

ARM7 TDMI Microcontroller

Course Name: ARM7 Microcontroller

Certification: By UVSoftsTechnologies Pvt. Ltd.

Introduction:-

- ✦ Introduction of Embedded System & robotics
- ✦ Evolution in Microcontroller technology
- ✦ Introduction of 8051 PIC and AVR
- ✦ Past, Present & Future of Embedded System
- ✦ Hardware Classification of Embedded System
- ✦ Programming Language Classification of Embedded System
- ✦ Advantage & Disadvantage of Low level & High level programming language of Embedded System
- ✦ ARM Series Micro-Controllers & ARM Drivers & Software Installation

Microcontroller ARM7:-

- ✦ Microcontroller ARM Architecture
- ✦ Difference between Microprocessor & Microcontroller
- ✦ Classification based on architecture ,
- ✦ Classification based on Instruction Set
- ✦ Type of Microcontrollers
- ✦ Registers & memory
- ✦ Interrupts and Timers

INTRODUCTION OF EMBEDDED C

- ✦ Introduction to Embedded C
- ✦ Why C Benefits of C over Assembly
- ✦ Different between C & Embedded C
- ✦ Data Type of Embedded C
- ✦ Operators of Embedded C Statements & Loops of Embedded C

Constants, Variables & Data Types

- ✚ Keywords & Identifiers
- ✚ Data type & its memory representation
- ✚ \User Define data types (Structure)
- ✚ Array
- ✚ Pointers
- ✚ Operators
- ✚ Arithmetical Operator
- ✚ Logical Operator
- ✚ Bitwise Operators

Control Statement and Loops

- ✚ If
- ✚ Switch
- ✚ For
- ✚ While
- ✚ Do While
- ✚ Introduction to preprocessor directives
- Assembly within C (Inline Assembly)

IO Device Interface and Practical

Led

- ✚ What is led & it's working
- ✚ Interfacing of led with microcontroller
- ✚ Programming of Led
- ✚ Practices Of Led Programming

DC Motor

- ✚ Introduction of DC Motor

- ✦ What is DC gear Motor & it's working
- ✦ Interfacing of motor with microcontroller
- ✦ Control of motor with L293D IC
- ✦ Programming Of Motor

Seven Segment

- ✦ What is Segment & it's working
- ✦ Types of segments
- ✦ Difference between Common Anode & common cathode
- ✦ Interfacing of segment with microcontroller
- ✦ Programming Of Seven Segments

Led Matrix

- ✦ What is LED MATRIX & it's working
- ✦ Types of MATRIX
- ✦ Interfacing of MATRIX with microcontroller
- ✦ Programming Of LED Matrix

Practices on Led Matrix

- ✦ Display a character
- ✦ Display name on it
- ✦ Scrolling of name

LCD

- ✦ What is LCD & it's working
- ✦ Types of LCD
- ✦ Register of LCD
- ✦ Initialization of LCD Functions
- ✦ Command of LCD Functions
- ✦ Data of LCD Functions
- ✦ Interfacing of LCD with microcontroller
- ✦ Programming of Lcd In both 4 bit & 8bit mode
- ✦ Practices on Above all

Sensor

- + What is sensor & it's working
- + Types of sensors
- + Difference between analog & digital sensor
- + Interfacing of sensor with microcontroller
- + Programming Of Sensor

DTMF

- + What is DTMF & it's working
- + IC 9170B
- + Interfacing of DTMF with microcontroller
- + Programming OF DTMF

RELAY

- + What is RELAY & it's working
- + ULN2003A
- + Interfacing of RELAY with microcontroller
- + Programming OF RELAY

UART

- + Serial vs Parallel Communication
- + What is UART & it's working
- + Register of UART
- + Initialization Of UART
- + Transmission from UART
- + Receive from UART
- + Interfacing of UART with microcontroller
- + TESTING OF UART

PROJECT BY STUDENTS

- + **Traffic Light Controlled System PROJECT**
- + **LCD Based notification Board**
- + **Keyboard Based LCD Display board**
- + **Autonomous Object avoidance Robot**
- + **Autonomous Object Follower Robot**
- + **Basic Line Follower Robot (using LM324)**
- + **Autonomous Line follower Robot**
- + **Autonomous edge avoider Robot**

NOTE:

1. **Software tools** – Development Board and Programming AVR using AVR studio4 & Writing program using the AVR IDE & AVR Dude software to burn the program.
2. All faculties' members are from UVSOFTS TECHNOLOGIES PVT LTD. They are enriched in their industrial experience.

SMART BENEFITS:-

- Multi time boost in Confidence level and understanding of EMBEDDED world.
- A certificate will be awarded to each student. This will be recognized as a UVSOFTS certificate.
- You will be able to do your minor and major projects of academic value on your own
- This will be a gateway for Embedded Technology
- A fast emerging technology for Electronics professionals

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