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"CAR TO CAR COMMUNICATION USING IOT"

Karan Dhoble[1], Aditya Deshmukh[2], Vaibhav Patil[3]

Guided By: Prof. R. K. SARAWALE

[1,2,3]*Students, Department of ENTC Engineering, JSPM, ICOER, Pune, India.*

Abstract - *The upcoming technology where machine to machine communication is possible by deploying the intelligent sensors on machine for smart interaction. Internet of things (IoT) gives a wide scope in many application domains where number of smart gadgets per person is increasing exponentially with time. The automobile sector is also one of the application domain where vehicle can be made intelligent by using IoT. This paper presents the interface of Arduino Uno R3 development board, sensor shield and smart phone. The proposed schematic is for car security which gives the access of car through internet and GPS, to the owner of car, in case car is stolen or damaged. In the Intelligent Vehicle Grid, the car is becoming a form idable sensor platform, absorbing information from the environment, from other cars (and from the driver) and feeding it to other cars and infrastructure to assist in safe navigation, pollution control and traffic management. The Vehicle Grid essentially becomes an Internet of Things (IOT), which we call Internet of Vehicles (IOV), capable to make its own decisions about driving customers to their destinations. Like other important IOT examples (e.g., smart buildings), the Internet of Vehicles will not merely upload data to the Internet using V2I. It will also use V2V communications between peers to complement on board sensor inputs and provide safe and efficient navigation. In this paper, we first describe several vehicular applications that leverage V2V and V2I. Communications with infrastructure and with other vehicles, however, can create privacy and security violations. In the second part of the paper we address these issues and more specifically focus on the need to guarantee location privacy to mobile users. We argue on the importance of creating public, open "smart city" data repositories for the research community and propose privacy preserving techniques for the anonymous uploading of urban sensor data from vehicles.*

***Key Words*: internet of vehicles (IOV), idable sensor, internet of things, smart city, GPS**

1.INTRODUCTION

The target of including learning is to make a canny well ordered space, which is quickly usable and encouraged into our homes, our workplaces, our paths, our vehicles, and all over the place. This new idea must be immaterial; it must mix in with our standard condition and should be available when we need it.One of the uses of this thought involves giving our vehicles and avenues with capacities to make the street logically secure (data about the traffic, difficulties, dangers, potential ad libbed courses, air, and so on.) and to make our break and about ceaselessly wonderful (Internet get the chance to, sort out beguilements, helping two individuals search after each other out on the town, visit, and so on.). These applications are ordinary instances of what we call an Intelligent Transportation System (ITS) whose objective is to improve security, suitability and satisfaction in street transport using ne Customary traffic the board structures depend upon joined foundations where cameras and sensors executed along the road assemble information on thickness and traffic state and transmit this data to a central unit to process it and settle on legitimate decisions. This kind of framework is all around expensive concerning affiliation and is delineated by a long response time for managing and data move in a setting where data transmission suspension is fundamental and is essential in this sort of structure. Furthermore, these contraptions put on roads need accidental and over the top assistance. Thus, for enormous scale blueprint of this sort of structure, colossal undertaking is required in the correspondence and sensor foundation. Not w advances for data and correspondence (NTIC). withstanding, with the lively improvement of remote correspondence headways, region and sensors, another decentralized (or semi-concentrated) designing reliant on vehicle-to-vehicle trades (V2V) has made a verifiable interest these latest couple of years for vehicle makers, R&D social order and telecom executives. This sort of structure depends upon an appropriated and self-ruling framework and is contained the vehicles themselves without the help of a fixed foundation for information organizing. For this situation, we are discussing a vehicular without any preparation system (VANET), which is almost a particular use of standard versatile extraordinarily assigned structures (MANET)1. An occurrence of a urban VANET structure is sketched out in Figure

