Project: Obstacle Avoidance robot

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Introduction

Obstacle avoidance robots are a type of robots designed to navigate and move in complex environments that are filled with obstacles The primary goal of these robots is to avoid potential collisions with obstacles and maintain smooth and efficient movements

The design of obstacle avoidance robots relies on a variety of technologies and sensors to detect obstacle and determine the appropriate actions to avoid them Some common Sensors used in these robots include

① Ultrasonic Sensor
② Infrared Sensor
③ LIDAR (Light Detection and Ranging) Sensor
④ Camera

once the robot detects an obstacle, it employs various algorithms and techniques to navigate around it, These may include Path Planning algorithms such as the A* algorithm or Potential field methods which calculate the optimal Path based on the detected obstacles and the robots goal

Robot Car

The functionality of the robot car. This robot car can avoid obstacles. An Ultrasonic sensor is mainly used ~~The~~ This purpose we can get the distance through this sensor Also we can do this by calculating the obstacle distance range ~~Next the Servo motor is used to rotate the Ultrasonic sensor left and right~~ ~~This~~ this robot used small wood Plaque and wood design at alow cost So all these components are controlled via the Arduino Uno bord.

How ~~does~~s does work

This starts to move forward when the powre is applied for the first time After the robot car then stops when the Ultrasonic sensor reaches a distance of less than 20cm After even through the ~~Servo motor the Ultrasonic sensor turns left and right~~ and calculates the distance to the obstacles on either side Then ~~tr~~ turn to the long-distance and go forward This Process continues step by step Below are the components you need for this.

1- Arduino Uno board
2- Motor driver board L298N
3- Ultrasonic Sensor
~~4- Servo motor~~
4~~5~~- Small wood plaque
5- ~~Jumper~~ wood Sticks
6~~7~~- ~~Jump~~ wires
7~~8~~- Power bank

Circuit Diagram

References

1- [redacted] SriTu Hobby blog

2- YouTube Arafa Microsys