Metal Detector Robot

Based on AVR - Atmega 32

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IMT School

AGENDA

- Project Idea
- Hardware Components
- Application Software
- Final Project Video
- Troubleshoots
- Future versions

Project Idea

The main function of the robot is that the robot moves randomly looking for a metal object and when the metal object will be found , the robot will stop then turn on buzzer for 5 seconds then turn off the buzzer and continue in moving .
This idea can be used in collecting metal objects in street and also can be used in searching for a missing metal object .

Hardware Components

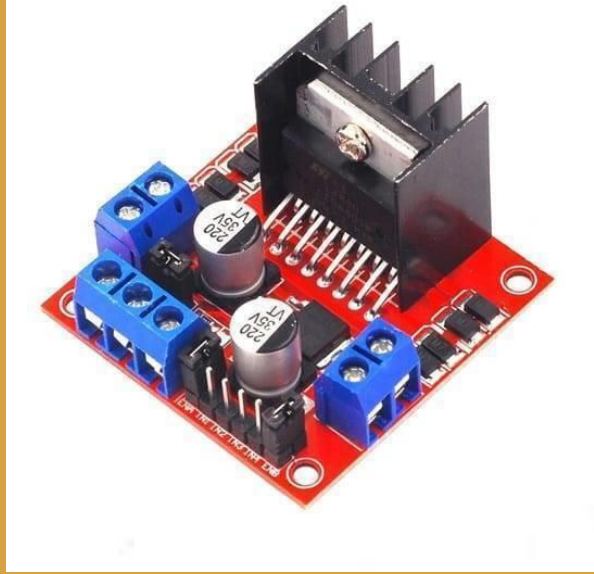
Micro Controller Kit
Atmega 32

Hardware Components

The body of the Robot
+
Dc Geared Motors
+
Wheels

Hardware Components

Motor Driver L298N



Hardware Components

Servo Motor SG90

Hardware Components

Ultrasonic Sensor HC-SR04

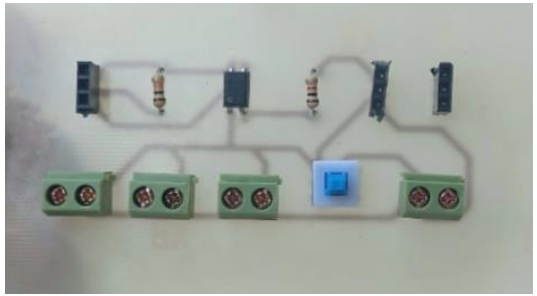
Hardware Components

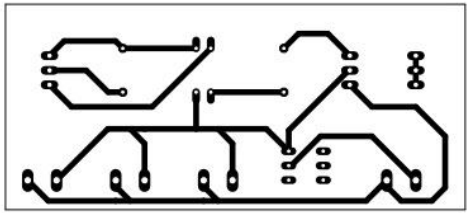
Proximity Metal Sensor

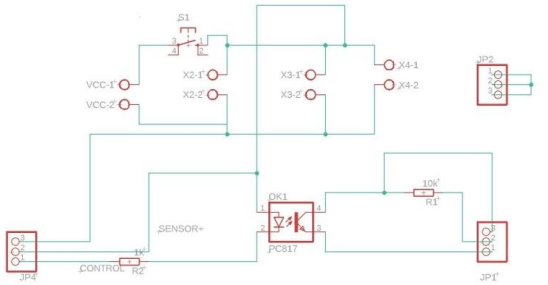
Hardware Components

Buzzer 5 volt

Hardware Components (PCB Circuit)





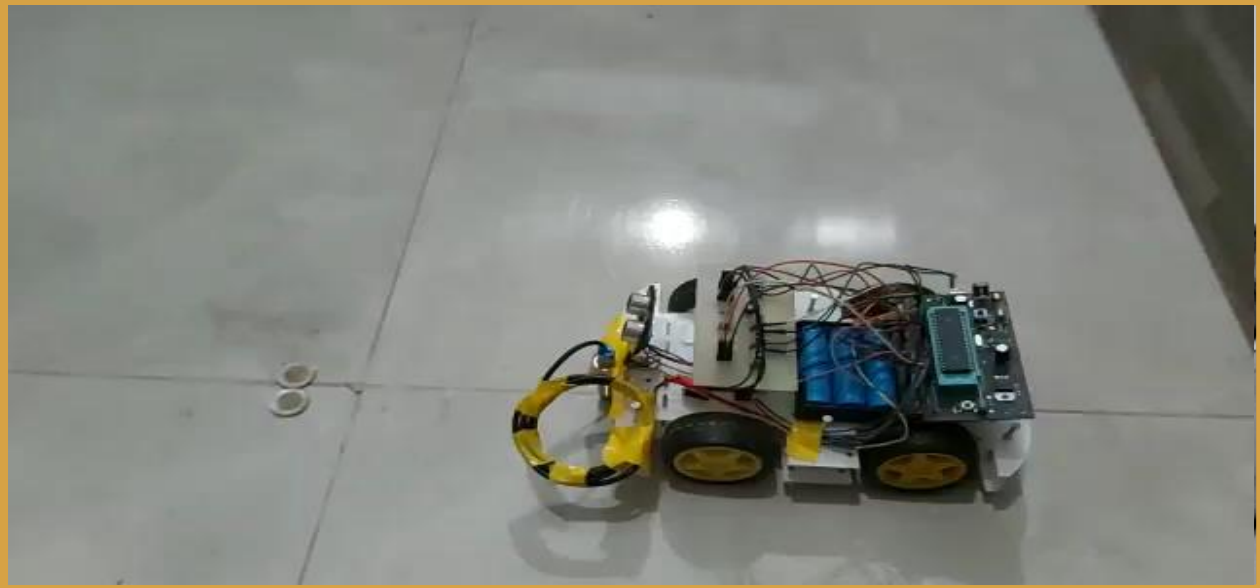


Application Software

Github Link

https://github.com/SamuelMaged90/Metal-Detector-Robot

Final Project Video



Troubleshoots

- We tried to create an idea and make electrical circuit to sense metals but the response to the metal was unstable and not good so we bought proximity sensor that sense metals in very small range (5mm) but has a high stability

- There were a lot of wires connected with MC and sensors so we designed a simple PCB circuit that reduces the complexity of the connection

Future Versions

- We will add a feature that let us control the robot by mobile phone using Bluetooth module and use communication protocol

- Adding option that the robot such as line follower robot and switch between all these option through switch or mobile application

THANKS !