ABSTRACT

Highway is a means of connecting between one place to another to facilitate people in driving. But the lack of literacy to the rules of driving leads to an increase in the number of violations on the roads. This can cause unwanted things such as accidents, therefore one way is to create an Internet of Things (IoT) - based tool that functions as a violation detector such as noisy exhaust vehicles and vehicles that pass the maximum speed limit. The purpose of this tool is to monitor violations that occur on the roads.

The tool to be created from this study focuses on the violation of motorists who cross the maximum limit of speed. In addition to detecting the speed of the rider, this tool will also capture images of motorists who commit violations. This tool will use the HC – SR04 Ultrasonic sensor in which there is an ultrasonic speaker and ultrasonic microphone that serves to emit and receive ultrasonic sound reflections, as well as additional tools such as Liquid Crystal Display (LCD) as a viewer of the value of speed, then everything will be connected to the Arduino Nano microcontroller and then the Arduino will send serial data to ESP32 - CAM which serves to capture images if there are motorists who cross the maximum speed limit. The results of the tool data will be sent to the database that has been provided and can be viewed through the website that has been prepared.

Purpose of this research is to help the road users to be more vigilant in driving so as not to happen things that are not desirable. And can help the authorities to follow up on violations from motorists who have violated the rules in order to get a deterrent effect.

Based on the test results of the device system, it is known that the device can calculate the speed and capture photos if there are motorists who violate the speed limit that has been determined. Data recorded in violation can be sent to the database that has been provided. The process of sending data from the tool to the database shows

that the QoS in this system is included in both categories with each value of the throughput of 21.833 kbps, delay of 0,191 s and packet loss of 0%.

Keywords: IoT, Speed Sensor, HC – SR04 Ultrasonic Sensor, ESP32 – CAM, Arduino Nano.