



## Beginning with Robotics – Level 1

# Content

1. Introduction to Robots and Robotics
2. Classification of Robots
  - a. Land-based Robots
  - b. Aquatic Robot
  - c. Flying Robot
  - d. Hybrid Robots
3. Robot Locomotion
  - a. Holonomic Drive
  - b. Non-Holonomic Drive
4. Types of Robot Wheels
5. Wheel control Theory
6. Tools
  - a. Basic Tools
  - b. Advanced Tools
7. Robot Batteries
  - a. Primary Batteries
  - b. Secondary Batteries
8. Electronics
  - a. Electric Circuit.
  - b. Integrated Circuit
9. Microcontroller
  - a. Arduino
  - b. Arduino Programing
10. Actuators
  - a. Pneumatic, Hydraulic and Piezo-electric actuators
  - b. Electric Actuators
    - i. DC Motors
    - ii. Servo
11. Robot Parts and Chassis
12. Motion Controller
  - a. Motor Driver
  - b. Relay Module
13. Sensors
  - a. Ultrasonic Sensor

- b. Infrared Sensor
- c. Flame Sensor
- 14. **Project:** Obstacle avoiding Robot  
Program Maze solving Robot
- 15. **Project:** Line Following Robot
  
- 16. Robot Communication
  - a. Bluetooth Module
  - b. RF Transmitter and Receiver
  
- 17. **Project:** Mobile Application controlled Robot
- 18. **Project:** Radio Controlled Robot
- 19. **Project:** Legged Robot

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