VEHICLE TO VEHICLE COMMUNICATION USING VLC AND IOT

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Abstract: This paper introduces a vehicle-to-vehicle (V2V) communication system based on a wireless communication technology using an LED transmitter. And the Vehicle will transmit the data continuously to the other vehicle in front it using Head light. And the data's are stored in the Secure Digital Card in comma separated value for future reference in case of emergency at the same time the data's are stored in the Cloud Server for Government Reference for locate the most accident prone zones. The newest technology LI- FI is used in the field of wireless communication. As the number of users who uses internet is increasing there is a decrease in the rate of data transmission in the wireless network.LI-FI speed overcomes the speed of WI-FI. According to the German professor Harald Haas LI-FI provides more speed (10megabits per second) data transmission by using visible light. So here in this condition we are analyze the LI-FI/WI-FI. In this we are going to compare and analyzed the speed of LI-FI and WI-FI and also network jamming problem during the increase the increasing of users.

Keywords—*Light Fidelity , Wireless Fidelity, Light emitting diodes, VLC, Internet of Things.*

I. INTRODUCTION

Over the past few decades, the world has under-gone rapid progress in the fields of technology as well as the transportation system. The number of causalities in road accidents is more even though there is a rapid development in the moving vehicles. Edgy situations are created more of unidentified crashes and late rescues particularly on unpopulated highways. To lessen accidental mortality rate, a permissible low-cost intelligent accident management system is proposed. This project introduces a vehicle-to-vehicle (V2V) communication system based on a wireless communication technology using an LED transmitter. And the Vehicle will transmit the data continuously to the other vehicle in front it using Head light. And the data's are stored in the Secure Digital Card in comma separated value for future reference in case of emergency at the same time the data's are stored in the Cloud Server for Government Reference for locate the most accident areas. Decision Tree (DT) techniques. To train and test each candidate with ADC model

II. LITERATURE SURVEY

candidate with ADC model in order to identify the correct class of accident among collision, rollover, fall-off, and no-accident the five physical parameters related to vehicle movement like speed, absolute linear acceleration , change-in-altitude, pitch, and roll, have been done .An highly accurate with 0.95 mean F1-score was found in NB-based ADC model. Radio Frequency waves are used in current Wi-Fi technology, but the available usage of RF spectrum is limited. Therefore a new technology, Li-Fi is used. It explains how array of LEDs are used to transmit data to the visible light spectrum. This technology has benefits like security, increased accessible spectrum, low latency efficiency and much higher speed as compared to Wi-Fi. Arduino is used by Li-Fi transceiver to transmit and receive data in binary format. The Arduino-Uno platform is used for software coding. Thus the transmission and reception of data(alphanumeric) has been done successfully.

In this paper the improvements in the modern communication are made due to the emergence of wireless technology and there is a vast growth in the need of internet. The major evident complication is Congestion is created due to it. It is the needs to find another means of communication. Therefore Light fidelity is a technology that uses visible light communication and provides high durability, high data transmission rate with its additional quality of long- life which is an addictive quality of the Light Emitting Diodes (LEDs) that are being used here as the source of light.. Here, two types of data transmission mainly Audio and text is carried out using Li – Fi. We are also implementing an application for the visually challenged to imply it in

indoor locations.

IV. PROPOSEDMETHODOLOGY

We are going to propose a system with a vehicle to vehicle Communication Using Li-Fi because LIFI is a fastest means of communication and the same time we've added a Black-Box System to identify when, where and how the fault is occurred during accidents. So that by means of this authenticated wireless communication system security encryption becomes trustworthy.

Bayes (NB), Gaussian Mixture Model (GMM) like emergency medical services, fire stations, towing services, etc., as it is important to know about the type of accident in planning and executing rescue and relief operations. The emergency assistance providers can better equip themselves ready according to the situation. The best ADC model is made using these three machine learning models based onNaïve

- **Memory card module:** The module (Micro SDCard Adapter) is a Micro SD card reader module and the SPI interface is used through the file system driver, microcontroller system to complete the Micro SD card read and write files. The Arduino IDE comes with an SD card to complete the library card initialization and read-write is used by users directly.
- **Wi-fi module:** It is with an ESP8266WiFi Module integrated it is based on ATmega328P . A SoC which is self-contained is intefrated with TCP/IP protocol stack that can give access to your WiFi network (or the device can act as an access point)is contained in the ESP8266WiFi Module.
- **LCD:** Since the LCD's consume less power, they are compatible with low power electronic circuits, and can be powered for long durations as LCD's are lightweight with only a few millimeters of density.
- **LED:** The Arduino needs to send a HIGH signal to one of it's pins to switch on the LED. It needs to send a LOW signal to the pin to switch off the LED. By changing the length of the HIGH and LOW states we can make LED flash.

2. Writing program using embedded C language for Arduino software to transfer and store data in memory card and cloudserver

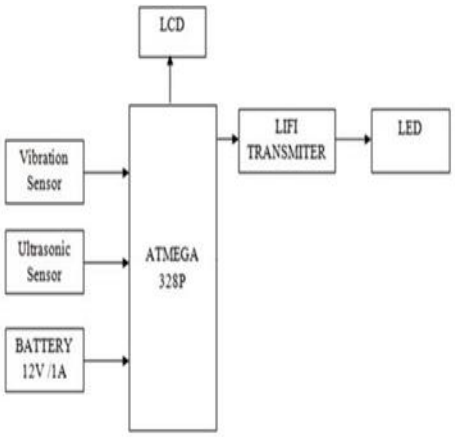


Fig.2. RECEIVER MODULEDESIGN

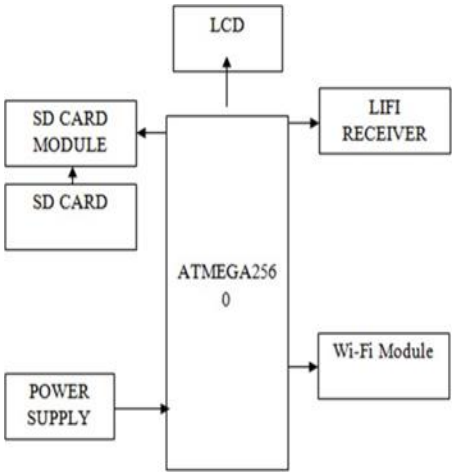
3. Integration of Hardware

- **Ultra sonic sensor:** High frequency sound waves are generated using ultrasonic sensors and echo is evaluated which is received by the sensor. To determine the distance of an object is calculated by these sensors by the time interval between sending the signal and receiving the echo.
- **Vibration sensor:** When no vibration is detected, Vibration sensor output is 0 (low voltage), otherwise its output is 1(high voltage) green LED is turned on from vibration sensors if Ardunio gets 0 and turn off Red LED. It will turn on Red LED and turn off green LED if Ardunio gets 1 from vibration sensors.

IV. EXISTINGSYSTEM

Currently there are no communications between one vehicles to another vehicle. In case of Emergency there is no data storage to identify where the fault was occurred tracking the culprit is difficult. Automatic data storage is not performed. Chances for sensors to get failed are high.

BLOCK DIAGRAM TRANSMITTER



CONCLUSION

By using this intelligent accident management system monitoring the fault being occurred during the accident is found more efficiently. It would be a Lifesaving tool and Easy to use. An accident detection system which is automatically presented in this work to reduce the death casualties caused by the road accidents. And tracking is made easier. Hence this system resolves all issues faced by the existing system.

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