COLLIDE VEHICLE NUMBER PLATE CAPTURING AND ALERTING VIA E-MAIL AND SMS USING IOT

P. Siva Madhuri, P. Thanuja ,Syed.Irfan ,P.Deepika, UG Scholar, Department of E.C.E, Narayana Engineering College (Autonomous), Gudur, 524101 :: pmadhuri1129@gmail.com
Mrs.CH.Manjusha *Associate Professor, Department of E.C.E, Narayana Engineering College (Autonomous), Gudur, 524101*

Abstract— The objective of this scheme is to minimize the delay and capturing the vehicle details which causes the collision to the vehicle. So that the ambulance can reach the spot in time and human life can be saved and the accident location is identified sends the accident location immediately to the person (doctor or family member).The main server finds the nearest ambulance to the accident zone and sends the exact location to the emergency vehicle. We use, web camera with Arduino to send the accident information to the person via email. By using this data, we can save the accident victim and also can catch the person who done the accident.The purpose of this project is to introduce a framework using IoT, which helps in detecting car accidents and notifying them immediately.

Keywords— Collision Detection, GPS, GSM, Internet of Things (IoT), Notifications**.**

I. INTRODUCTION

Now-a-days, there's a rise within the number of accidents that happen within the world.The foremost prominent reason for the loss of a life during an accident is that the unavailability of immediate help that can save a personality's life by someseconds. Theinstant an accident has occurred, the lifetime of all passengers travelling within the vehicle is at stake. It all depends on response time that may save their lives by some minutes or seconds. Per statistics, reducing accident delay time by even 1 minute can save 6 per cent of lives. Hence, this time

Interval is extremely crucial, and it has to be reduced or a minimum of either improved to save lots of their lives. To contribute to our society and reduce the quantity of accidents happening in our day-to-day life, there are several techniques and mechanisms that may drop down the speed of accidents and might save lot lives. Living in a very tech world that's growing day by day with new technologies, we can apply these techniques in our society and help them overcome such problems.The Vision of the Internet of Things (IOT) has embarkedto succeed in unexpected bounds of today's computing world. It's an idea that not only can impact human's life but also how they function.The centre of IOT is sensible sensors without which it might not have existed. These sensors form an enormous network for his or her communication. They capture minute details of their surroundings and pass this important information to every other. Based on the received information, relevant actions are performed accordingly[4]. It's the mostrecent communication model that imagines the proximate future, within which objects of day-to-day life are going to be incorporated with microcontrollersfor electronic communication with the assistance of appropriate protocol stacks which will make them capable of communication with each another. The importance of accident detection and notification system is extremely prominent for our society.

Imagine a situation where an accident happened, it's immediately notified to the emergency services. This can lead to the rescue of injured people involved within the accident. Because the Internet of Things has witnessed fast growth nowadays, it's the ability to bridge these two situations.For the IOT paradigm be effective, it should have the aptitude to trace the situation of the objects (i.e. cars in our case) which might serve to be useful for the ambulances to achieve on time.

II. LITERATURE SURVEY

The purpose of the project is to search out the vehicle where it is located the vehicle by means of sending a message using a system which is placed within vehicle system.Most of the days we might not be able to find accident location because we don't know where accident will happen.This project

detects the accident through GPS and designed to avoid such situations.The notification phase, immediately after an accident is indicated, it's accustomed send detailed information like images, video, accident location, etc.to the emergency responder for fast recovery.

III. EXISTING WORK

A. Manual Detection System:

In this method, accident is detected from

- Motorist report
- Transportation department
- Public crews report
- Close circuit camera surveillance

The downside of this sort of detection system is that somebody needs to witness the incident.

B. Driver Initiated Detection System:

Driver initiated incident detection system hasmoreadvantages whichhas the fast reaction, moreincident information etc. However, with theseverity of the accident, driver might not be ready to report in any respect.

