AN IOT BASED SOLAR VEHICLE WITH OBSTACLE AVOIDANCE NIGHT SPEED LIMITER AND ACCIDENT DETECTION USING GSM AND GPS

[1]Dr. John Paul Pulipati, Principal, [2]Dr.Purushotham Naik, [3]P.Venkatapathi,
[4] P.Anil Kumar, [5]K. Rajeswar
[1]principal@mrce. in,Malla Reddy College of Engineering
[2]Professor, Dept. of ECE,Malla Reddy College of Engineering
[3]Assistant Professor, Dept. of ECE,Malla Reddy College of Engineering
[4]Assistant Professor, Dept. of ECE,Malla Reddy College of Engineering
[5]Assistant Professor, Dept. of ECE, Malla Reddy College of Engineering

Abstract— The purpose of our work is to discover the vehicle accident location through sending a message using a system which is placed within automobile system. Moreover there is a rapid rise in the event of the Roadway accident. This paper is about a system which is created to automatically detect a mishap as well as inform the nearest health centers and medical solutions about it. This system can also locate the area of the mishap so that the clinical solutions can be directed right away in the direction of it. The objective of this paper is to build up a Car unintended tracking system utilizing RESONANCE SESNOR, GPS as well as GSM Innovation. The system can be adjoined with the car alarm system and also notify the owner on his mobile phone. This discovery and also messaging system is made up of an Aurdino receiver, Microcontroller and a GSM Modem. GPS Receiver obtains the area information from satellites in the form of latitude and longitude. The GSM modem sends out an SMS to the predefined mobile number and informs about this accident. This enable it to keep an eye on the mishap circumstances and it can immediately signals the police/ambulance service with the location of mishap. The entire modules are can run with help of solar energy with battery power storage system (BESS).

Keywords: GSM, GPS, Vibration sensor, accident, fatitude and fongifude, focozion.

1.INTRODUCTION:

The usage of vehicle mobiles has boosted linearly over the past years, which boosted in the danger of human life. This is because as a result of the inadequate emergency facilities. In this paper we are using an alarm system which assists in improving the emergency situation system of the crash system. This system identifies the crash event and the collaborated of the crash are messaged to the rescue team. A changing system is used turn off in case there is no origin. The Crash is discovered with the help of RESONANCE SESNOR Sensing Unit and Vibration Sensing Unit. The Angle in which the automobile has rolled off is suggested through a message. This Application helps in supplying possible service to the bad emergency situation assists in. The function of the project is to locate the car where it is and also locate the vehicle by means of sending a message using a system which is placed inside of automobile system Most of the moments we may not have the ability to find crash area because we don't recognize where crash will happen. In order to give treatment for damaged individuals, initially we require recognizing where the crash occurred through place tracking and also sending a message to your associated one or to the emergency situation solutions. So in this job we are making use of the standard microcontroller for inexpensive as well as additionally for easy

understanding. Here we made use of setting up programs for far better accuracy and GPS as well as GSM components which assists to map the car anywhere on the world. The specific area of the automobile is sent out to our remote devices (cellphones) making use of GSM modem. We are in the procedure of solving this issue by suggesting a reliable service and to lower the loss of lives as long as possible. In our concept, the layout of the system assist us to find crashes in significantly less time and also move the basic information to the emergency treatment centre within a few secs covering the geographical works with, the moment and the angle where the vehicle had met with a mishap. This sharp message is sent to the rescue team (rescue) and the family within the brief duration. This real time application saves numerous useful lives. The message is sent with the GSM component and the area of the basic idea is to center the vehicle system by obtaining the live placement of the vehicle through GPS as well as send out the details via GSM component by means of SMS service with an added attribute of GPRS transmission to the tracking center via usage of web [M.AL- Rousan, A. R. AI-Ali as well as K. Darwish et al, 2004] Using microcontroller, this project has actually been designed. It made use of EEPROM to keep the phone numbers. Crash is discovered with the help of the GPS component. The accident can be identified precisely with the help of both Micro electro mechanical system (VIBRATION SESNOR) sensing unit and also vibration sensor. The Angle of the surrender of the cars and truck can likewise be understood by the message via the RESONANCE SESNOR sensing unit.

