



# Automatic and Effective Tracking of Hit and Run Misbehavior driver

<sup>1</sup>V.G.S Archana, <sup>2</sup>S.Christopher Oswin Suvishak, <sup>3</sup>A.Edison, <sup>4</sup>M.Arun <sup>5</sup>M.Arun kumar

<sup>1</sup>Assistant Professor, Dept of ECE, kings engineering college

<sup>2,3,4,5</sup>UG Students, Dept of ECE, kings engineering college

<sup>1</sup>[archanavgs@gmail.com](mailto:archanavgs@gmail.com), <sup>2</sup>[mr.oswinchris@gmail.com](mailto:mr.oswinchris@gmail.com), <sup>3</sup>[edinebin@gmail.com](mailto:edinebin@gmail.com), <sup>4</sup>[livingstonarun@gmail.com](mailto:livingstonarun@gmail.com)  
<sup>5</sup>[marun26@gmail.com](mailto:marun26@gmail.com)

**Abstract**— The rapid growth of technology and infrastructure has made our lives easier. The advantage of technology has also increased the traffic hazards and the road accident take place frequently which causes huge loss of property and most of the case the vehicle which made accident will escape and it is difficult to keep in track of these vehicles, especially in night time. If suppose the accident occurred in particular location, two vehicles are involved in this accident, the vibration sensor placed in front of the vehicles sensed and give the alert to the server through Zigbee communication. Someone will escape who made an accident after occurring the vibration sensor both vehicle GPS location send to the server via Zigbee node is placed similar to the tower. Using the tracking system we can keep track of the vehicle by periodically using GPS.

## I Introduction

As per a report submitted by National Institute of Disaster Management, in India every 80 seconds there is a road accident i.e 1080 accidents per day. The high demand of automobiles has also increased the traffic hazards and the road accidents. This design is a system which can detect accidents in significantly less time and sends the basic information to server within a few seconds covering geographical coordinates, the time and angle in which a vehicle accident had occurred. The Global Positioning System (GPS) is a space-based satellite navigation system that provides location and time information in all type of weather condition, track your vehicle anywhere and near the earth where there is an unobstructed line of sight to four or more in GPS .the tracking system provides the critical conations the military, civil, any commercials user around the world. The United State Government to create and track the vehicle and matins for freely any one can accessible it to anyone can possibly use GPS receiver. The Wireless technology ZigBee is developed as an open global standard to address the unique it needs low cost and low cost of m2m network. This ZigBee is standards by the IEEE and it is physical ratio signal is 802.15.4 specification and it operates bands are 2.4GHz, 900 MHz, and 868 MHz. Vibration sensors are used as knock sensors in internal combustion engines. In order to assure that an

engine is operating under the optimum conditions, and it is necessary to accurately monitor its actual operating state. One device known to be highly useful for this purpose is the engine vibration sensor. Vibration or shock sensors are commonly used in alarm systems to activate an alarm whenever the devices to which they are device is attached, touched, or vibrated.

In this project we proposed the design, development and deployment of GPS (Global Positioning System) based Vehicle Tracking and Alert System which allows traffic police control station to track vehicles which made accident, in real-time and provides an alert system. Now a day all the new vehicle consist of vibrating sensor and GPS system .we are modifying this system with ZigBee the proposed system diagram is shown below. The vehicle section module consists of Microcontroller, GPS module, vibrating sensor, LCD, ZigBee module and a car lock system. Whenever a collision is occurred the vibrating sensor ON and it will activate the GPS system. Simultaneously the ZigBee module will send message to nearby traffic control police station. This message is contains the location and vehicle owner details. This application is used to trace the vehicle and where the accident it happen any other issues to track the device where it located. Google earth is used to locate the GPS device at each vehicle. The existing system depending only on camera video footage for tracking the vehicle which vehicle to made accident. But the existing system is not find the accident happen in night time. And one of the major drawbacks is limited areas only services is a viable. The existing system is not track the device if which vehicle is happen accident at regular monitoring.

## II Literature survey

A literature review is an evaluative report of information found in the literature to relate to definition of area related to study. The paper should describe summaries by the literature survey. It should be given theatrical base to

help the natural way to research. The paper work is unrelated should be discarded and those which are peripheral should be looked at critically.

The motivation of this research is to show that visual based object tracking and following is reliable using a cheap GPS-denied multi-rotor platform such as the architecture is allows the user to specify an object in the image that the robot has to follow from an approximate vehicle distance. Our software task is following utilizes the forward-facing camera images and part of the IMU data to calculate the references for the four on-board low-level control on all looping device. To obtain a strong rejection disturbance an improved the navigation performance and heating reference data is internally kept and updated by our control loop algorithm. We are using validate the architecture is AR Drone 2.0 and the Open TLD tracker in outdoor suburban areas. In this paper to back up security option send all data to the owner and the emergency like us police. All data communicated by the ZigBee network. Christo Ananth et al. [4] discussed about a system, GSM based AMR has low infrastructure cost and it reduces man power. The system is fully automatic, hence the probability of error is reduced. The data is highly secured and it not only solve the problem of traditional meter reading system but also provides additional features such as power disconnection, reconnection and the concept of power management. The database stores the current month and also all the previous month data for the future use. Hence the system saves a lot amount of time and energy. Due to the power fluctuations, there might be a damage in the home appliances. Hence to avoid such damages and to protect the appliances, the voltage controlling method can be implemented.

