

International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

Volume 4, Issue 3, December 2024

## **Obstacle Avoiding Robot using Arduino**

Komal D K, Maheshwari Shankar Radder, Nisarga, Pooja Sullad, Dr Guru Prasad Department of ECE

Alva's Institute of Engineering and Technology, Mijar, Moodbidri, Karnataka, India

Abstract: In the modern world, robotics is a rapidly expanding and fascinating field. Nowadays, the idea of robotics is applied in all fields, including manufacturing, healthcare, and transportation. One of the functions required for automated mobile robots is obstacle avoidance. The project's goal is to create a robotic vehicle that can avoid obstacles by moving with the help of ultrasonic sensors. The intended operation is accomplished by use of a microcontroller (ATmega328). A robot is a machine that can carry out tasks either on its own or under supervision. This robot is made out of an Arduino UNO (microcontroller) and a sensor that can identify obstructions. The Arduino software is used to program. When it comes to identifying impediments in the environment, the ultrasonic sensor is incredibly accurate. This robot has wheels. The robot will travel backward if the ultrasonic sensor detects the presence of an obstacle while it is moving forward. The robot will continue to advance until it detects an obstruction before stopping if it is unable to detect any obstacles, that is, if there is a large gap between it and an obstacle. The micro-controller uses a motor driver to interface with the motors and reroutes the robot to move in a different direction based on the input signal received. Since some projects use infrared sensors for specific purposes that are not compactable, we are using ultrasonic sensors in our project instead. In the study, two LEDs are

used: one to show if the robot is traveling ahead and the other to show whether it is moving backward. The battery's level of charge is indicated by the third LED. Applications for Arduino boards employ C programming to create the code that controls the operation of the entire system. Additionally, a power source unit is utilized to charge the system's batteries..

Keywords: Arduino UNO, ultrasonic sensor HC- SR04, DC Motor, Driver-L298N-2A





699