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Advanced Robotics Training

We Are India's one of the Leading Trainings & Jobs Providing Organization



Skill India Mission - 2017

कौशल भारत - कुशल भारत

Government of India Registered & ISO

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Embedded Technosolutions is a Professional Training Institute & a Company which Working for Indian MNCs & Medium/Small Scale Industries in Product R&D, Development, Manufacturing & Customization.

Also our training sessions are purely practical based on industrial standard.

Till Now We Worked for the following Industries

- Crompton Greaves Ltd, Mumbai
- Laboratory Corporation of America, LabCorp, Burlington, NC USA
- Netfinity, India
- Continental Grain Corporation
- Brook Furniture Rental, Chicago, IL



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- ITA, Bangalore
 - RAK Ceramics, Mumbai
 - Nvidia, Pune
 - ARORA, Mumbai
 - RED Cell, Mumbai
 - Secutech, Mumbai



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Course Objectives

1. To provide professional and industrial standard training which will help the students and working professionals to get job in the core industries
2. To learn practical orientation of actual industrial product design in robotics
3. To learn ARM7 Architecture in robot designing in detail
4. To learn hardware requirements for LPC2148 in designing of robotics application
5. To learn 8051 Architecture in detail for robotics designing
6. To learn Hardware Requirements for 8051
7. To learn Programming of Internal Peripherals in robotics designing
8. Learn wireless communication , wireless modules & their interfacing
9. Learn Embedded Linux with advanced Raspberry Pi which is important requirement of the core market now
10. To learn the designing of Real World Projects



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Practical & Professional Training on Advanced Robotics System

Course Syllabus

Chapter 1: Introduction to ARM Processor in robotics automation

- 1.1 Introduction to robotics system and ARM Processor
- 1.2 ARM processor family
- 1.3 Application of ARM Processor in robotics
- 1.4 Compiler
- 1.5 Difference between RISC & CISC

Chapter 2 : LPC2148 Microprocessor Pin details, Memory

- 2.1 LPC2148 ARM7 microprocessor
- 2.2 Features of LPC2148
- 2.3 Block diagram of LPC2148
- 2.4 Pin diagram of LPC2148



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- 2.5 Architectural overview
- 2.6 On-chip flash program memory
- 2.7 On-chip static RAM

Chapter 3 : Keil IDE

- 3.1 Introduction to Keil IDE
- 3.2 Creating project with Keil
- 3.3 Debugging

Chapter 4 : Hardware Interface

- 4.1 Minimum system requirements for LPC2148
- 4.2 Hardware interfacing details

Chapter 5 : System Control

- 5.1 PLL
- 5.2 External Interrupt input



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5.3 Power Control ,VPB

Chapter 6 : Pin Connect block ,GPIO

6.1 Pin Connect Block

6.2 General Purpose I/O:

LED and switches interfacing

Buzzer

DC Motor

Chapter 7 : Timer , ADC , UART

7.1 Timer

7.2 10-bit ADC

7.3 UART : Features, Serial Communication



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Basic Robotics Automation

Chapter 1

- 1.1 Introduction to Robotics Automation
- 1.2 Scope in Robotics Automation

Chapter 2

- 2.1 Introduction to microcontroller 8051 series
- 2.2 Hardware architecture of controller
- 2.3 Controller I/O ports
- 2.4 Memories of controller
- 2.5 Registers and Register bank of controller
- 2.6 Concept of Serial communication ,Interrupt etc.



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Chapter 3

- 3.1 Introduction of Embedded Software
- 3.2 Introduction of Embedded C Programming and programming concepts
- 3.3 Introduction of program burning / flashing software

Chapter 4

- 4.1 I/O interfacing concept
- 4.2 Led Blinking logic and delay generation routine
- 4.3 Design of Traffic Light Controller System

Chapter 5

- 5.1 Introduction to serial communication
- 5.2 Serial communication concept
- 5.3 Introduction of serial communication firmware and registers
- 5.4 Serial communication programming



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5.5 Practical application based on Serial communication

Chapter 6

6.1 Introduction of Relay

6.2 Relay interfacing and comparison of relay with other switching devices

6.3 Relay programming

6.4 Practical application based on relay



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IOT Robotics using Raspberry Pi & Linux Platform

Chapter 1

- 1.1 Program Raspberry Pi : a credit-card sized computer
- 1.2 Python programming for Raspberry Pi
- 1.3 Interacting and configuring the RPi OS
- 1.4 ARM 11 architecture
- 1.5 Porting of Linux Kernel and booting RPi

Chapter 2

- 2.1 Linux programming basics

Chapter 3

- 3.1 Programming the GPIO and interfacing peripherals With Raspberry Pi
- 3.2 Generating PWM signals through the Pi



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Chapter 4

4.1 Programming and work with UART protocol

4.2 Remote Login methods: HyperTerminal, Ethernet

Chapter 5

5.1 Work with I2C protocol

Chapter 6

6.1 Developing GUI with TKinter



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Wireless Technology Oriented Robotics

Chapter 1

- 1.1 Introduction of DTMF mobile technology in robotics designing
- 1.2 DTMF technology interfacing in real application
- 1.3 DTMF programming
- 1.4 Practical robotics project design based on DTMF technology

Chapter 2

- 2.1 Introduction of RF Communication in robotics designing
- 2.2 RF technology interfacing in real application
- 2.3 RF module programming
- 2.4 Practical robotics project design based on RF technology



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Chapter 3

- 3.1 Introduction to RFID communication in robotics designing
- 3.2 RFID technology interfacing in real application
- 3.3 RFID module programming
- 3.4 Practical robotics project design based on RFID technology

Chapter 4

- 4.1 Introduction to GSM communication robotics
- 4.2 GSM technology interfacing in real application
- 4.3 GSM module programming
- 4.4 Practical project design based on GSM technology

Chapter 5

- 5.1 Introduction to Bluetooth communication robotics
- 5.2 Bluetooth technology interfacing in real application



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5.3 Bluetooth module programming

5.4 Practical project design based on Bluetooth technology

Android Voice Robotics

Chapter 1

5.1 Introduction to Android communication

5.2 Android technology interfacing in real application

5.3 Voice robot module programming

5.4 Practical project design based on android voice robot



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Design of Robotics ARM

Chapter 1

- 1.1 Introduction to Robotic ARM
- 1.2 Robotic ARM in real application
- 1.3 Robotic ARM module programming
- 1.4 Practical project design based on Robotic ARM



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Robotics Programming

Chapter 1 : Introduction to C

- 1.1 Special features of c
- 1.2 C compilation process with GCC under Linux
- 1.3 C identifiers, variables, keywords and constants
- 1.4 C data types

Chapter 2: Instructions

- 2.1 Operators
- 2.2 Decision control instructions
- 2.3 Loop control instructions

Chapter 3: Functions

- 3.1 Library functions
- 3.2 User defined functions



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3.3 Function declaration and definition

3.4 Passing arguments by value and by address

3.5 Storage classes

3.6 Preprocessors

Chapter 4: Arrays and strings

4.1 Array declaration and initialization

4.2 Passing arrays to functions

4.3 Initialization of strings

4.4 String library functions

Chapter 5: Pointers

5.1 Pointer basics

5.2 Passing arguments by address

5.3 NULL pointers