1.1 Background

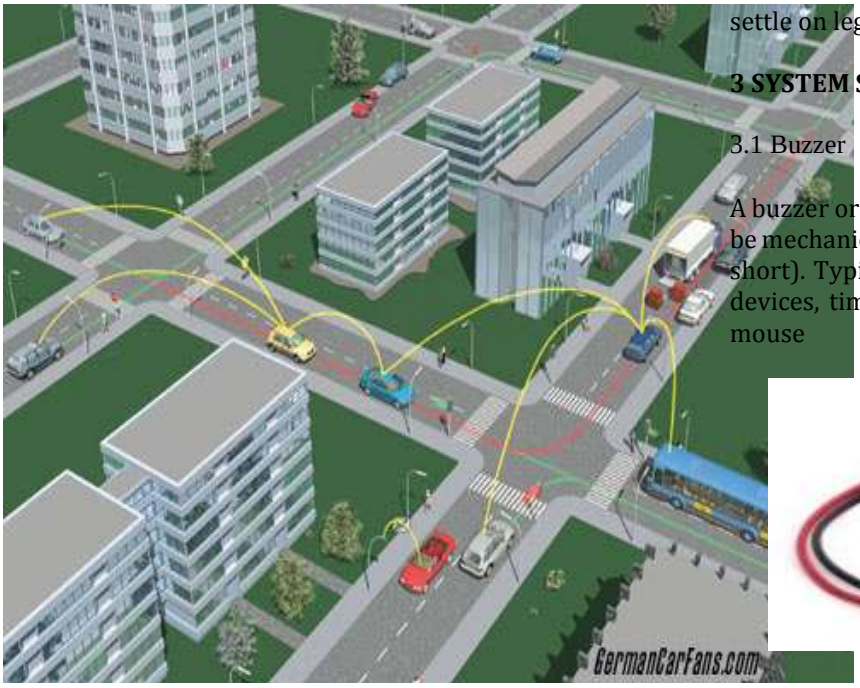


Fig.1.1 car to car communication using IOT

1.2 Problem Statement

Actualize savvy vehicle to vehicle correspondence with the assistance of remote innovation, web of things or any new innovation to maintain a strategic distance from the street mishaps , traffic or to identify the vulnerable side.

2. BLOCK DIAGRAM

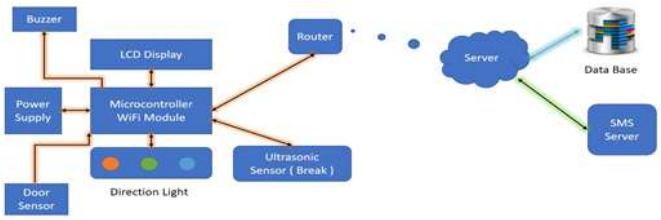


Fig.2.1 Block diagram. For Car to Car Communication using iot

Block diagram description:

This endeavor is arranged using a Raspberry PI single board PC used for introduced application. The Interfacing sections used are PI camera, GSM and GPS Modem, Door Sensors, Proximity Sensors, Wi-Fi Dongle as showed up in Fig-2. USB mouse and support can be used for straightforward utilization of the Board. The 32 bit ARM controller on the Raspberry Device reinforces the Functionality as the CPU Core.Customary traffic the board structures rely upon united establishments where cameras and sensors executed along the road assemble information on thickness and traffic state and transmit this data to a central unit to process it and settle on legitimate decisions.

3 SYSTEM SPECIFICATION

3.1 Buzzer

A buzzer or beeper is an audio signalling device, which may be mechanical, electromechanical, or piezoelectric (piezo for short). Typical uses of buzzers and beepers include alarm devices, timers, and confirmation of user input such as a mouse

Fig 3.1Buzzer

Electromechanical History The electric ringer was created in 1831 by Joseph Henry. They were mostly used in early doorbells until they were dispensed with in the mid 1930s for melodic rings, which had a gentler tone.

