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Smart Vehicle Accident Collision Detection System

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Abstract:*Duetothelargeincreaseinthetechnology,thelifeisbecomingeasiertolive.TheHigheradvancementsinthepopulationhadalsoincreasedthetraffichazards.Thesmartvehiclecollisionaccidentdetectionsystemisdesignedtomonitor the vehicle at progressing in any space. Expecting there is any occurrenceof the incident, this structure will give brief notification oflocationthroughmessagesbytheemergencycontacts.Theembedded proposed system uses the arduino microcontroller andwith the sensor of ultrasonic. This ultrasonic sensor is used todetect the distance of the tangles from the vehicle to vehicle. Byany chance of occasion of the incident, the Global structure formobilecommunication(GSM)andGlobalpositioningsystem(GPS) will be solidified with the arduino for region tracingand sending the messages to the emergency contacts. To alert thedriverthebuzzerisincorporatedinthevehicleandthedisplayalsogivethealertinformationinthevehicleasthesafetyprecaution.*

Index Terms: *Embedded,GSM,GPS,Ultrasonic,Arduino.*

I.INTRODUCTION

Nowadays,duetotheincreaseofthepopulationoccurrenceoftheaccidentsaremore[1].Themanualhelpat thepoint ofaccidents are fundamental to see and reliably counts tohave our life. The deferral of the emergency organizations due to thelocationtracingandprovidingnecessaryequipmentmayalsolead to death of people. In the most cases, the accidentoccurs due to the accident of the vehicle, thus it is veryimportant to keep the serious acknowledgment structures in the vehicle.Themainmotivebehindthisconceptofproposeddesignistoincrease the security enhancements in the vehicle. To alert thevehicle when the impediment is nearby will eliminate the rate ofaccidents. In view of this sketchy display of the devices,the designof this systemis developed.This systemwillautomatically notice the obstacles at its distance and at thetime time period, the structure alert before with thebuzzerandindicatetheinformationinthedisplay.Thesecondfunctionisaftertheaccidentoccursthelocationofthevehicleissenttothespecificemergencycontacts.Thissystemhasthemainadvantagesof1.Observingthesurrounding systems 2. Progressing checking of the vehicle[2]. Forthealertsound,thedriver/ownergetsthehelptotakeimmediate decision and save the life. This game plan of theproposed design is sent in the vehicle with negligible cost andlowcomplexityanddesignedtoperformunderthebestrequirementsoftheuser.

II. METHODOLOGY

The Methodology of the smartvehicle accidentcollisiondetectionsystemisshowninthefigure.1.

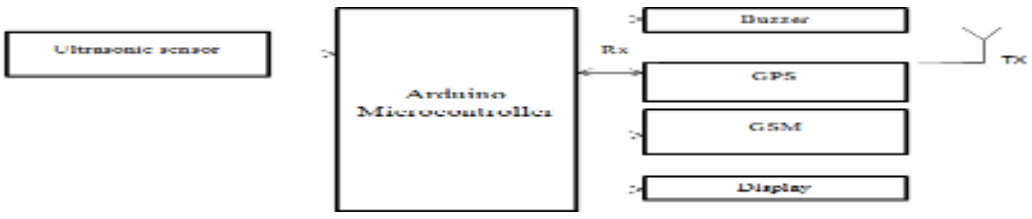

Fig.1.Methodologyoftheproposed design

III. PROPOSEDWORK

The proposed plan of the splendid vehicle incident collisiondetection structure is including the ultrasonic sensor as an input.When the hindrance is nearer to the vehicle to affect, theultrasonic sensor will see the accident calculation withthehelpofmicrocontrollerarduinoandimmediatelyalert theentire system. The structure will construct the chime prepared tocaution the driver and moreover show the information. If theaccident occurs, the overall position structure (GPS) willtriggerthevehiclelatitudeandlongitudeusingthetransmitterfromthesatellitebythetriangulationmethod.ThereceiveroftheGPSsendsthelocationdetailstothemicrocontroller,andforwards the region close by the message using GSM tothe decided emergency contacts. Thusly, the proposeddesign screens and acts splendid in millisecond to diminish theaccidentoccurrence.

IV. HARDWAREREQUIREMENTS

The hardware and programming of the system is portrayed inthebelowfollowingsections

A.Ultrasonic sensor: The ultrasonic sensor is used tofind the distance of the things. By the power of 5V,the sensor gets dynamic in the structure. The resonation andtriggercontinuouslysendthesoundpulsewaveusedto track the obstruction. The figure of the ultrasonicsensorisshowninFig.2.

B.Arduino

Fig.2.Ultrasonicsensor

Arduino goes probably as a singular board 32 cycle microcontrollerusedintheelectronicdevicesasamultidisciplinaryway.Itismoreaccessible.Thehardwareofthearduinoconsists of ATMEL 328 Microcontroller with 14 digitalI/O and 6 basic I/O pins. The firmware of Arduino isbasedontheATMEL16U2.Thearduinoisdevelopedbythe ATMEL which is open source. The item used tocode the execution is on Arduino IDE. The arduino isshowntheFig.3.

Fig.4.Mes

sagesthrough theGSM

Fig.7.Hardwareoverviewofsmartvehicleaccidentcollisiondetectionsystem

V. CONCLUSION

The GPS module has minimal electronic circuit licenses toconnect the circuit to the arduino to get the region ofthe vehicle. The GPS uses the triangulation technique totrace the degree and longitude. GPS Neo-6m is used inthisproposeddesign.TheGPSusesthestandardprotocolNMEA totransmitthedataviaserialport By the use of the system, the setback disclosure is easilydecreased in the vehicle structures. By introducing the designand completing in the vehicle will give the certifiable timesafety at the situation of setbacks. This structure can be pre-presented by the client for the prosperity. The preliminary resultsofthedesignarelowatcostandreliable.

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