### III Proposed System

In this project we proposed the design, development and deployment of GPS (Global Positioning System) based Vehicle Tracking and Alert System which allows traffic police control station to track vehicles which made accident, in real-time and provides an alert system. Now a day all the new vehicle consist of vibrating sensor and GPS system .we are modifying this system with ZigBee the proposed system diagram is shown below. The vehicle section module consists of Microcontroller, GPS module, vibrating sensor, LCD. ZigBee module and a car lock system. Whenever a collision is occurred the vibrating sensor ON and it will activate the GPS system. Simultaneously the ZigBee module will send message to nearby traffic police control station. The message includes the location, vehicle owner details. Using this information the police can trace the vehicle and identify the vehicle which made accident and trace

the current location of that vehicle using GPS. Google Earth application can be used to view the current location and status of each vehicle. This system is a low cost and efficient tracking system.

### IV Control Unit Structure:

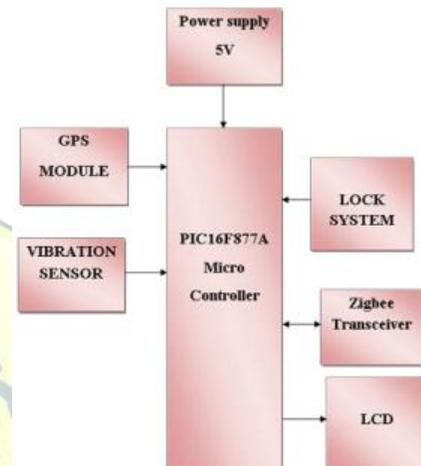


Fig: Block diagram

#### A. GPS Module

The Global Positioning System (GPS) is a space-based global navigation satellite system that provides reliable location and time information in all weather and at all times and anywhere on or near the Earth when and where there is an unobstructed line of sight to four or more GPS satellites.

A GPS receiver calculates its position by precisely timing the signals sent by GPS to satellites its high above the Earth. The satellite connectivity transmits messages that may include that time the message was transmitted precise orbital information (the ephemeris) the general system health and rough orbits of all GPS satellites (the almanac).

The receiver utilizes the messages it receives to determine the transit time of each message and computes the distance to each satellite. The distances along with the satellites its locations are used with the possible aid of starvation, depends on which algorithm is used to compute the distance of the receiver. And the position is displayed under with a location with moving map and longitude; elevation information may be included. Many units are monitoring the GPS device to calculate the speed and change position, calculated from position changes.

In this project, we are using GPS for tracking the location of the vehicle. So, we can find out the location of vehicle

that what happened to the vehicle. That the GPS connects to the server that responds to the user for user's problems.



Fig GPS Sensor

### **B. Vibration Sensor**

Vibration sensors are utilized in a number of applications to measure acceleration and activity of vibration. Vibration sensors can be utilized to determine whether the machinery is operates properly. Sensors are monitoring the condition of rotating machinery, the vehicle where overheating or excessive vibration are could indicate that excessive load, inadequate lubrication, or bearing. Sensors such us utilized in geophysical applications and applications requiring accelerometers. Vibration sensors are used as knock sensors in internal combustion engines. In order to assure that an engine is operating under optimum conditions, it is necessary to accurately monitor its actual operating state.

One device known to be highly useful for this purpose is the engine vibration sensor. Vibration or shock sensors are commonly used in alarm systems to activate an alarm whenever the devices to which they are attached are touched, moved, or otherwise vibrate. And all vibration sensors are mostly placed in windows of buildings to sense glass breakage and in car alarm systems to detect vehicle tampering. Commercial vibration sensors use a piezoelectric ceramic strain transducer attached to a metallic proof mass in order to respond to an externally imposed acceleration. Piezoelectric vibration sensors are used for detecting vibration from various vibration sources are generally classified into two large types, resonant type and nonresident type. A capacitive vibration sensor or an accelerometer is formed from a capacitor one plate of which is a proof mass, with the other plate fixed to a substrate. Vibrations are typically measured using analog vibration sensing elements, such as analog accelerometers, positioned on machinery at strategic locations. Vibration sensors are utilized in a number of

applications to measure acceleration and vibration activity. Vibrations sensors can be utilized to control determine whether the machinery is operating properly. Vibration sensors can be useful for monitoring the condition of moving machinery, where overheating or excessive vibration could be indicate excessive loading, inadequate lubrication, or bearing.



