



Anamoly Detection for Road Accidents Using Pic Microcontroller

S.Chinnapparaj¹, Akhil Benny Kumbalam², S.Akshara³, B.Beena Jasmin⁴, M.Lakshmana Prabhu⁵Assistant Professor¹, BE Student^{2,3,4,5}Department of Electronics and Communication Engineering
Hindusthan Institute of Technology, Coimbatore, India

Abstract:

Road accidents are human tragedy. They involve high human suffering and monetary costs interms of ultimately deaths, injuries and loss of potential income. Although we have undertaken many initiatives and are implementing various road safety improvement, it does not gives much effective outcomes. During the year 2010 there were close to 5 lakh road accident in India which resulted in more than 1.3 lakh persons. These number drastically increased intone road accidents every minute and one road accident death every 4 minutes. This project composes of saving human life from the exposure of accident by detecting before it occurs or in case it happens, It also implements the use of alcohol consumption by the driver and the camera and pc used here detecs the drowsiness and for distract intimation. It detects the people driving without license and also restricts the teenage driver from driving the car by the use of finger print by means of biometrics. The mobile jammer used here disables the keypad of the mobile when the car is in motion. Also active RFID used here avoids running red lights which automatically slows down the engine speed when it reaches the destination point. The voice annunciator is more effective to gain the attention of driver when compared to other alerting systems such as lcd display and buzzer.

Keyword: Road safety, accident prevention, alcohol sensor, biometrics, active RFID, mobile jammer, drowsiness detection.

I. INTRODUCTION

Road accidents is any injury due to crashes originating from terminating, with or involving a vehicle partially or fully on public road. It is estimated that the road accident will move up to third position by the year 2020 among the causes of global disease burden. They considerably cause an economical losses of victims their family and the country as a whole. The global status report based on road accident in the year 2013 indicates world wide the total number of road traffic death increases drastically high at 1.24 million per year. Road accident are the leading cause of death among young people age 15 to 29 years. Among this the most affected people comes under the criteria such as pedestrians, children, teenagers. India is no exception and data showed that more than 1.3 lakh people died on road accident giving India the dubious on honour of topping the global list of fatalities from road crashes. Here overcoming to get rid of these problems, we have come up with an conclusion by noting down the top most reasons for accidental cause such as drunk &drive. teenage drivers, running red lights, drowsiness, distraction. First moving onto drunk &drive, the conclusion brought here is the use of alcohol sensor which automatically senses the alcohol level of the driver and does not allow the engine to start on. Secondly, moving onto teenage drivers the problem faced here is age detection. Majority of accidents are caused by the people of age 15 to 30. To overcome this biometric are used and prevents the people of this age from driving. The third problem faced here is running red lights which is overcome by the use of active RFID. The fourth problem faced here is drowsiness which is overcome by means of drowsiness detection by sensing the face of the driver. The major reson for accident is distraction driving which is mainly caused by the mobile usage while driving. Here we conclude that the major cause of accident are overcome by these techniques

II. OBJECTIVE

- To increase the safety level of the people while driving in todays modern world
- To prevent unexpected accident
- To concentrate on the top causes of accident (drunk&drive, teenage drivers, running red lights and stop signs, distracted driving and drowsiness)

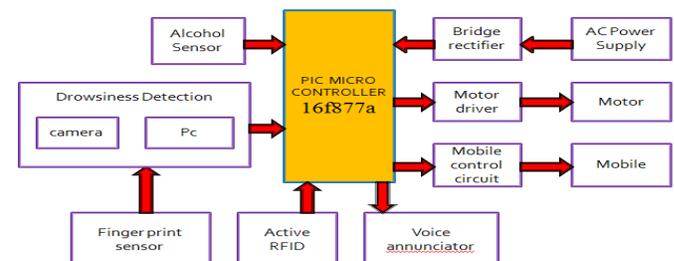
EXISTING SYSTEM

- Ultrasonics based speed control system
- GPS and GSM based communication system
- Alcohol detection using buzzer system
- Calculating the vehicle parameters by using CAN protocol

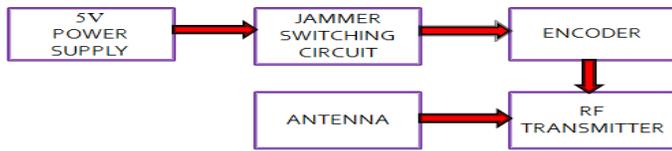
III. PROBLEM IDENTIFICATION

- Fails to track the damage due to distracted driving
- Fails to track the damage due to people driving without driving license.
- Lack of intelligence in the detection systems
- Does not cover the problem caused by running red lights.