3.2 Ultrasonic Distance Sensor :

Fig 3.2 Ultrasonic Distance Sensor HC-SR04

Ultrasonic extending module HC - SR04 gives 2cm - 400cm non-contact estimation work, the going exactness can reach to 3mm. The modules incorporates ultrasonic transmitters, collector and control circuit.

3.3 16 * 2 LCD Display

LCD (Liquid Crystal Display) screen is an electronic presentation module and locate a wide scope of uses. A 16x2 LCD show is exceptionally fundamental module and is in all respects ordinarily utilized in different gadgets and circuits. These modules are favored more than seven sections and other multi fragment LEDs. The reasons being: LCDs are

affordable; effectively programmable; have no restriction of showing extraordinary and even custom characters (not at all like in seven sections), movements.

Fig 3.3 16 * 2 LCD Display

3.4 ESP 32
Hybrid Wi-Fi & Bluetooth Chip

ESP32 can execute as a total independent framework or as a slave gadget to a host MCU, lessening correspondence stack overhead on the principle application processor. ESP32 interface with different frameworks to give Wi-Fi and Bluetooth usefulness through its SPI/SDIO or I2C/UART interfaces.

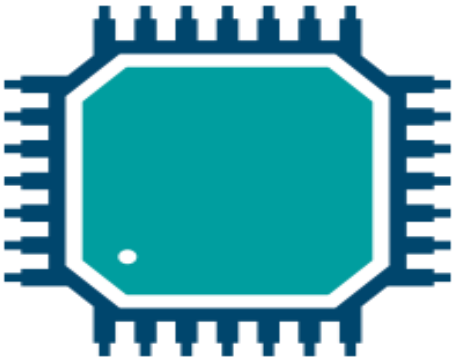


Fig. 3.4.1 WiFi & Bluetooth chip

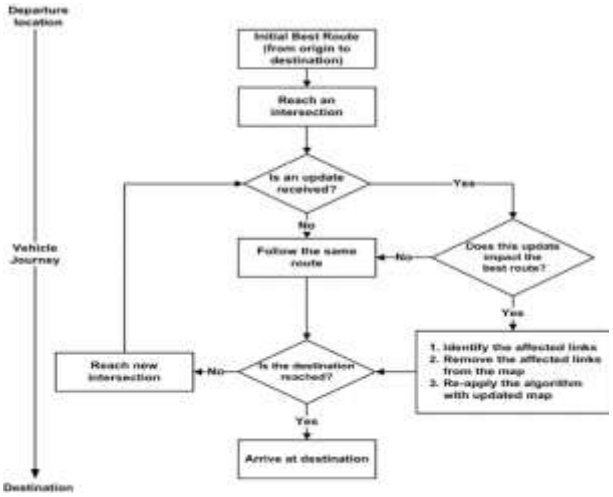
High Level of Integration

ESP32 is profoundly incorporated with in-fabricated recieving wire switches, RF balun, control enhancer, low-clamor get intensifier, channels, and power the executives modules. ESP32 adds extremely valuable usefulness and flexibility to your applications within significant Printed Circuit Board (PCB) necessities.

Fig 3.4.2 High level of Integration

4 Flow Chart

Fig.4.1 FLOW CHART



5. RESULT

FIG.5.1 Result

6. CONCLUSIONS

A vehicle-to-vehicle correspondence convention for agreeable crash cautioning. Developing remote advances for vehicle-to-vehicle (V2V) interchanges are promising to drastically decrease the quantity of deadly roadway mishaps by giving early admonitions.
The innovation of the V2V is one of the vehicle business and the general population.

The improvement of new innovations has started a mind boggling development of the transportation framework. This development is planned to make organizes progressively secure, effective, dependable and environmental without fundamentally adjusting the equipment of the current foundation.

The scope of advancements included incorporates data and sensor innovations, control and correspondence frameworks; it contacts teaches, for example, transportation,

designing, media communications, registering, funds, electronic business and car fabricating.

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[1]