2. RELATED STUDY:

Currently requirements, we cannot find where the mishap has happened as well as for this reason no details pertaining to it, causing the death of an individual. The research work is taking place for tracking of the vehicle also in dark clumsy locations where there is no network for getting the signals. In literary works, a number of strategies to provide security as well as security via monitoring the lorry's real time precise positioning and also info utilizing different technology- nologies have been proposed. An excellent survey of using GPS,

GSM and GIS has actually been given in [IoanLita, Ion BogdanCioc, Daniel AlexandruVisan et alia, 2006] and also [Mrs. Ramya Kulandaivel, P.Ponmalar, B.Geetha, G.Saranya et alia, 2012] The general mechanism is to give the live geographical placement of an automobile utilizing GPS receiver and send this info to GSM facility via configurable software, this is all done by the monitoring facility which is functioning as a control unit that is attached not only by an optical wire but likewise linked wirelessly with TCP/IP protocols. The monitoring center disperses the data to the client in a reasonable format as well as it also keeps the travelling documents as well as presents the actual time information concerning automobile on digital map with GIS system [IoanLita, Ion BogdanCioc, Daniel AlexandruVisan et al, 2006] Another strategy is that automobile terminal consists of a GPS receiver which draws out details about setting with GPS satellites and also sends it via GSM network as well as to the nerve center which reads.

3. WORKING METHODOLOGY:

We propose an intelligent vehicle system for mishap avoidance and making the world a much better as well as refuge to live. Easy IR sensor is reliable for finding human or animals as well as this strategy certainly can conserve lots of lives. Pre collision detection system have to be equipped with mix of different sensors. Discovering humans or pets including challenges will certainly give us a far better service to reduce the death of human in road crash.

INFLUENCE OF THE RECOMMENDED SERVICE:

Presently criteria, we can not spot where the mishap has actually taken place as well as therefore no info pertaining to it, leading to the fatality of a person. The research study work is taking place for tracking the setting of the automobile even in dark clumsy areas where there is no network for obtaining the signals. In this job GPS is used for tracking the placement of the vehicle, GSM is utilized for sending the message. Thus with this job application we can find the position of the vehicle where the accident has happened to make sure that we can provide the first aid as early as possible. This

task provides lorry crash discovery and sharp system with SMS to the individual defined mobile numbers.
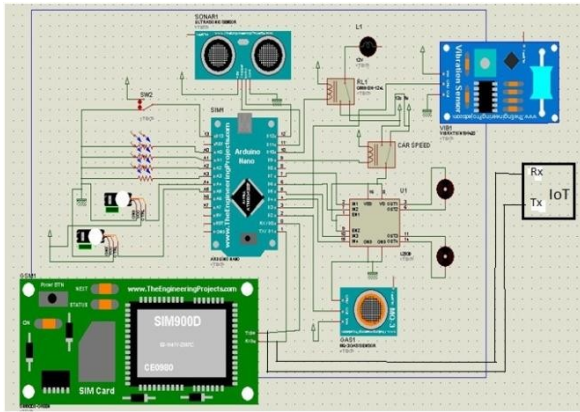

Fig.3.1. Schematic diagram of our proposed system.

When the system is turned on, LED will certainly get on suggesting that power is provided to the circuit. When the IR sensors that we are making use of in our task sense any kind of barrier, they send out disrupt to microcontroller. The GPS gets the area of the vehicle that met a crash and offers the information back. These details will be sent out to a mobile number through a message. This message will certainly be obtained utilizing GSM modem existing in the circuit. The message will certainly give the information of longitude and also latitude worth. Making use of these worth the placement of the vehicle can be estimated.

GPS LOCATION:

The Global Positioning System is a room based worldwide navigation satellite system that supplies reliable location (crash area) and also times anywhere on the world. The GPS satellites act as a referral factor from which receivers on the ground identify their setting. The essential navigating concept is based on the dimension of pseudo ranges in between the user as well as 4

satellites.

Fig.3.2. GPS module.

ULTRASONIC SENSOR:

The Ultrasonic Sensing unit sends a high-frequency audio pulse and after that times how much time it considers the echo of the sound to mirror back. The sensor has 2 openings on its front. One opening up transmits ultrasonic waves, (like a little audio speaker), the other receives them, (like a little microphone).

Fig.3.3. Ultrasonic sensor.

ALCOHOL SENSOR:

The MQ-3 alcohol gas sensing unit includes overall 6-pins including A, H, B and the various other three pins are A, H, B out of the overall 6-pins we utilize just 4 pins. The two pins A, H are made use of for the home heating purpose and also the various other two pins are made use of for the ground and power. There is a heating unit inside the sensor, which is made up of aluminium oxide, tin dioxide. It has warmth coils to produce heat, and also hence it is used as a heat sensor. The below diagram shows the pin representation and the arrangement of the MQ-3 alcohol sensor.

