

ABSTRACT

Drivers when in a situation that is driving a vehicle, often have difficulty to know the distance between the vehicle and other vehicles that are around it. The driver is difficult to keep the distance of the vehicle, it is also not uncommon that undesirable things happened. This study aims to make a prototype of a distance measuring device between vehicles whose output is expected to help the driver to be able to maintain a safe distance of the vehicle properly. The research method was carried out by using the HC-SR04 ultrasonic sensor with reflector 1media of various materials for conditions on a flat surface road, sunny weather during the day. Ultrasonic sensors have a measurement range from 3 cm to 350 cm. The data processing system of the sensor uses a Blduino microcontroller, which has a Bluetooth feature for serial communication when coding sketches / programs and also as a distance viewer of measured values on smartphones to provide distance information to users. For the calibration of the sensor a ruler is used as a reference value and then compared to the sensor measuring value. The results of testing the tool on different reflectance media, obtained an average error value of 1.818 and has a standard deviation of 0.471, The accuracy is around 96% to 99%, and the precision is 0.01. As for the Bluetooth feature, this gauge has a radius of appearance of the data in the application as far as a maximum of 37 meters.

Keywords: Ultrasonic Sensor, Blduino One, Distance Between Vehicles