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An Advanced Safety Vehicle for Safe Driving

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Abstract: ***ZigBee technology is standard wireless based technology produced for particular needs with regard to added inexpensive. It is extremely appropriate for the greatest communication techniques. ZigBee, GSM and a lot of other sensors might be transported to the one that has met by getting any sort of accident. The overall structure relies upon the AT89S52 microcontroller. Research content uses we have got we've got the technology of ZigBee for your transmission of message to a different vehicle inside the time period of demand for their help as well as for serving the objective of secure driving the functions like motorists alcohol recognition, vehicle speed slowing down lower and automatic vehicle lock with collision recognition may be used. The key role of DTMF remains implied by the assistance of which appropriate user can control the security options of vehicle whether it's robbery.***

Keywords: ZigBee technology, Microcontroller, Accident, GSM, Speed, Vehicle

1. Introduction

In the past couple of years, the car communication technologies have developed very well in industrial field. Through V2P (vehicle to person) communication and V2V (vehicle to vehicle) communication they can be used the goal of serving safety and security. While using vehicle communication on board the car robbery will reduce significantly because owner is capable of the car location simply with the help of vehicle communication. As stated by the previous operates by Dr.S.S.Riaz Ahamed i.e. the part of ZigBee technology afterwards data communication system" briefs about how precisely the implementation from the technology might be embedded with assorted aspects for far better outcomes. ZigBee technology is standard wireless based technology produced for particular needs with regard to added inexpensive. It is extremely appropriate for the greatest communication techniques [1]. ZigBee can also be known to as WPAN (wireless personal area network). ZigBee enables you to set small communication network inside an area. ZigBee relies upon IEEE 802.15 standard technology. ZigBee is similar to Bluetooth technology whose portion of communication could be 20 meters with kind of sight communication with low power consumption. Inside our work the essential difference could be the mixture famous this stated technology on-board by the assistance of AT89S52 through which in less expenditure we could combine all technology and could profit the society by getting a sophisticated device for vehicle. ZigBee network use mesh network with 128 bit symmetric file encryption keys. The transfer rate of ZigBee is all about 250 kbps that's very suitable for intermittent data transmission from input items like sensor. ZigBee nick include radios and microcontroller that have 60 - 256 kb flash memory. ZigBee has integrated battery with battery existence having a minimum of 24 several weeks with certification.

2. Methodology

The thought of vehicle communication is at existence due to the accidents caused because of human error or by inadequate concentrate on road while driving or by utilizing sudden brake on front vehicle on roads [2]. A year ago in India only at that time period of The month of The month of January to May 31, total accident in the city i.e. even though the survey of indianexpress.com 16 deaths and 58 roads injures are reported in India in every single hour with talking about of fatal accidents inside the total being up from 18 present in 2003 to 25 in 2012". With another statistics by occasions Asia, total vehicle break-ins are 40 each day inside the capital Asia only. The Remote Monitoring and Controlling Systems concept Based on ZigBee Systems as well as the basics of micro-controller formula design remains examined from "The 8051 microcontroller and embedded system" by Muhammad Ali Mazidi, Janice Gillespie Mazidi, Rolin D. McKinlay with this particular research whereas involve this type of device for your society is conveyed with the previous work of V2V communication survey. The idea of the security inside the automobiles remains accomplished within the work of Rens vander Heijde within the reference Security Architectures in V2V and V2I Communication as well as the idea for design for such advance device remains considered within the Burns, J. M., & Nicastri, P. R. ZigBee can also be known to as WPAN (wireless personal area network). ZigBee enables you to set small communication network inside an area. ZigBee is founded on IEEE 802.15 standard technology. ZigBee is similar to Bluetooth technology whose portion of communication could be 20 meters with kind of sight communication with low power consumption. ZigBee communication range might be elevated around 100 meters wealthy in power consumption. ZigBee produces 2.4 GHz RF to manoeuvre reliable and easy to use standard around the world. You'll find three types of ZigBee are available obtainable in global market namely. ZigBee coordinator (ZC): It's the reason for the network tree and may bridge along with other network. ZC setup sensible parameters for allowing the network and stores the information in regards to the network for instance RF, radio funnel and repository for security keys. ZED needs very minimum choice to function which is less costly than ZR or ZC. It operates by talking with parents nodes about the healthiness of network. ZigBee router functions as intermediate router that helps in passing data in a single router to a different its primary purpose is always to extend the communication choice of network therefore it gives as acting relays. It might functions as ZED. Gps navigation (Gps navigation navigation) can be

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a network of satellites that transmit data which you can use to acknowledge precise location in the world by calculating the area from 24 satellites. Gps navigation have two type 2D through which only three satellites are necessary to supply latitude and longitude as well as other is 3d, that four or maybe more satellites are require to provide altitude also. Position from the object is accumulating by four or maybe more satellites kind of sight and also to have the ability to provide errorless location using Gps navigation satellites which moves across the earth two occasions every day. The Gps navigation module which we're using inside the research is EM- 506 which has superior sensitivity and gratification in even urban foliage atmosphere. The Gps navigation module provides the spot to GSM which will further sent for the user through message



