Course & Kit Content

Of

8051/8052 Embedded Systems

Duration 15 Days

Kit Partner

Corporate Office
Robosapiens Technologies Pvt. Ltd.
B 5, Block 'C', Sector-31, Noida-201301

Email: info@robosapi.com
Website: http://www.robosapi.com

Course Name	: **8051 / 8052 Embedded Systems**
Certification	: By Robosapiens Technologies Pvt. Ltd.
Fee	: Rs. 7900/- Only
Toolkit	: **FREE** to Each Participant

Detailed Course Content

1. Introduction to Embedded Systems

1.1. History of Embedded
1.2. Why Embedded System
1.3. How Embedded System works
1.4. Application of Embedded System
1.5. Current Industrial Embedded System
1.6. Future of Embedded System

2. Anatomy of Embedded Systems

2.1. What are Basic Modules?
2.2. Why Need of Basic Modules
2.3. Working Approach on Embedded System

3. Introduction of Electronic Components

3.1. What is Electronic Component?
3.2. History of Electronic Component
3.3. Various Electronic Component
3.4. Application of Electronic Component
3.5. How to use Electronic Component

4. Introduction to Sensors

4.1. What is Sensor?
4.2. Various Basic Industrial Sensors-IR- Analog Sensor
4.3. IR Digital Sensor
4.4. Color IR_TSOP Sensor
4.5. Light Sensor
4.6. Sound Sensor
4.7. Selection of Sensor

4.8. Basic working Technique of Sensor
4.9. Application of Sensor
4.10. How to Interface Sensor
4.11. How to Design Analog/Digital Sensors

5. Introduction to Computational Devices

5.1. What is Computational Device?
5.2. Transistor
5.3. Logic Gates
5.4. Microprocessor
5.5. Microcontroller
5.6. Difference B/W Various Computational Devices
5.7. Application of various Computational Devices
5.8. Selection of Computational Devices
5.9. How to use Various Computation Devices
5.10. Work on 8051 Family with S Series

6. Introduction to Programming Languages

6.1. Various programming Languages
6.2. Selection of programming Language
6.3. Need of Flow Diagram
6.4. How to write First "LED BLINKING" Code in Embedded C
6.5. Why always First "LED BLINKING" Code?
6.6. Practice on various LED Pattern
6.7. Debugging of Error Program

7. Interfacing to Actuator

7.1. What is Actuator?

8. How to work on Educational & Engineering Level Actuator

8.1. DC Motor
8.2. DC Geared Motor
8.3. Stepper Motor
8.4. Servo Motor

9. How to Drive Motor

9.1. H-Bridge Motor Drive
9.2. Advanced Motor Driver

10. Introduction to LCD Display

10.1. Pin Description of 16x2 LCD Display
10.2. Application of 16x2 LCD Display
10.3. Programming of 16x2 LCD Display

11. Introduction to 7-Segment Display

11.1. What is 7-Segment Display
11.2. Types of 7- Segment Display
11.3. Application of 7-Segment Display
11.4. Programming of 7-Segment Display

12. Introduction to 4-bit Keypad and Matrix Keypad

12.1. Use of Keypad
12.2. How it works
12.3. Interfacing of keypad of your application
12.4. Programming of 4-bit Keypad and Matrix Keypad

13. Introduction to Timer/Counter

13.1. What is Timer/Counter
13.2. Application of Timers/Counter
13.3. Registers of Timers/Counter's Different Modes
13.4. Programming on AT89S52 Timers/Counter

14. Introduction to Interrupts

14.1. What is interrupts
14.2. Application of Interrupts
14.3. Registers of Interrupts Different Modes
14.4. Programming on AT89S52 Interrupts

15. ADC

15.1. What is ADC?

15.2. Use of ADC

15.3. What is Resolution?

15.4. Uses of different ADC Registers

15.5. Interfacing of Analog Devices with Digital World

16. Serial Communication

16.1. Difference between Parallel and Serial Communication

16.2. USART / UART Protocol

16.3. RS232 Standard

16.4. TTL Converter

16.5. UART Programming

17. Real Time Clock Interfacing Using DS1307

LIVE Projects Covered

1. LED Blinking
2. Running LEDs
3. Sand Glass Filling of LEDs
4. Decoration LEDs/ LED Patterns Etc.
5. Sensor Interfacing (DEMO)
6. DC Motor Driving (DEMO)
7. DC Motor Driving using 4Bit Keypad (DEMO)
8. Stepper Motor Driving (DEMO)
9. Servo Motor Driving (DEMO)
10. Displaying your Name on LCD
11. Blinking Text on LCD
12. Scrolling Text on LCD
13. Automatic Counting of Numbers using LCD
14. Seven Segment Display
15. Seven Segment Multiplexing
16. Matrix Keypad Interfacing
17. Counting of Numbers using Matrix Keypad
18. Blinking of LEDs using Timer0
19. Blinking LEDs using Interrupts
20. Digital Voltage Measurement (DEMO)
21. PC to µC Communication
22. µC to PC Communication
23. Digital Visitor Counter (DEMO)
24. Traffic Light Controller
25. Home Security System
26. Temperature Controlled Fan (DEMO)

15 Days KIT Contains

Sl. No.	Name of the Component	Quantity	Figure
1	8051 Development Board	1	
2	USB Programmer	1	
3	2X16 LCD Display	1	
4	Robomart USB to TTL Bridge	1	
5	Robosapien's Educational and Software Material CD	1	
6	8 PIN Female to Female Jumper Wire	1	
7	6 PIN Female to Female Jumper Wire	1	
8	4 PIN Female to Female Jumper Wire	2	
9	3 PIN Female to Female Jumper Wire	1	
10	1 PIN Female to Female Jumper Wire	4	

11	Paper Beg/Box	1	