Fig.3.4. Alcohol sensor.

SOLAR TRACKER:

Trackers straight photovoltaic panels or

components toward the sun. These tools alter their orientation throughout the day to adhere to the sun's path to make the most of energy capture. In photovoltaic or pv systems, trackers aid lessen the angle of incidence (the angle that a beam makes with a line vertical to the surface) between the inbound light and the panel, which raises the amount of power the installation creates. Focused solar photovoltaic's and focused solar thermal have optics that straight accepts sunshine, so solar trackers need to be angled appropriately to accumulate energy.

Fig.3.4.Solar dual direction operation.

The Arduino Nano controller is used to control all the sensor modules. A dual axis tracking prototype is developed to capture the maximum sun rays by tracking the movement of the sun in four different directions. The car will move only when the person wears the seat belt and doesn't sip ant alcohol. For this, we have a seat belt and alcohol sensors. The ultrasonic sensor is used to measure the distance if any obstacle comes close to the vehicle and car will turn either left or right automatically. At the time if the vehicle goes with over speed then automatically the headlights of the vehicle goes dim.
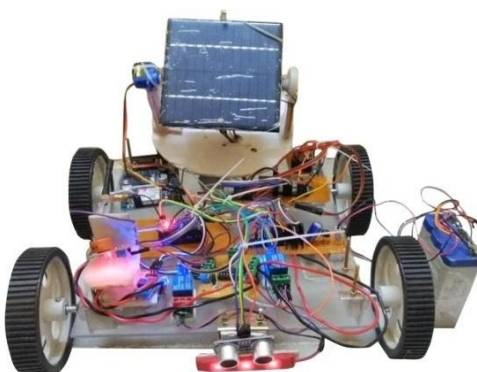

Fig.3.5. Prototype model.

If the vehicle goes in normal speed then headlights of the vehicle are blown brighter, this operation can be done by Relays and switches. If the vehicle met with any accident vibration sensor will sense it, an alert SMS will be sent to people like friends, ambulance, Police through GSM module. By using ESP-12 Wi-Fi module, and GPS module the whole information about the vehicle means its speed, condition all are updated in the Android Application. Motor drivers are used to driving the motors with the same voltage.
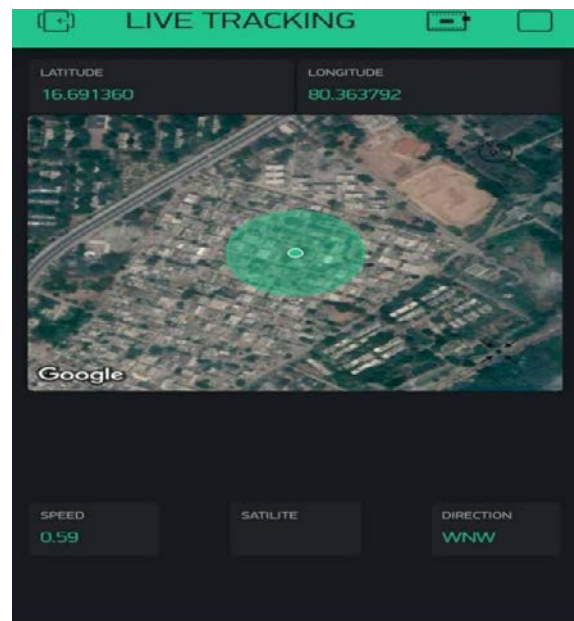

Fig.3.6. Final GPS output.

The listed below number shows that at the point when accident struck the car Vibration Sensing unit, which finds the accident and also subsequently sends out the signals to Arduino. At this point the Arduino takes control and also begins accumulating the collaborates gotten from the controller which are later sent to the Central Emergency Situation Monitoring Terminal by utilizing the GSM Component. After that the alert message will be sent on signed up mobile number through gsm.

5. CONCLUSION:

The proposed system is established to provide the information about the accident occur with location of the crash, prevents the drunk & drive accident. I conclude that my theory was correct, that the angle of the photovoltaic panel dealing

with directly at the sunlight made the solar energy automobile go the fastest. The angle of the solar panel will be readjusted with respect to the activity of the sun.The car doesn't relocate up until the chauffeur wear the seat-belt and also doesn't consume any alcohol. If the chauffeur goes fast during night time the head lights of the car will immediately lower as well as get into typical circumstance if the he enters normal speed. If any other automobile comes closer to our automobile instantly an alert message will certainly be given to the driver and progressively the speed of the lorry will certainly be lowered.

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