Figure 1: An overview of Zigbee applications

3. An Overview Of Proposed System

Gps navigation (Gps navigation navigation) can be a network of satellites that transmit data which you can use to acknowledge precise location in the world by calculating the area from 24 satellites [3]. To have the ability to retrieve the area of vehicle manually, the customer is going to be delivering message particularly format on GSM, which will further enables Gps navigation. After being able to view the area the Gps navigation will let known the user's vehicle location. The Gps navigation will also get activate on accident which will transmit the car spot to nearest police station and hospital and permitting these to understand that there's vehicle crash. Since the new path for vehicle is opened up in field of communication, the security alone and passenger remains elevated. Just in case of vehicle lost or robbery, you can simply send an email in it and ask for its location. While using advancement inside the vehicle to vehicle communication, the using might be increase in our daily existence. A couple of from the advancement is usage of radar or sonar sensor instead of pressure sensor. By utilizing radar and sonar sensor, the car can act in line with the situation, atmosphere and landscape. The development gets into further advancements therefore the vehicle can communicate up to possible concurrently. Accidents conscious of nearest help centre, road condition warning etc. fit in with the safety of passenger [4]. The healthiness of overtaking accident might be overcome using the vehicle to vehicle communication. Warning of car failure might be sent with the wireless communication area therefore the accident might be prevented. The flow chart in the device remains broken lower to the a dual edged sword i.e. Cycle 1 and Cycle 2.The cycle 1 describes in regards to the flow whatever the safety as well as the cycle 2 deals totally while using security. The block diagram in the device remains proven inside the fig. which describes how internal connections in the device while using other modules are actually done. Consider the individual operated a vehicle using this device then it's based on three cycles supplied by The First Step: See whether input of device arrives from GSM, User or Exterior Interrupt. Second Step: Cycle 1: If input arrives from exterior interrupts that's combination of three exterior circuit output it'll work the operation of interface exterior circuit which inserts and decelerate the car and switch round the buzzer that's connected to the same output. Third Step: Cycle 2: If input arrives from GSM/DTMF decoder nick it determines when vehicle is not moving then will compute the output for more GSM circuit which produce the location of vehicle else lessen the speed of vehicle and make the output for GSM Location locater. Fourth Step: Cycle 3: If input arrives manually by user then compute the output for GSM Module which supplies the area of vehicle at 108(ambulance) or 101(police). Fifth Step: If no input arrives however determine the input of oral appliance visit The First Step. The infrastructure in the product is on AT89S52. Micro-controller unit has two phases. Inside the first phase readily stored away manually started up with the user as well as the device formula will start looking for the collision with the assistance of flex sensors so the cycle will move for that Decoder getting multiple assets connected by using it like Alcohol sensor, Sleepiness sensor which will consider the sleepiness amount of the motive pressure along with the speed limiter set pre manually inside the device to make sure that if others is driving the car he cannot mix the edge set with the automobiles owner and then it'll shift for that checking of manual key i.e. if the end result is either pressed with the user or else just in case of emergency it'll activate the GSM module which will further send the information for the police station "100" and nationalized ambulance service"108" the second cycle in the device that's basically a thief flow i.e. when the user desires to control the car in the distance he must call the DTMF number that include the system and then the device will probably be started up so when the system will started up Gps navigation will probably be triggered then by pressing the best command proven to the customer only i.e. switching the lock of car or lessen the speed to be able to send the area they can press the button inside the DTMF package he's. Inside the situation of manual switch a GSM module remains attached to make sure that whenever the customer will need aid of medical aid or police they can push this button and for that reason an immediate support will probably be given to him since the message will probably be send on their behalf correspondingly. Just in case in the collision in the vehicle with any tree or vehicle the system will generate an Interrupt INT0 which will further produce the ZigBee module that include it and many types of nearby going automobiles will probably be familiar with the issue happened inside their area and could profit the person [5]. The decoder is further connected to the buzzer and vehicle Switch off device therefore the device will probably be turned off or possibly a security will probably be triggered reminding the motive pressure to not drive the car while he is drunk or feeling sleepy.

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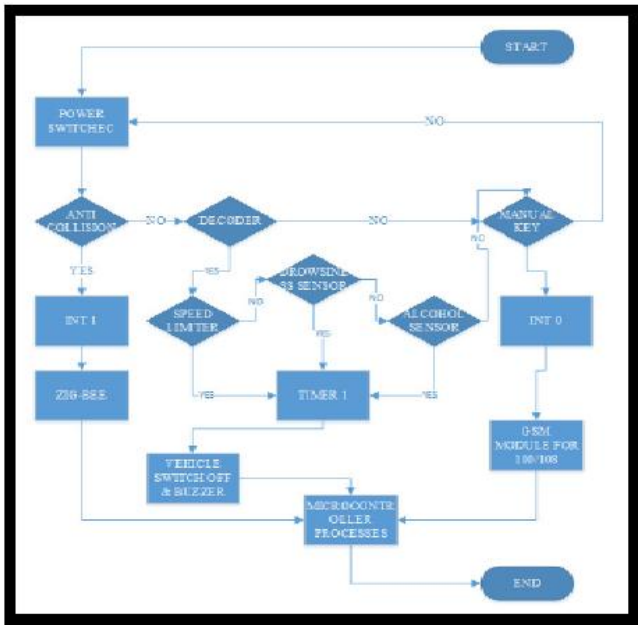


Figure: An overview of flow chart

4. Conclusion

These research is basically having a camera which you can use during emergency while worries. It embedded the thought of wireless communication. In this particular paper a brief description is provided with the medium of Block Diagram and Flow diagrams combined with the introduction of technology. Vehicle to Vehicle Safety Product is an instrument indulge while using recent technology and includes the methodology using the combination of ZigBee, GSM and a lot of other modules by the assistance of which immediate support might be given to anybody searching for this. This project is microcontroller based project. Included in looking in the analysis circuits and programs were simulated on Micro vision 4 Keil, Hardware implementations are transported out using PCB designs and EXPRESS PCB.

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