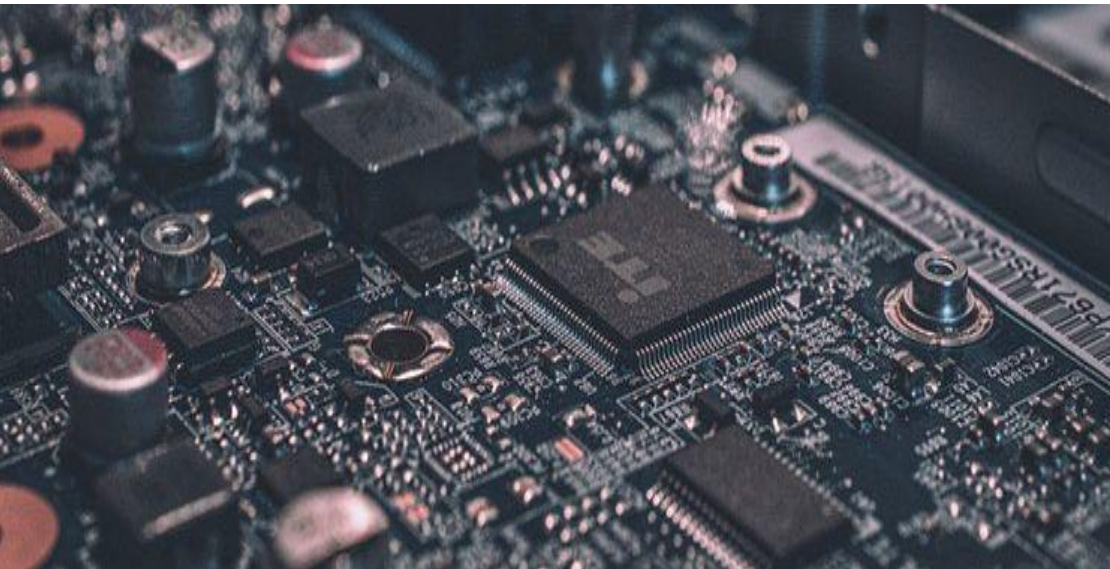




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EMBEDDED SYSTEMS