IV. PROPOSED WORK

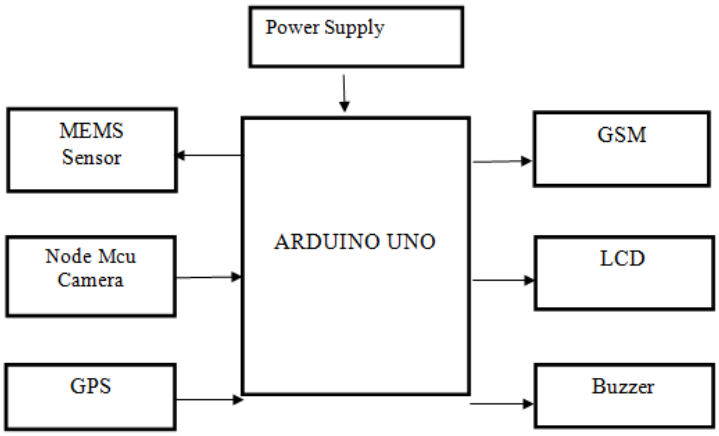
Car accidents that happen daily are the key social problems towards which serious action must be taken. One altogether the solutions for this domain is that the Internet of Things which is that thepresent trend in technology. For this purpose, many authors have worked during this domain by applying this technology.This is often to introduce a framework using IOT, which helps in detecting car accidents and notifying them immediately.This mightbe achieved by integrating smart sensors with a microcontroller within the car which is ready to trigger at the time of an accident. The other modules like GPSand GSM are integrated with the system to urge the placement coordinates of the accidents and sending it to registered numbers and nearby ambulance to notify them about the accident to obtain immediate help at the situation.This system, the image of number plate of the vehicle which collided our vehicle are visiting be sent to the authorized person via email using Wi-Fimodule.

Advantages:

This system can resolve most of the accidents by detecting accidents on time, poor emergency incident is a major cause of death rate in our country.

Delay time caused by the medical vehicles can be resolved

BLOCK DIAGRAM:



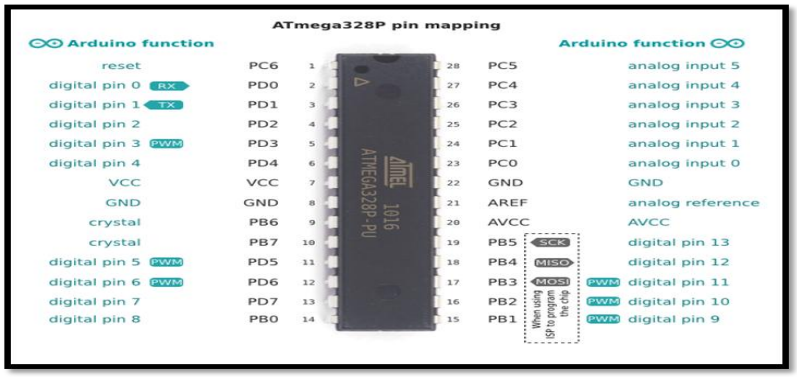
HARDWARE REQUIREMENTS:

1.ARDUINO UNO
2.POWER SUPPLY
3.NODE MCU CAMERA
4.MEMS SENSOR

5.GSM
6.GPS
7.LCD

A. ARDUINO UNO:

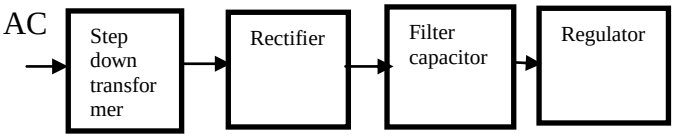
Arduino could be a single-board microcontroller meant to formthe application more accessible which are interactive objects and itssurroundings.TheArduino Uno board may be a microcontroller supported the ATmega328. It's 14 digital input/output pins within which 6 are often used as PWM outputs, a 16 MHz ceramic resonator, anICSP header, a USBconnection, 6 analog inputs, an influence jack and a push button. This contains all the specified support needed for microcontroller.So as to induce started, they are simply connected to a computer with a USB cable or with a AC-to-DC adapter or battery.It's featured by the Atmega16U2 programmed as a USB-to-serial converter.Arduino was created within the year 2005 by two Italian engineers David Cuartielles and Massimo Banzi with the goal of keeping in mind about students to create them find out how to program the Arduino Uno microcontroller and improve their skills about electronics and use it within



the planet.Arduino uno microcontroller can sense the environment by receiving input from a variety of sensors and may affect its surroundings by controlling lights, motors, and other actuators.

