CHAPTER 5

PROJECT IMPLEMENTATION

5.1 TITLE: Voice Controlled Robot

5.2 OBJECTIVE

To design a prototype of voice controlled robot, the action of robot is controlled using voice command.

5.3 HARDWARE REQUIREMENT

- Arduino Uno R3
- 16*2 LCD Display
- IR Sensor
- HC-05 Bluetooth
- DC Motor
- Regulated Power Supply

5.4 SOFTWARE REQUIREMENT

- Arduino IDE

5.5 BLOCK DIAGRAM

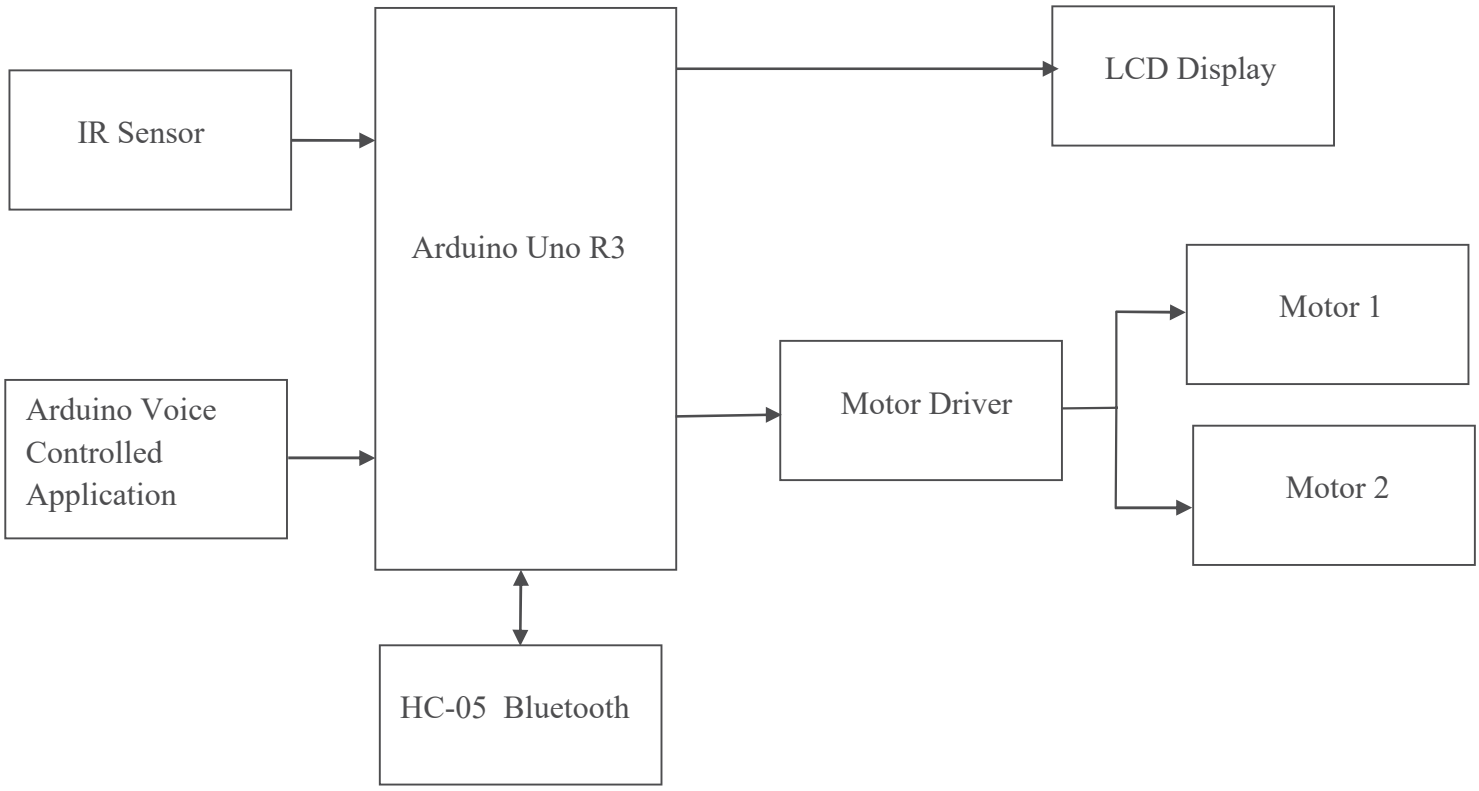

Fig 5.5 Block Diagram of Voice Controlled Robot

5.6 WORKING

- Voice controlled robot are designed to control the movement of robot through voice command. The Arduino voice control application is used to control the robot.IR sensor is used to detect the obstacle.
- The user has to send the voice command using Arduino voice control application. In this application the voice is converted into text format ,then the converted text is send to microcontroller using bluetooth.

- The Arduino sends signals to motor drivers, directing the robot's movement.
- Based on recognized commands like ‘forward’, ’backward’, ’right’, ‘left’ and ‘stop’, the movement of the robot are controlled.
- To stop the robots there is a two condition, one is sending ‘stop’ command using application and other one is if there is any obstacle is detected at that time the robot will stop.
- When the movement happens the same will be displayed in the LCD display and also it sends to the application.