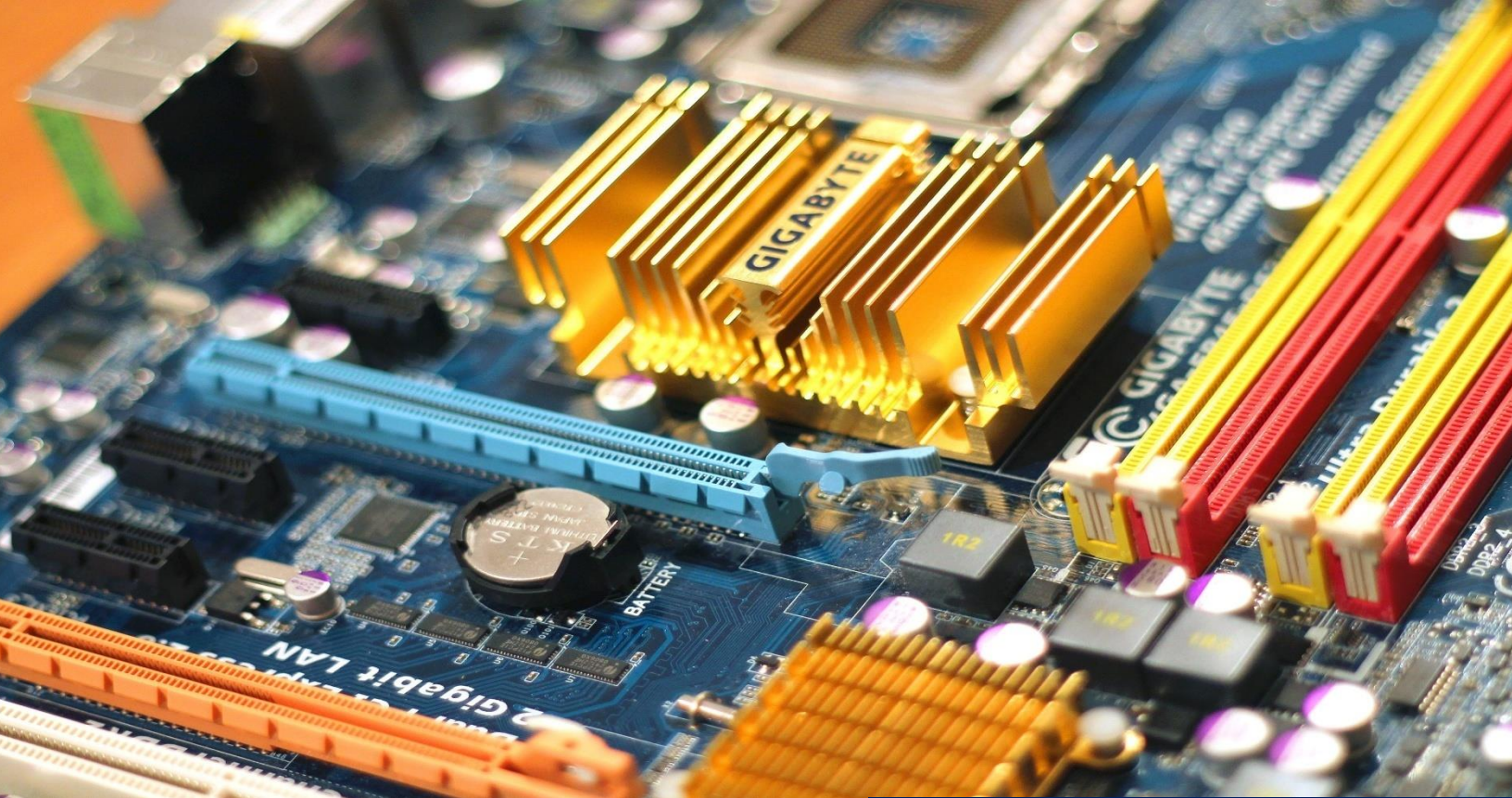
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- **INTRODUCTION**

