



## *Course Content of Bluetooth Control Robotics Workshop*

### ***SESSION 1: Introduction to Robotics***

- ❖ *Introduction to Robotics*
- ❖ *Robotics and its application*
- ❖ *Definition of the Robots*
- ❖ *Future of Robotics*
- ❖ *Basic Parts for build a robot*
- ❖ *Mechanical Structure*
- ❖ *Power Supply*
- ❖ *Motors*
- ❖ *DC Motors : Construction & Characteristics*

### ***SESSION 2: Motor Driver using H-Bridge***

- ❖ *DC Motor Drivers*
- ❖ *H-Bridge Motor Driver*
- ❖ *Working of H-bridge & Concept*
- ❖ *Internal Circuit of IC*
- ❖ *Hand on Session for H-Bridge interfacing*

### ***SESSION 3: Introduction to microcontroller***

- ❖ *What is microcontroller?*
- ❖ *Difference between microcontroller & microprocessor?*
- ❖ *Introduction to Atmega 8 /16 microcontroller*
- ❖ *Architecture of the AVR Microcontroller*
- ❖ *RISC v/s CISC*
- ❖ *How can we use an own microcontroller in our own circuit?*
- ❖ *Pin description of the microcontroller*
- ❖ *How to use I/O of the microcontroller*

### ***SESSION 5: Introduction to USART***

- ❖ *What is USART?*
- ❖ *Difference Between Serial & Parallel Communication*
- ❖ *Difference between USART & UART?*
- ❖ *Register of UART*
- ❖ *Programming For UART*



### **SESSION 6: Introduction to Bluetooth**

- ❖ Introduction to Bluetooth
- ❖ Working principle of the Bluetooth
- ❖ Interfacing of Bluetooth TTL module with the microcontroller
- ❖ Writing Embedded 'c' program for Serial Communication

### **SESSION 7: Introduction to Embedded C Programming**

- ❖ Embedded C Programming for the Microcontroller
- ❖ Introduction to AVR Studio and Win AVR
- ❖ Introduction to C, Flow Control and function
- ❖ Program structure and debugging
- ❖ How to programmer a microcontroller

### **SESSION 8 : Project Implementation & Testing**

- ❖ Writing and burning First Program
- ❖ Testing and debugging of the Program
- ❖ Writing and burning Program for UART
- ❖ Testing and debugging Program
- ❖ Writing and burning Bluetooth controlled robot Program
- ❖ Testing and debugging Program

### **SESSION 9 : Queries**

- ❖ Students Queries
- ❖ Future in Field of Robotics
- ❖ Competitions/Quiz
- ❖ Testing and debugging Program
- ❖ Writing and burning Bluetooth controlled robot Program
- ❖ Testing and debugging Program