B. POWER SUPPLY:

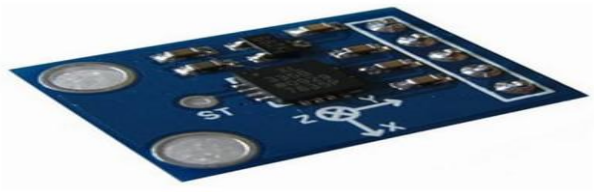
Many electronic circuits need a direct current (DC) voltage source, but what we commonly find are voltage sources of AC (AC)Input which fits to the transformer primary winding may be a sine wave and its amplitude depends on the country's electric distribution system (110/220 VAC or other). So as to attain an instantaneous current voltage source, the alternating current input must follow a conversion process just like the one shown within the **power supply diagram** below:



C. MEMS SENSOR:

The MMA7660FC could be a ±1.5 g 3-Axis Accelerometer with Digital Output(I2C). It's aawfully low power, low profile capacitive MEMS sensor featuring an occasional pass filter, compensation for 0g offset and gain errors, and conversion to 6-bit digital values at a user configurable samples per

second. The device is used for sensor data changes, product orientation, and gesture detection through an interrupt pin (INT). The device is housed in a very small 3mm x 3mm x 0.9mm DFN package.

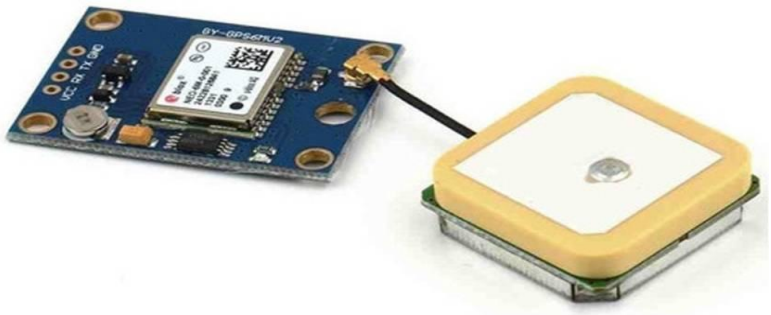


D. NODE MCU Camera:

The NODE MCU ESP32 CAM Wi-Fi Module Bluetooth with OV2640 Camera Module 2MP For Face Recognition contains a very competitive small-size camera module that may operate independently as a minimum system with a footprint of only 40 x 27 mm; a deep sleep current of up to 6mA and is widely used in various IoT applications.It's suitable for home smart devices, industrial wireless control, wireless monitoring, and other IOT applications. This module adopts a DIP package and might be directly inserted into the backplane to appreciate rapid production of products, providing customers with high-reliability connection mode, which is convenient for application in various IOT hardware terminals.ESP integrates Wi-Fi, traditional Bluetooth, and BLE Beacon, with 2 high-performance 32-bit LX6 CPUs, 7-stage pipeline architecture. It's the most frequency adjustment range of 80MHz to 240MHz, on-chip sensor, Hall sensor, temperature sensor, etc.

E. GPS:

GPS receivers are generally used in smartphones, fleet management system, military etc. for tracking or finding location.**G**lobal **P**ositioning **S**ystem (GPS) could be a satellite-based system that uses satellites and ground stations to live and compute its position on Earth.GPS is additionally referred toas Navigation System with Time and Ranging (NAVSTAR) GPS.GPS receiver has toreceive data from at least 4 satellites for accuracy purpose. GPS receiver does not transmit any information to the



satellites.This GPS receiver is employed in many applications like smartphones, Cabs, Fleet management etc.

F. GSM:

GSM stands for Global System for Mobile Communication.

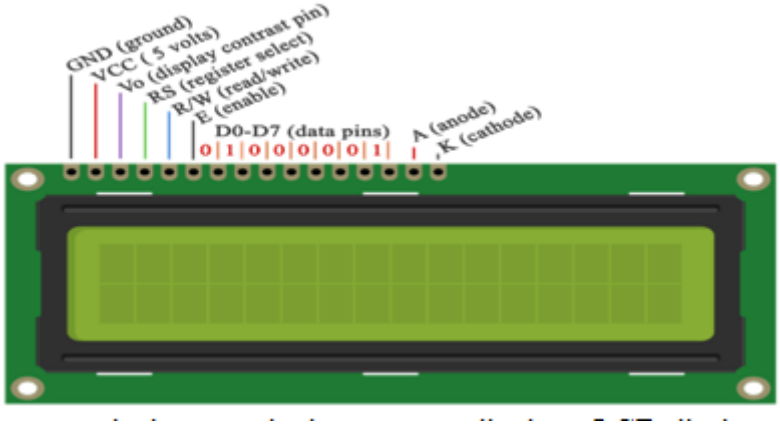
It is a digital cellular technology used for transmitting mobile voice and data services.GSM is that the most generally accepted standard in telecommunications and it's implemented globally. GSM

operates on the mobile communication bands 900 MHz and 1800 MHz in most parts of the planet.This is often a GSM/GPRS-compatible Quad-band cellular phone, which works on a frequency of 850/900/1800/1900MHz and which might be used not only to access the web, but also for language (provided that it is connected to a microphone and a little loud speaker) and for SMSs. Externally, it's sprt of a big package (0.94 inches x 0.94 inches x 0.12 inches) with L-shaped contacts on four sides in order that they'll be soldered both on the side and at the underside.

