

# Obstacle Avoiding Robot

Embedded Systems Summer Training 2021

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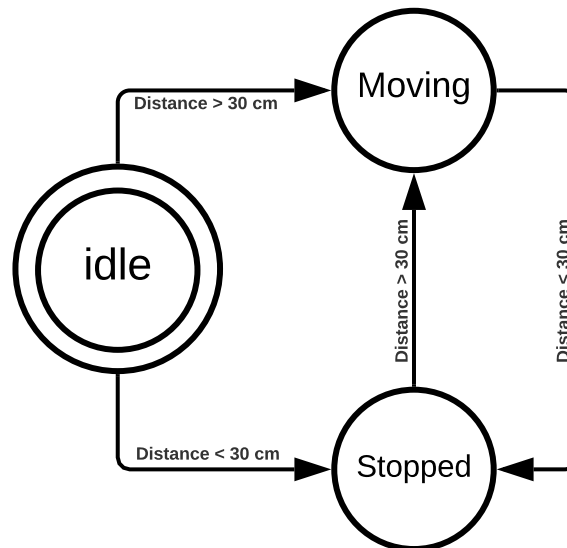
## **Project Description:**

It is an **obstacle avoiding robot** based on Atmega32 microcontroller.

### **Hardware components:**

1. ATmega32 microcontroller chip
2. Ultrasonic Range Finder Sensor – HC – SR04
3. Servo Motor (Tower Pro SG90)
4. Mini DC Gearbox Motors Pair (2 Motors) With Back Shaft
5. Motor Driver IC – L293D
6. Robot Chassis
7. Power Supply

### **System Model:**



### **System Scenario:**

In its initial state, the robot will check if the distance is greater than 30 cm, if so it will go in a straight line and if not it move the servo motor which is carrying the Ultrasonic Range Finder Sensor – HC – SR04 by 90° clockwise and check again if the distance is greater than 30 cm, it will turn right then go in straight line if not the servo motor which is carrying the Ultrasonic Range Finder Sensor – HC – SR04 by 180° counterclockwise and check again if the distance is greater than 30 cm, it will turn left and then go in straight line.

### **Implementation Steps:**

- 1) Develop the system model to gain a clear insight to our project backlog
- 2) We develop each peripheral driver alone and test each one of them to ensure its functionality and validity

- Do partial integration process to eliminate synchronization problems among different components until we reach to apply full system integration and test the whole system as a single functional unit.

### System Circuitry Connection:

