



**CLUB FIRST**  
WHERE IDEAS COME IN SHAPE

For Improvement & Research in Science & Technology

## **CLUB FIRST TECHNO EDUSOLUTIONS PVT.LTD.**

### **“SUMMER TRAINING”**

**Hands on training on...**

**“Embedded system, Robotics”**

**Register: - <http://www.clubfirst.org>**

**Contacts:-**

For any query and registration

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**In brief:-**

Robotics has come long way. Especially for mobile robots in the past, they were controlled by heavy, large and expensive systems that would not be carried and had to be link via cables. Today, however we can build small robots with numerous actuators and sensors that are control by inexpensive, small and light embedded computer system that are carried on-board. Also with the invent of cheaper wireless modules it has now become possible for multiple robots to communicate with each other and do a particular task also known as CLUB FIRST Techno edusolutions Pvt. Ltd. **This workshop presents a unique combination of mobile robots, embedded system design and software programming.** The focus of this workshop is to introduce to the students various methods of communication that can be used to transfer data between multiple machines.

**Duration**

It is a **30 days' hands on training** for engineering students who want opportunities to extend beyond learning theoretical concepts to transfer this knowledge into practical Robotics.

**Who Should Attend?**

Engineering students who want **to gain an insight into autonomous robotics and wireless communication** but do not know where to start. This workshop will cover everything from development of **autonomous robots , wireless communication of a robot with a PC to wireless communication of multiple robots with each other to understand there surrounding environment cumulatively and do tasks together .**

**Skills Gained**

**After completing this workshop, you will be able to:**

**Training will start on bread board from zero level.**

**After PCB designing.**

**Topic 1: Basic Electronics & Components**

- Introduction to Electronics
- Need of Electronics



## **CLUB FIRST TECHNO EDUSOLUTIONS PVT.LTD.**

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- Introduction to robot
- Introduction to Active & Passive Components
- Relays, Transformer & Switches

### **Topic 2: Introductions to the IC's**

- Hardware Fundamentals
- Definition of an IC
- Types
- Identification
- Field of Application

### **Topic 3: Study of Some Basic IC's**

- Study of basic logic gates
- Identification of IC's used for logic gates
- Working principal of op-amps
- Regulator (7805, 7812)
- Motor drivers (L293D)
- Comparators (Lm324)
- Mobile DTMF decoder (cmd8870)
- Timer IC (555 timer)
- RF Encoder (ht2e)
- RF Decoder (ht12d)
- And other IC's which used in practical circuits with practical sessions.

### **Topic 4: Study of Sensors**

- Identification of sensors
- Working principal of sensors
- Light sensors (LDR, IR-Photo diode)
- Sound sensors (microphone)
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### **Topic 6: Study of High Frequency Wireless Module**

- Introduction of wireless communication
- RF modules
- RF transmission & reception
- Interfacing TWS-434/RWS-434 high range wireless system with computer
- Interfacing TWS-434/RWS-434 high range wireless system with mobile
- Wireless data transmission of computer & mobile

### **ROBOMAKING & EMBEDDED SYSTEM:**

- ❖ Introduction to electronics & robotics
- ❖ Hardware programming in C, C++
- ❖ Embedded system classification & application



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## CLUB FIRST TECHNO EDUSOLUTIONS PVT.LTD.

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- ❖ Architecture of 8051 microcontroller & programming
- ❖ Program of PLC in Assembly
- ❖ Seven segment display using 8051 microcontroller
- ❖ Actuators, DC motors & stepper motors
- ❖ Study of robotics parts, geared motors, drivers & assemblies
- ❖ Introduction to sensors: - optical, magnetic & infrared
- ❖ Control a DC motor: H-Bridge, pulse width modulation

### PCB Designing:

**PCB Designing, Soldering.**

### Project:

1. Student will develop their own project in training.

### Registration Details

Participants have to register online [here](http://www.register.clubfirst.org/workshop.php) in a team of **one** student.

<http://www.register.clubfirst.org/workshop.php>

### The total payable amount (

*Worth 3000/- Per Student (Inclusive Minilab Kit)*

Minilab worth 2000/- extra.

### Mode of payment: -

- All the payment should be made before the starting of the workshop

### Certification-

Every participant will be certified after successful completion of the training from “CLUB FIRST Techno edusolutions Pvt. Ltd., India,”

**Website: -** <http://www.clubfirst.org>

### E-mail-

For information [info@clubfirst.org](mailto:info@clubfirst.org)