Fig: Vibration Sensor

### **C. PIC16F877A Microcontroller**

This powerful (200 nanosecond instruction execution) yet easy-to-program (only 35 single word instructions) CMOS FLASH-based 8-bit microcontroller packs Microchip's powerful PIC® architecture into an 40- or 44-pin package and is upwards compatible with the PIC16C5X, PIC12CXXX and PIC16C7X devices. The PIC16F877A features 256 bytes of EEPROM data memory, self programming, an ICD, 2 Comparators, 8 channels of 10-bit Analog-to-Digital (A/D) converter, 2 capture/compare/PWM functions, the synchronous serial port can be configured as either 3-wire Serial Peripheral Interface (SPI™) or the 2-wire Inter-Integrated Circuit (I<sup>2</sup>C™) bus and a Universal Asynchronous Receiver Transmitter (USART). All of these features make it ideal for more advanced level A/D applications in automotive, industrial, appliances and consumer applications.



### **D. Zigbee Tranceiver**

ZigBee protocol has been created and ratified by many companies of the ZigBee alliance. There are many leading companies are manufacturers semiconductor, and manufacture technology firms, OEMs and service companies are alliance membership. the ZigBee protocol

was design to provide secure reliable characterized by wireless network architecture. The ZigBee protocol is designed to communicate data through hostile RF environments that are common in commercial and industrial applications. ZigBee enables broad-based deployment of wireless with low cost and low power consumption. It has the ability to run for years on inexpensive batteries for a host of monitoring and control applications.

ZigBee is a wireless technology developed as an open global standard to address the unique needs of low-cost, low-power wireless M2M networks. The ZigBee standard operates on the IEEE 802.15.4 physical radio specification and operates in unlicensed bands including 2.4 GHz, 900 MHz and 868 MHz.



Fig Zigbee trans-receiver

**E. Display Circuit Board**

LCD (Liquid Crystal Display) screen is an electronic display module and find a wide range of applications. A 16x2 LCD display is very basic module and is very commonly used in various devices and circuits. These modules are preferred over seven segments and other multi segment LEDs. The reasons being: LCDs are economical; easily programmable; have no limitation of displaying special & even custom characters (unlike in seven segments), animations and so on. A 16x2 LCD means it can display 16 characters per line and there are 2 such lines. In this LCD each character is displayed in 5x7 pixel matrix. This LCD has two registers, namely, Command and Data.

The command register stores the command instructions given to the LCD. A command is an instruction given to LCD to do a predefined task like initializing it, clearing its screen, setting the cursor position, controlling display etc. The data register stores the data to be displayed on the LCD. The data is the ASCII value of the character to be displayed on the LCD.



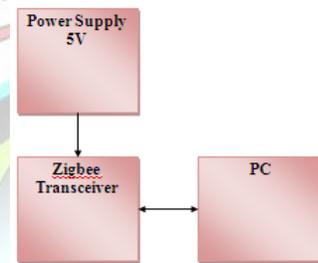
**V. Modules over View**

**A. User/Driver:**

If the User/ Driver has to communicate with the server and avoid the accident, they have to create an account with the server. To create an account with the server, the user has to provide their details like username, password, date of birth, mobile number, and other vehicle information. All this information is stored in the server for future purpose.

**B. Server**

A server is a computer program running to serve the requests of other programs, the "clients". Thus, the "server" performs some computational task on behalf of "clients". The clients either run on the same computer or connect through the network. Here the server will store the entire user's information in the database. In the server, the detection sensor is connected, so that they can control the vehicles. Also the server will monitor all the user access. The server will also store the user access details in the database.



**VI Architecture Overview**

Hit-and-run is the act of causing (or contributing to) a traffic accident (such as colliding with a person and or a fixed), the data is filling and stop the rewrite and duplicate data.

It is considered a crime in most jurisdictions. In many jurisdictions there may be an additional obligation to exchange information about one's financial responsibility (including any applicable insurance) or to summon emergency services if they needed to be send they also



requirement to leave note containing pertinent information if the property owner is not present.

#### A. Simple Loop Control

This micro control loop is simple basic architecture loop. The loop subroutine contains lock system, ZigBee, vibration sensor, and LCD indicator.

#### B. Interrupt Controlled System

Some embedded systems are predominantly controlled system. Task are performed triggered by different kinds of events controls the interrupt controlled system. For example, the timer in predefine frequency or by a serial port controller receiving a byte. Interrupt controlled systems are used simple and event handler. The interrupt controlled systems are run as simple task and in a main loop also, but this task is not very sensitive to unexpected delays. Sometimes the interrupt handler will add longer tasks to a queue structure unit. After the interrupt controller is finished, main loop is executed the all the tasks. In this method of system prinks the system to multitasking. Vehicular accident reconstruction is the scientific process of analysis, investigating to draw conclusion the causes and events during a vehicle collision.

#### Conclusion:

Till today hit and run cases become unsolved because we cannot find out the hit and run vehicle unless we note down the vehicle details but today with my project we can identify the hit and run vehicle very easily. In previous cases that the hit and run vehicle that cannot be find it very easily, but now by this implementation of project we could find any type of vehicle at any time, at any moment also. This project helps to find out the vehicle which one is hit and it takes the further process for track the vehicle. Vibration sensor sensitivity is increased in future and then the quality of the board are improved by high definition and also in future Subscriber Identity Module for a mobile phone module are used for sending the message to the driver or owner of the vehicle. So that can notice the problem of person at a time and can solve the problem by sending this message to the owner can know the truth of the current status and current location of vehicle. So that any kind of emergency help can be possible.

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