

Multifunctional Robot Car Using Arudino UNO and Node MCU.

Author :

Mr. Ketan Todarmal Patil

Mr. Rutik Ravikant Patil.

Ms. Vaishnavi Vilas Walzade.

Mr. Shubham Dnynshwar Rathod.

Under the guidance of

Prof. V.R Khandve

Introduction :

Bluetooth module and a smartphone, the robot is wirelessly controlled. Overall, this study shows the possibility for creating intelligent, effective robotic systems that can carry out a variety of duties, improving the convenience and ease of our lives

People are looking for multipurpose items in today's society, and robotic automobiles are a prime example of this. Several robotic cars were created in the past to carry out particular jobs. However, in this project, we have created a multi-functional robot that can carry out a variety of duties, including household chores, industrial applications, and military operations. We created a smartphone app using MIT App Inventor that has a variety of capabilities and can be used to control this robot. With the help of this app, users can effortlessly steer the robot with their cell phones and, with a simple click, put it in obstacle-avoidance mode.

The robot can detect impediments in its path and alter its course to avoid them while it is in obstacle-avoidance mode. The robot can also follow a track thanks to a feature called line-following. In order to enable remote control of the robot via a transmitter, we installed an 1838 IR sensor.

The objective of this project is to create a prototype for a strong, adaptable, multi-functional robot car that uses the least amount of technology possible. As the hub to which all other components are connected, we have utilised an Arduino UNO.

Definition :

The creation of an obstacle-avoidance robotic vehicle that can move utilising ultrasonic sensors is the main topic of this research article. A microprocessor from the ATmega328 family, which directs the vehicle's movement, is used. The goal is to create a vehicle that can recognise impediments in its route and adjust its course accordingly. To do this, a microcontroller receives an instruction from the ultrasonic sensor, which detects the obstruction. The microprocessor activates the motors attached to it using a motor driver to command the robot to move in a different direction based on the signal it receives. The project seeks to investigate the advantages of ultrasonic sensors over IR sensors, which although having their own uses, are incompatible with the project's specifications. The proposed robotic vehicle is made to be an intelligent device that can carry out duties automatically or with instruction, offering a safer and more effective approach to go through settings that are full of obstacles.

Objectives :

Through obstacle detection and avoidance, the research effort intends to create a robotic system that can safely navigate its way. In order to ensure accurate navigation, the system uses sensors to determine the precise path and may analyse sensor readings from various angles. The device also has a Bluetooth module that, when in automated mode, may send status updates