SMART VEHICLE

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ABSTRACT:

It is completely different from normal vehicle. We implement various types of (IC, Sensor, Arduino, Relay, GPS and GSM). Main motto of construction of the vehicle is to control the antitheft detection, Break failure, Obstacle detection, Accident intimation or Accident location detection using GPS this is the help full from normal vehicles. Peoples are using this vehicle for protection purpose and in this vehicle the chances of accident is very rare. So peoples are choosing this type of smart vehicles rejecting normal vehicles.

Keywords:

Arduino-uno, Ultrasonic sensor, GPS Module,GSM module, Accelerometer, limit switch.

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1. INTRODUCTION

Smart vehicle is the mix-up of the existence Things like the sensor, navigation, chip, network, interfaces and Auto braking system. The entire device are Connected by internally with each other. The main point of the ready system is to ready a system for helping people. Here a prototype of the smart vehicle is developed; this can be implementing to form an application for installing in smart Vehicles in future. This system will help people receive emergency service on time and will decrease the causes of road accidents. In the proposed project, accident location detection system, anti-breaking system and accident prevention due to the upper issue are incorporated. In the accident location detection system, if any hazard occurs, a message containing the location of the accident is sent to the reference contact who can take necessary steps to control the situation. The execution of the system is simple as it makes use of GSM and GPS technologies. GPS takes the coordinates of the site of the accident and GSM sends the coordinates to the reference contact. All the controls are made using Arduino as it is the main control unit of the system. This system will help people receive emergency services On time and will decrease the causes of road accidents and there for we can save life's of human beings. The Arduino-based collision detection

system is a kind of system that is the fastest growing safety feature in the automotive industries. Such a system enables vehicles to identify the chances of collision and give visual and audio warning to the driver so that the driver can take necessary action to avoid a collision. For the implementation of this system, the ultrasonicsensor is used to provide the estimation of the distance between two vehicles.

Our main objective is to remove the old version of vehicles and add the new point to our vehicles .That will help our peoples to avoid such type of problems.

Using a device we can able to protect our vehicles. Using a sensor we can able to check the braking system of vehicles Due to a sensor we can able to detect the breaking system of vehicles. Due to sensor we can able to protect our vehicles from theft.

Using these things we can able to design a smart vehicle which can control from theft of vehicles, Break failure, Accident and other things.

So that the vehicles can use everywhere any fear. If anyone can try to start the vehicle it can stop by sending message by own mobile / Laptop.

Driver help technologies in these day motor cars are already supporting to store lives and save you accidents. A variety of nowadays renew motor motors have idea that help driver to keep far away from drafting to adjust lane or making risky lane adjustments or that warns Driver of other automobiles in the back of them whilst they are backing up or that brakes automatically if a automobile ahead of them stops or slows abruptly among different things. These and different protection technology use a aggregate of hardware (ultrasonic,accelerometer) and Software to help motors pickup positive safety risks that will warn the driving force to act to crash. Vehicle theft is one of the major problems faced by civil society today. Statistics shows vehicles which get stolen only 1 by 4th of them recovered. Current systems use key and remote to lock the vehicle. At main locations CCTV camera's are present which are used to locate the stolen vehicle. But at many places CCTV cameras are not present. Control of vehicle and knowledge of their location even after theft can help recovery of the stolen vehicle fastly. The proposed system helps to find the location of vehicle using GPS also the vehicle speed is gradually reduced by reducing speed of ignition motor using GPS system. It helps finding the vehicle immediately after knowing it’s stolen. As GPS system is used, the location is also known. The command sent from mobile goes to the GSM system which is interfaced with controller which reduces the speed of ignition motor and immobilizes it. The developed system is reliable, low cost and user friendly which can help in recovery of vehicle if it gets stolen. We can take action and can get back our vehiclesand also we can save our life.

2. PROBLEM STATEMENT

- Obstacle Detection.
- Break failure cases.
- Accident Intimation.

- Theft protection detection.
- Accident intimation usingGPS/GSM module.

3. PROPOSED SYSTEM

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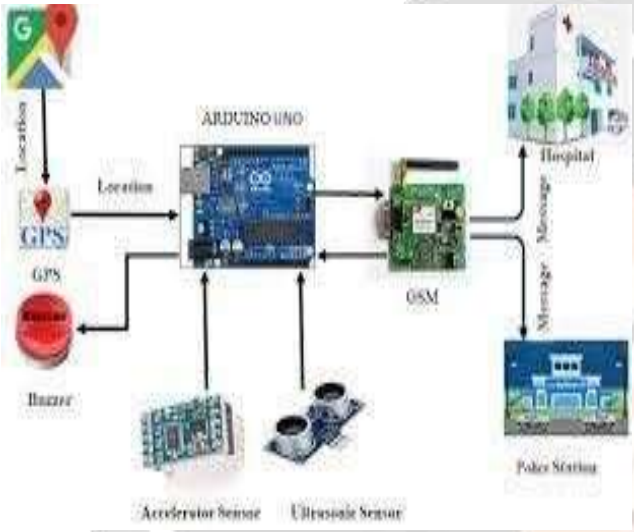

Fig.No:1 Block Diagram

In the figure all described project component used and every one link to each other. Arduino Uno contrast from other Arduino as it tiny so it reasonable for little measured tasks andit upholds breadboards so it very well may be stopped with different parts in just a single breadboard.

Microcontroller in Arduino Uno 2.x rendition, actually utilized ATmega168 microcontroller while the Arduino Uno 3.x form previously utilized ATmega328. It is the main brain of our whole system all works done throw it.

Fig.No:2Arduino-uno

GSM stands for Global System for Mobile Communication.

