

Introduction

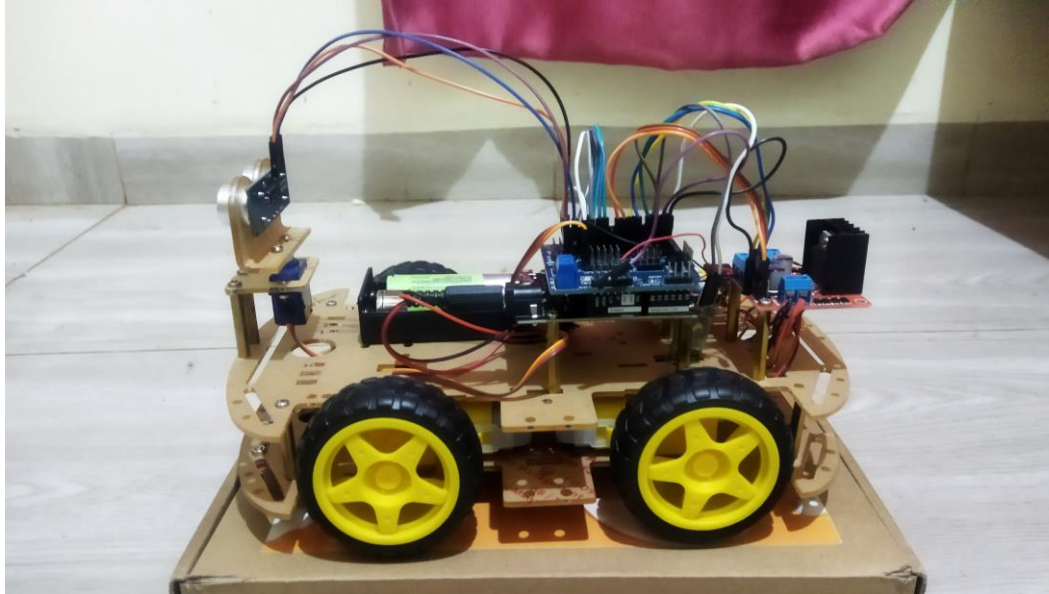
The world of transportation is rapidly evolving, with the advent of smart autonomous cars. These cars are capable of driving themselves without human intervention, thanks to advanced sensors, machine learning algorithms, and other cutting-edge technologies. In this project, we aim to develop a robot car using an Arduino Uno microcontroller board that can avoid obstacles, be controlled via Bluetooth on a smartphone, and follow a line. This project will showcase the capabilities of Arduino microcontrollers in robotics and automation and provide a foundation for future more advanced smart autonomous car projects.

Objectives

- Develop a robot car capable of avoiding obstacles, being controlled via Bluetooth, and following a line.
- Explore the capabilities of Arduino Uno microcontroller in robotics and automation.
- Understand the functions of each component used in the project.
- Improve skills in circuit design, programming, and mechanical assembly.

Materials:

- Arduino Uno Microcontroller
- Sensor shield for Arduino Uno
- L298D H-Bridge driver module
- HC-05 Bluetooth Module
- Infrared Traction Sensors
- Ultrasonic Sensor
- Servo Motor
- DC Motors
- Robot Car Chassis
- 3.7V LiPo Batteries



Reflection/Discussion

The robot car developed in this project has various potential applications in the fields of surveillance, delivery, and transportation. It can be used in surveillance operations, delivery of goods and services, and transportation, particularly in urban areas where traffic congestion is a major problem. The ultrasonic sensor used in this project can be enhanced to detect more complex obstacles and the infrared traction sensors can be improved to track more complex paths. The project showcases the versatility and potential of robot cars in a variety of applications, and it is a starting point for the development of more advanced and intelligent autonomous vehicles.

The ultrasonic sensor detects complex obstacles for public spaces, while infrared sensors follow complex paths for industrial environments, improving the robot car's potential applications.

Conclusion

In conclusion, this project aims to develop a robot car using Arduino Uno microcontroller board that can avoid obstacles, be controlled via Bluetooth, and follow a line. The project showcases the capabilities of Arduino microcontrollers in robotics and automation, and it provides a foundation for more advanced smart autonomous car projects in the future. This project requires knowledge of circuit design, programming, and mechanical assembly, and it is a great way to improve skills in these areas.