

Vehicle-To-Vehicle Communication

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Abstract: *The purpose of this paper is to address the pressing road safety issues that plague our country. Unfortunately, a high number of fatalities result from accidents on the road. To combat this problem, this paper proposes the implementation of a Vehicle-to-Vehicle (V2V) communication protocol that will allow vehicles to communicate wirelessly with one another while on the road. This protocol will use Radio Frequency (RF) communication, which has a range of 100 to 300 meters depending on the module and antenna utilized. V2V communication is especially crucial in areas with no internet connectivity or Global System for Mobile (GSM)- based communication. It enables vehicles to communicate data such as accidents, vehicles ahead, vehicles coming from opposite lanes, and other warnings. The NRF module is utilized to establish wireless RF communication between vehicles. The NRF modules present in both vehicles communicate with one another and transmit messages over a wireless medium. This type of communication is much more reliable than internet or mobile-based communication. A Node MCU microcontroller integrates all the sensors present, controlling all the functions. This technology plays a vital role in preventing accidents on roads, which remains one of the most significant issues in our country, causing numerous fatalities. Connected vehicles on the roads provide smoother traffic, tackle congestion, and in case of any human error, the vehicle can communicate with other vehicles quickly and wirelessly, cautioning the other driver, thereby avoiding fatalities.*

Keywords: Vehicle to Vehicle Communication, NRF , GSM, Encoder, Decoder.

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