A GSM works in 12v input supply. In our project we give 12v from battery directly. There is Vcc, Tx, Rx and Gnd pins are there.

There are three led one is power, second one is Network and third one is working. It is a 2g module.

A GSM modem or GSM module is a device that uses GSM mobile telephone technology to provide a wireless data link to a network.

GSM modems are used in mobile telephones and other equipment that communicates with mobile telephone networks. They use SIMs to identify their device to the network.

Fig.No:3GSM MODULE

GPS stands for "Global Positioning System". It simply is a satellite navigation system used to detect the point position of object. The satellite system overview all time to monitor the connected device location. GPS works through a idea called trilateration used to detect particular location.

Fig.No:4 GPS MODULE

An accelerometer is a device that measures the vibration, or acceleration of motion of a structure. Themain purpose of this sensor is detecting the accident signal when any vibration occurs. Accelerometer works in x-y-z direction of vehicle .If any vibration occurs in any direction then it sensing out by accelerometer and through GSM message sent to our mobile and we can stop it out. In an industry, accelerometers help engineers detect a machine's stability and enable them to detect for any wrong forces/vibrations.

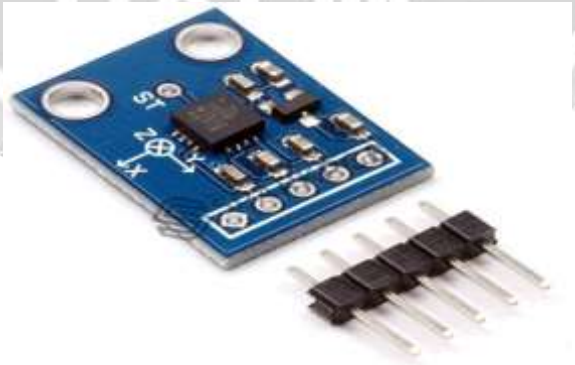

Fig.No:5 Accelerometer

It is also called level sensor measure. Through this type of sensor we can measure distance of ultrasonic waves. Through this type of sensor we can measure distance of ultrasonic sensor.

It is a sensor which use for disturbance purposes if the small disturbance will occur sensor will give the signal through burger or light. Ultrasonic sensor is a sensor which acts as a radio wave. The wave passes in between five to six feet. In our project we install for avoid accident so we use this type of sensor. If any vehicle move towards our vehicle the sensor will detect through burger, led light etc. By the help of wave we can detect the vehicles. It will help for four wheeler upto twelve wheeler.

Fig.No:6 ULTRASONIC SENSORS

4. CASE STUDY

4.1. OBSTACLE DETECTION

Obstacle detection is applicable to anything that moves, including all things in the planet that moves. That can be detected by our sensor and output signal generated.

For obstacle detection we use three main components that are ultrasonic sensor, battery, arduino uno and buzzer. First 12v supply from battery goes to arduino uno directly but other component takes 5v supply. By the help of 7805 IC.

If any object comes in front of our vehicle then it detected and signal comes out by our sensor and we can checkout and save our vehicle and us.

4.2. BRAKE FAILURE INDICATOR

The braking system of a car main reason of an accident now days so seeing this problem here Encrypted one point in it to prevent it and save life. Here we use 7805 sensor and break failure indicator; system can always check the function of break if any dismiss occurs then it sensing out so that we can stop our vehicle using our phone orby

physical key. After sensing of sensor and declared by buzzer we can suddenly send message to our vehicle "Emergency" so that it can stop and deactivate our vehicle so that we can save our vehicle and also life.

4.3. ACCIDENT INTIMATION

Now a day's accident is the common things occurs that driver done but owner can not know the accidental things so seeing this problem here we implement one things accident intimation here we use accelerometer.

Accelerometer works in x-y-z direction of vehicle. If any vibration occurs in any direction then it sensing out by accelerometer and through GSM message sent to our mobile and we can stopit out.

4.4. THEFT PROTECTION

Theft protection is one of the most powerful security protection to our vehicle where we can able to know when start our vehicle means here we can find message in our phone when vehicle start with exact location.

Here when our vehicle any one or self wants to start then if started then a message comes to owners phone then the owner able to stop vehicle by sending message "EMERGENCY". Aftermessage sent out then whole vehicle system deactivated meanwhile we cannot start by our physical key.

4.5. ACCIDENT LOCATION DETECTION Accident location detection is the system helps the owner to find out the proper accident location bymessage in his/her phone.

By the help of GPS and GSM the system if any heavyvibration or accident occurs then automatically message sent to owner so that owner can able toknow and can stop the vehicle there. Here we can find longitude and latitude.

5. RESULT AND DISCUSSION

Fig.No:7 VEHICLE MODEL

The smart vehicle we will completely different from other vehicles. In these vehicles we use so many sensors to track the vehicles to protect accident from break failure, Automatic start on and automatic start off everything we implement in this vehicle. Now a day's battery cell we can implement as a fuel .As for Government decided.

So no sound, no pollution is there in this vehicles otherwise we implement solar cell as for fuel cell. It can working by remote, but user should be know the working principle of vehicle. Without knowing we cannot working the vehicles.

CONCLUSION

The main objective of the proposed system is to design a smart vehicle system using Arduino. Here a prototype of the smart vehicle is developed which can be integrated to form an application for installing in smart vehicles in future. This system will help people receive emergency services on time and will reduce the causes of road accidents.

By Ridding and controlling this type of vehicle is better and safe as compare to normal vehicle. In crowed places we can park and stay without fear of stolen.

Vehicle Owner can find a strong support throw this technology. Here we have just added safety point of view mainly. Our main objective is removing old generation technology and added new technology which is based on our project.

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