

ABSTRACT

The number of vehicles are keeps rising every year. This makes the same in traffic jam and the worst level of traffic often occurs in a long holiday. Destinations out of town must travel quite a distance up to hundreds of kilometers plus traffic jams. This situation can make driver tired and have a potential for an accident. In order to minimize this accident, it is necessary to have a prototype of autonomous features embedded in the car. Accordingly, a mobile guidance vehicle system is made based on infrared LED light as a transmitter by a photodetector as a receiver. The feature offered to answer this problem is a system that can automatically trailers between cars. The application of this system is like a convoy vehicle but the driver of the car behind (which follows) does not need to step on the gas and brake so that he can rest for a while when he is tired so as not to cause an accident.

This mobile vehicle guidance system was designed using Arduino Mega attached to a prototype vehicle with a scale of 1:100. In this vehicle prototype, there are 5 receiver sensors that will detect the infrared LED light emitted by the transmitter. The results of receiving the beam in the form of a digital signal are forwarded to the microcontroller as input, then digital signal conditioning is carried out to determine the direction of the maneuver and the distance

Based on the test, an average accuracy value of 90% is obtained for the transmitter shift at an angle of -7.5° and 7.5° . While the accuracy value is 91.67% when the transmitter shifts at -15° and 15° angles.

Keyword: *Car Feature, Convoy, Vehicle Guidance System, Autonomous Vehicle.*