- ✚ Basic of Electricity.
- ✚ Basic of electronics.

- **MICROCONTROLLERS & MICROPROCESSORS**

- ✚ Basic of Microcontrollers and Microprocessors.
- ✚ Microcontrollers vs Microprocessors

- **ARCHITECTURE OF EMBEDDED SYSYEMS**

- ✚ Von neuman architecture.
- ✚ Harvard architecture.

- **INSTRUCTION SET IN EMBEDDED SYSYEMS**

- ✚ Complex instruction set.
- ✚ Reduced instruction set.
- ✚ Difference between CISC and RISC.

- **TOOLS AND PHERIPHERALS**

- ✚ Compilers and assemblers.
- ✚ Peripherals of embedded devices.

- **INTRODUCTION TO 8051 MICROCONTROLLER**

- ✚ Block diagram of 8051.
- ✚ Features of 8051.

- **EMBEDDED SYSYEMS TERMS**

- ✚ Program counter.
- ✚ Stack pointer.
- ✚ Interrupts.
- ✚ Little Indian and Big Indian.
- ✚ Timer and Counter.
- ✚ Instruction cycle
- ✚ Machine cycle

MICROCONTROLLERS

MICROPROCESSORS

EMBEDDED C

KEIL PROGRAMMING

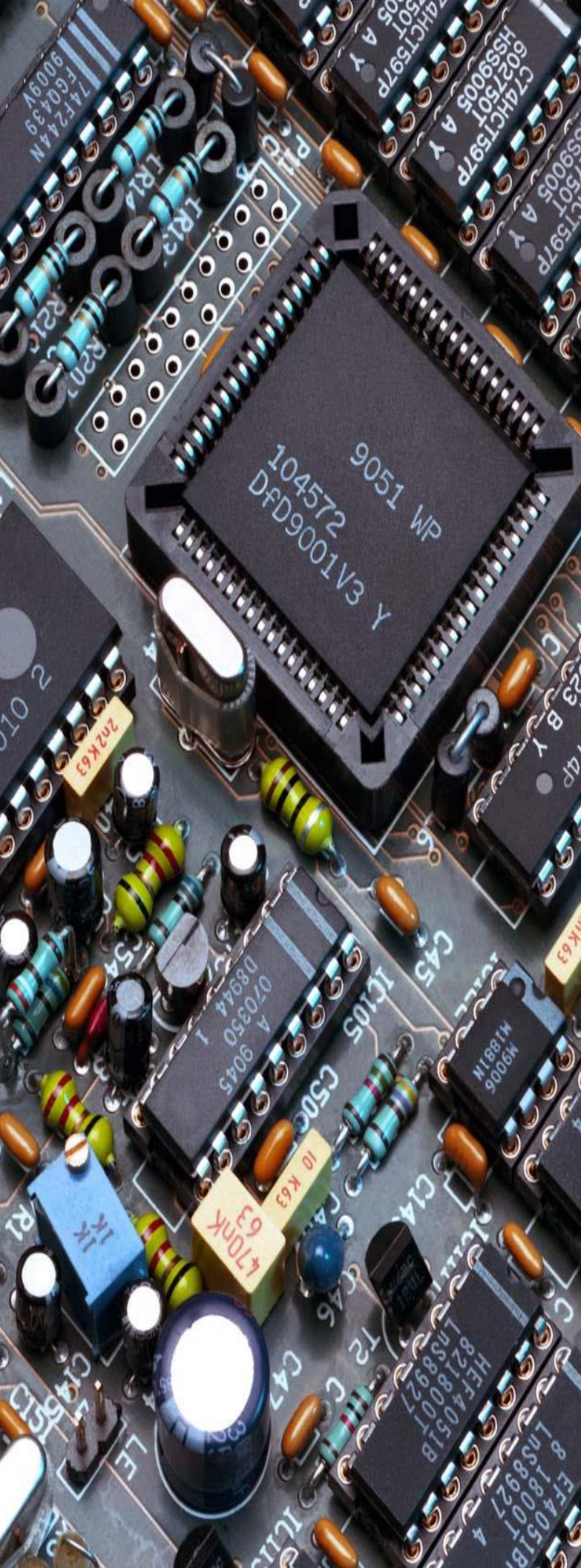
ARDUINO ATMEGA328

TEXAS INSTRUMENT

CERTIFIED EMBEDDED

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- **EMBEDDED C PROGRAMMING**
 - + Decision control statements.
 - + Modular programming using functions Preprocessor, GDB.
- **KEIL PROGRAMMING**
 - + Arrays, Strings, Pointers.
 - + Programming in the large.
 - + Dynamic Memory Allocation.
 - + Advanced pointers, Structure, Files I/O.
- **PIC16F877A MICROCONTROLLER**
 - + Block diagram of Pic16f877a controller.
 - + Interfacing Pic16f877a controller.
 - + Programming Pic16f877a with Mplab IDE (XC8 COMPILER).
 - + Enabling and disabling special function registers.
 - + Blinking an led using a time delay.
 - + I/O ports programming with led and push button switch.
 - + Pulse width Modulation in Pic16f877a.
 - + Analog to Digital conversion interfacing using LM35.
 - + Serial Communication using UART.
 - + LCD 16*2 Display interfacing.
 - + Controlling a direction of a DC motor using L293d driver IC.
 - + Enabling and disabling a Relay using I/O ports.
 - + Interfacing Stepper motor using Pic16f877a.
 - + Interfacing Servo motor using Pic16f877a.
 - + Serial peripheral Interface.
 - + Inter integrated circuit communication in Pic16f877a.
 - + PROTEUS simulation of Pic16f877a.

PIC16F877A MICROCONTROLLER 8051 MICROCONTROLLER PCB DESIGNING

ADVANCED DIPLOMA IN EMBEDDED SYSTEMS

PCB DESIGN

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- ORCAD
- EAGLE
- ALTIUM
- FRITZING

POST GRADUATE DIPLOMA IN EMBEDDED SYSTEMS

INTERNET OF THINGS (IOT)