5.7 WORKING MODEL

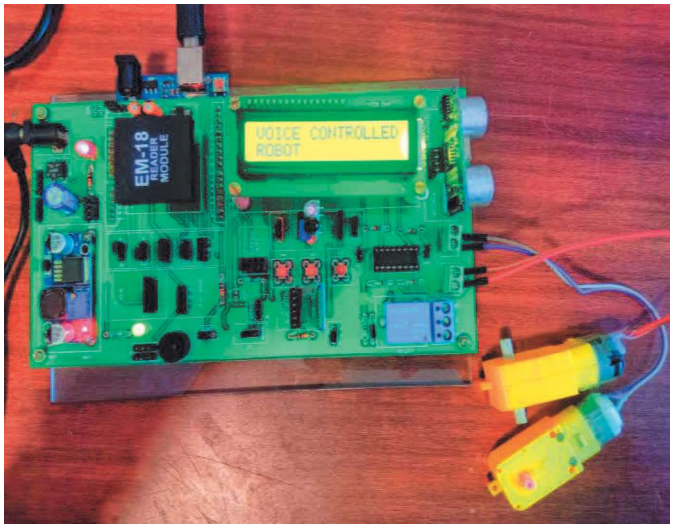

Fig 5.6 Working Model of Voice Controlled Robot

5.8 APPLICATION

- Home Automation: Voice-controlled robots can serve as home assistants, controlling lights, thermostats, and appliances through voice commands, offering convenience to users.
- Healthcare: In healthcare settings, voice-controlled robots can assist patients with mobility issues, helping them move around and perform tasks.
- Elderly care: These robots can help elderly individuals with tasks like fetching items, medication reminders, and emergency alerts, enhancing their independence.
- Education: Voice-controlled robots can engage students in interactive learning experiences, teaching coding, science, and other subjects in an engaging manner.
- Retail: In retail environments, robots can guide customers to specific products, provide information, and even process payments through voice commands.
- Industrial Automation: In manufacturing, these robots can be used to control machinery and equipment through voice commands, enhancing worker safety.
- Agriculture: Voice-controlled robots can assist in tasks like planting, monitoring crops, and performing repetitive agricultural activities.

5.9 RESULT

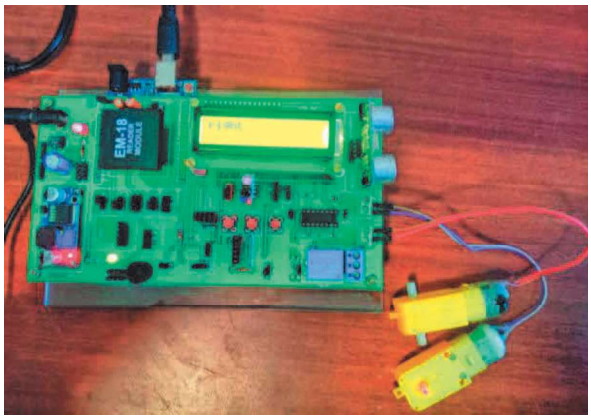

Fig 5.7 (a) Right Movement

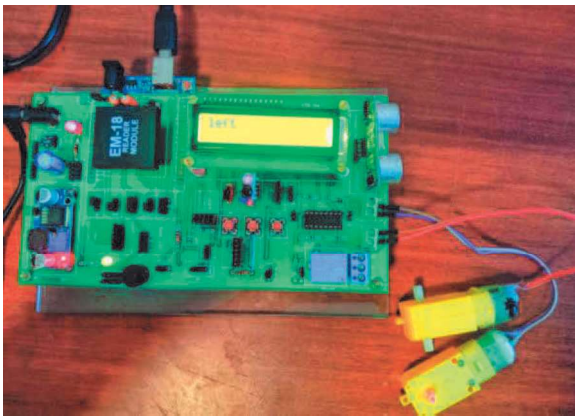

Fig 5.7(b) Left Movement

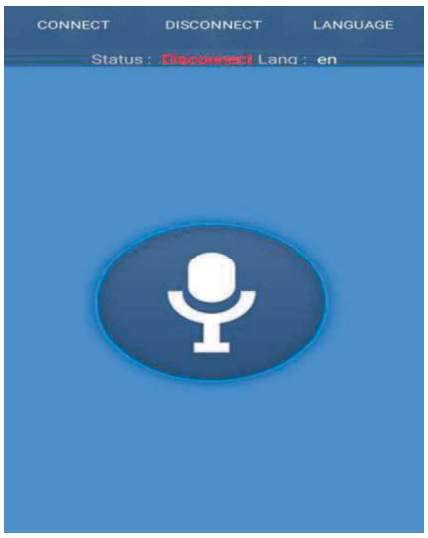

Fig 5.7 (c) Arduino Voice Control Application

The output is obtained based on the voice command which is sending through the Arduino voice control application, the movement of the robot is controlled.