The TTL serial interface is accountable not only of communicating all the information relative to the SMS already received and people that are available during TCP/IP sessions in GPRS (the data-rate is decided by GPRS class 10: max. 85,6 kbps), but also of receiving the circuit commands (in our case, coming from the PIC governing the remote control) that can be either AT standard or AT-enhanced SIMComtype.The module is furnished with continuous energy (between 3.4 and 4.5 V) and absorbs a maximum of 0.8 A during transmission.

G. LCD:

A liquid crystal display (LCD) could be a thin, flat display device made of any number of colour or monochrome pixels arrayed ahead of a lightweight source or reflector. Each pixel consists of a column of liquid molecules suspended between two transparent electrodes, and two polarizing filters, the axes of polarity of which are perpendicular to each other. Without the liquid crystals between them, light passing through one would be blocked by the opposite. The liquid twists the polarization of sunshine entering one filter to permit it to suffer the opposite. A program must interact with the skin world using input and output devices that communicate directly with an individual's being. One amongst the foremost common devices attached to an controller is an LCD display.

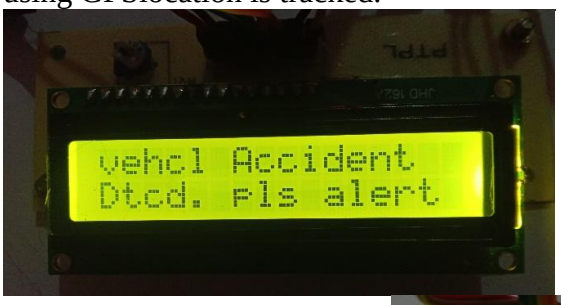


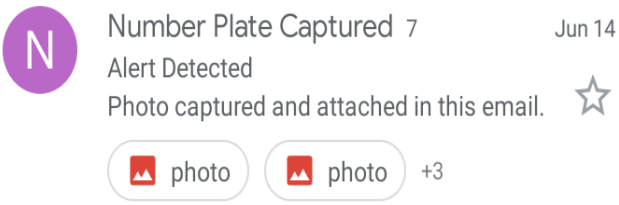
H. BUZZER:

A buzzer or beeper could be a signalling device, usually electronic, typically employed in automobiles, household appliances like a microwave, or game shows. It most typically consists of a number of switches or sensors connected to an impact unit that determines if and which button was pushed or a pre-set time has lapsed, and frequently illuminates a light-weight on the suitable button or board, and sounds a warning within the variety of a nonstop or intermittent buzzing or beeping sound.

RESULT:

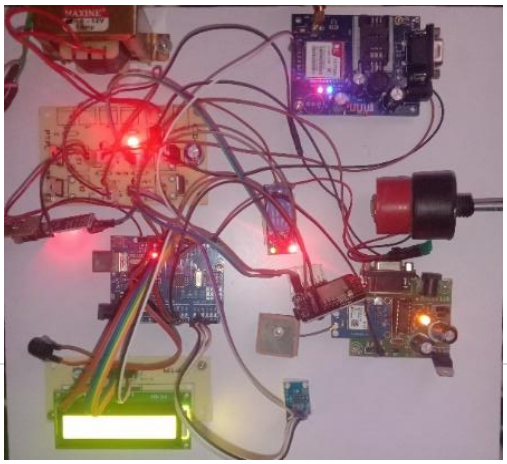
In proposing system, it enhances this problem by using messaging and tracking system. First, it's used to manage the vehicle number plate in a toll booth. If it's authorized there if capture the quantity plate and store it in an exceedingly. After that, if the accident was occurring in-between booths, the message alert is intimated to the nearby police headquarters and hospital using GSM, by using GPSlocation is tracked.





V .CONCLUSION:

In this mode, the modernizing supported the reduction of road facet accident. Ordinarily it's associate expertise concerning passing vehicle through the tollbooth, there it's want to pay a fee then our vehicle number plate was trying to next step of entry. Around this idea, modernizing was enhanced by the preceding session, if the accident arose in association spot there a Page machine use to create a salve for the delay. However, here change return by the messaging system to their relatives and machine by victimization GSM, to grasp the position of the vehicle by victimization GPS.



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