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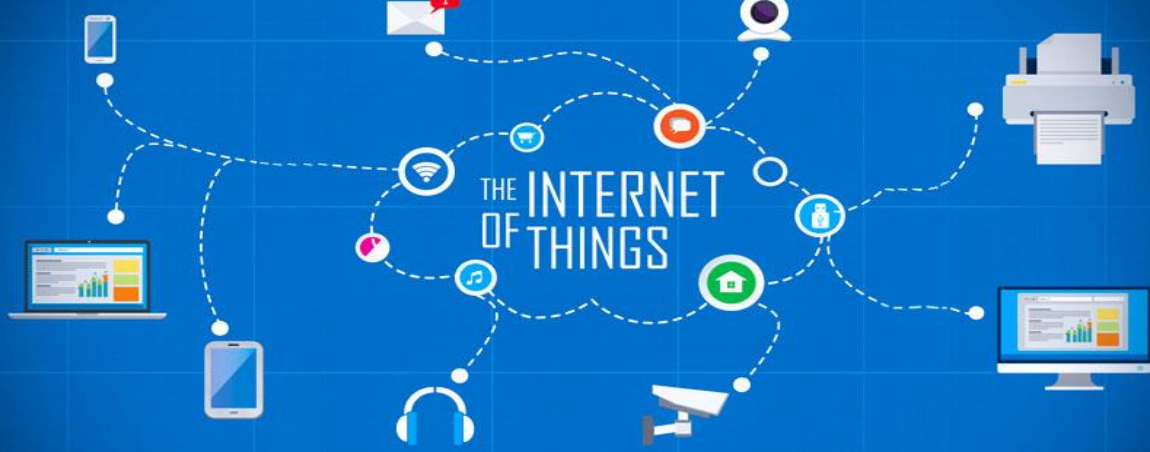
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- **ARDUINO (Atmega 328p) MICROCONTROLLER**
 - ✦ Block diagram of arduino(Atmega 328p).
 - ✦ Interfacing Arduino controller.
 - ✦ Programming Arduino with Arduino IDE .
 - ✦ Enabling and disabling special function registers.
 - ✦ Blinking an led using a time delay.
 - ✦ I/O ports programming with led and push button switch.
 - ✦ Pulse width Modulation in Arduino.
 - ✦ Analog to Digital conversion interfacing using LM35.
 - ✦ Serial Communication using UART.
 - ✦ Software enable UART in Arduino Atmega 328p.
 - ✦ LCD 16*2 Display interfacing.
 - ✦ Controlling a direction of a DC motor using L293d driver IC.
 - ✦ Enabling and disabling a Relay using I/O ports.
 - ✦ Interfacing Stepper motor using Arduino.
 - ✦ Interfacing Servo motor using Arduino.
 - ✦ Serial peripheral Interface in Arduino.
 - ✦ Inter integrated circuit communication in Arduino.
 - ✦ PROTEUS simulation of arduino (Atmega328p).
- **INTRODUCTION TO ESP8266(IOT)**
 - ✦ Introduction to IOT.
 - ✦ Block diagram of esp8266.
 - ✦ Interfacing esp8266 (WIFI enabled controller).
 - ✦ Enabling and Disabling Special function registers.
 - ✦ Blink an led using Arduino IDE on Esp8266.
 - ✦ I/O port Programming on Esp8266.
 - ✦ Pulse width Modulation in Esp8266.
 - ✦ Analog to Digital conversion interfacing using LM35.
 - ✦ Serial Communication using UART.
 - ✦ Software enable UART in Esp8266.
 - ✦ Serial Pheripheral Interface .
 - ✦ Inter integrated circuit communication on Esp8266.
 - ✦ IOT on Cloud Blynk.
 - ✦ House Automation using Esp8266.

INTRODUCING MSP430 MICROCONTROLLER

 **TEXAS
INSTRUMENTS**

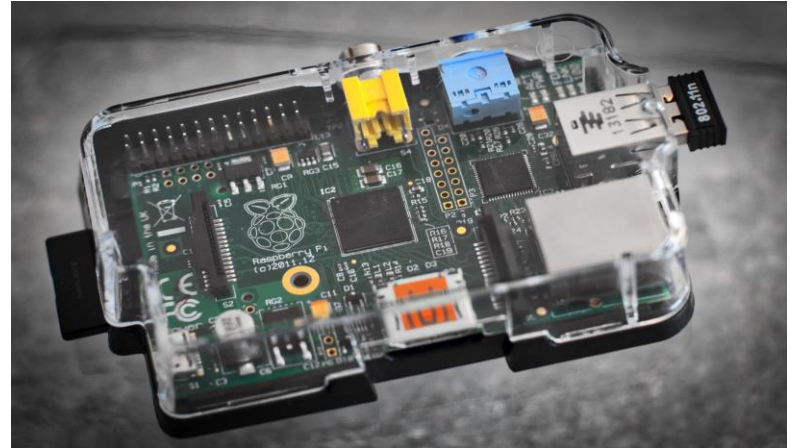


- **PCB FABRICATION**

- ✚ Circuit design using software tools
- ✚ PCB fabrication as per design input
- ✚ PCB testing
- ✚ Soldering
- ✚ Masking

- **INTRODUCTION TO RASPBERRY PI 3**

- ✚ Setting up the linux environment(Raspbian OS)
- ✚ Introduction to python
- ✚ IOT on Rasberry pi
- ✚ Raspberry pi as a camera
- ✚ Blink an led using python scripts



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