BLOCK DIAGRAM



MOBILE JAMMER BLOCK DIAGRAM



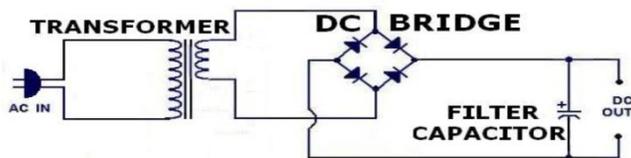
LIVE STREAMING



PIC MICROCONTROLLER

- The PIC microcontroller PIC 16f877a is one of the most renowned microcontrollers in the industry
- This controller is convenient to use, the coding of this controller is also easier
- One of the main advantages is that it can be write-erase as many times as possible because it use flash memory technology.
- It has total number of 40 pins and there are 33 pins for input and output
- It has many application in digital electronics circuits

POWER SUPPLY UNIT



Power supply is the device that supplies electrical or other types of energy to an output. The step down transformer reduce voltage to reduce the dangerous supply. Bridge rectifier is the most important and it produces full wave varying dc from diodes.IC7805 maintains constant value and produces +5v regulated power supply with heat sink.

ALCOHOL SENSOR

- Good sensitivity to alcohol gas
- Fast response
- Both digital and analog outputs
- Stable and long life
- **CONCENTRATION:**0.05mg/L~10mg/L
- **OPERATING VOLTAGE:**5V±0.1
- **CURRENT CONSUMPTION:**150mA
- **OPERATION TEMPERATURE:**-10°C~70°C

FINGER PRINT SENSOR

Finger print sensor stores the biometric of individuals which serves as a source for high level security system. The optical finger print reader devices uses high powered DSP chip AS601 where image rendering is done. It provides TTL serial out connection and hence we can connect to any microcontroller or system. It can store upto 120 finger prints

DROWSINESS DETECTION

It is implemented by using visual camera which detects the face and apply landmark detection and extract the eye regions. If the

eye aspect ratio detects if the eyes are closed and gives us intimation stating that the eyes are closed and slows down the engine. This can be intimated by using voice annunciator or buzzer which makes the driver prevent from being drowsy.

ACTIVE RFID

Active RFID tag has transmitter and their own power source. The power source is used to run the micro chip circuitry and to broadcast signal to a reader. The reader sense energy to a antenna which converts the energy into aRF wave that is sent into the read zone. The RFID tags internal antenna draws in energy from the RF wave. By using this principle, running red lights is avoided here

MOBILE JAMMER

Mobile jammer used here to disable the keypad interfacing which does not allow the driver from using mobile phones while driving

ADVANTAGES

- The main advantage of the proposed system is preventing accidents caused due to drunk&drive efficiently than the existing one
- Only authorized and corresponding operand can operate the car
- It mainly focus on teenage drivers from driving which is the major advantage of this project and that is not existed before
- Mobile jamming is also an other effective method which is the major distraction among people

IV. FUTURE ENHANCEMENT

- In future we can modify this device by using IOT technology
- We can get data and command data from worldwide through internet
- Over speed detection and automatic control of speed can be done
- It can be adopted in two wheelers

APPLICATIONS

We can use our device in ambulance, trucks and all types of vehicles with some modification

V. REFERENCES

- [1]. Harsh Mohanlal, Prateek Bump, John Daniel, Yedukondala Rao” Design of automobiles speed control system using RFID”(nov 2016)
- [2]. Vijay Savani, Hardik Agravat, Dhruvil Patel” Alcohol detection and accident prevention of vehicle”(mar 2015)
- [3]. Miss Katore, Koshal” Vehicle accident prevention system using GSM and GPS technique”(nov 2014)
- [4]. Garima Turam,Sheifali Gupta” Road accidents prevention systems using driver’s drowsiness detection(nov 2013)
- [5]. Faghri A,Hamad K(2002)”Application of GPSin traffic management systems.GPS solutions 5:52-60”

VI. BIOGRAPHY

Dr.S Chinnaparaj



He was born on June 06, 1976, he graduated (BE) from RVS college of engineering and technology Dindugal, 2001. He obtained his master of degree in VLSI from ANNA UNIVERSITY, COIMBATORE, 2009 and he is also pursuing his PHD in Low power VLSI design ANNA UNIVERSITY, COIMBATORE. He is currently working as Assistant professor in Hindusthan institute of technology Coimbatore Tamilnadu. He has totally 10 years of working experience also he has presented many papers in International conferences and has published many international journals.

Akhil Benny Kumbalam



He was born on April 17, 1996, he is pursuing his BE degree from Hindusthan Institute Of Technology, Coimbatore Tamilnadu, Anna university. He is currently doing his final year project in this paper.

Akshara .S



She was born on December 06, 1996, she is pursuing her BE from Hindusthan Institute Of Technology Coimbatore Tamilnadu Anna university. She is currently doing final year project in this paper.

Beena Jasmin



She was born on July 02, 1996, she is pursuing her BE from Hindusthan Institute Of Technology Coimbatore Tamilnadu Anna university. She is currently doing final year project in this paper.

Lakshmana prabhu.M



He was born on October 08, 1996, he is pursuing his BE degree from Hindusthan Institute Of Technology, Coimbatore

Tamilnadu, Anna university. He is currently doing his final year project in this paper.