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Small Scale Prototype Development of Vehicle to Vehicle (V2V) Communication Using the Light Fidelity (LiFi) Technology

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Abstract:

Vehicle to vehicle, also known as a V2V communication using the light fidelity (LiFi) technology is about transmitting and receiving data wirelessly. The data is transmitted by modulating the light intensity given by a light source of the front vehicle, for instance from the vehicle's tail lamp. The development of the V2V communication prototype is a proposed method on transmitting the data via optical communication in order to prevent the collision between two vehicles: front and rear vehicle. In this project, the LiFi transmitter has been developed which consist of the light emitting diode (LED) that is used as a source for data transmission and the LiFi receiver that was designed with the photodiode to receive the data. For this time, the experiments have been done in order to study the transmission rate of single character with multiple characters. The colors of the transmitter also effects the obtained result. The proposed communication system based on LiFi for vehicle to vehicle (V2V) is a cost-effective solution with high data rate capabilities.