Humanoid Robotics Workshop

- Introduction to Robotics.
- Robots and Law of Robots.
- Future aspects.
- Need of Microcontrollers in Autonomous Robots.
- Different parts of Robot.
- Wide description about Microcontrollers.
- Wide description about Arduino Board
- Input & Output peripherals in Microcontrollers.
- Resisters in Microcontrollers.
- Introduction of Humanoid Robot
- Detail Discussion on 9DOF Humanoid Robot
- Structure mapping & Dimensions of Structure
- Basic assembling of the structure
- Introduction of the Motors
- Detail connects behind servo motors
- How to interface Servo motor with the Microcontroller
- What is Duty Cycle?
- Introduction to PWM
- Programming for PWM
- Duty Cycle calculation and programming
- How to Generate PWM using Arduino
- Drive first Servo motor using Arduino
- Angle Calculation of servo motor
- Calculate the center value of each servo motor
- Introduction to communication
- Difference between Serial & Parallel Communication
- Bluetooth Interfacing with Arduino
- Testing of Servo driving using Bluetooth
- Humanoid Structure
- Body Parts of the Robot
- Joints and Lengths calculations
- Dimensions and curves
- Clamps and their fitting
- Development of structure of Robotic Leg
- Testing for Robotics Leg using programming
- Concepts of Walking Robot
- Programming for Walking Robot

- Testing of Walking Robot

Project Covered During Workshop

- PWM Generation
- Servo Interfacing
- Angle Calculation
- No, Namaste, Walking (Forward, Back, Left, Right & Back)
- Dancing Robot