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Advanced Passenger Security System for Radio Cabs with Video Transmission and Enhanced System Security with Biometric Module

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Jyotika Sharma Mushafiq Hassan Bhat Stuti Ghildiyal Danish Bashir

Abstract: With the world turning towards wireless and radio systems in every field, the use of better communication technology has been the prime focus for all major industries. India has been adopting such systems on a large scale to meet the demands of a large and diverse population. Radio Cabs have been on a tremendous hike during the past so many years. The industry has crossed a record breaking turn over with all the companies aiming for better and comfortable services. During the past three to five

years, Delhi has seen some worst rape and crime scenes involving cabs directly or indirectly. This raises a question mark on the safety and reliability of these services even in the capital city of one of the world's fastest growing countries. This project is based on increasing the safety and reliability of these services.

1. Introduction

This concept installs a panic button system in the car which is directly connected to the car's ignition system. Whenever the passenger feels unsafe he/she can press this panic button. As soon as the button is pressed, the car ignition is turned off . The system commonly uses a Global Positioning System (GPS) for locating the vehicle and sending this location to the nearby police station through the use of GSM (Global System for Mobile Communication). Meanwhile the live transmission of the scenario starts through the use of wi-cam.

The audio playback module incorporated in the system starts recording the conversation going on at that particular instant. This recording can later be used as an evidence for legal proceedings as well. An alarm also gets started for gaining the local attention for immediate help.

To enhance the security of this system, a biometric system is employed in the circuit which is connected to the power supply of this panic button system and the car ignition. The car ignition would only work when the driver rolls his finger over the biometric system. This means that the car would only work when the Panic button system is working since the biometric system is essential for the ignition to work Hence a driver cannot bypass the panic alarm system

Alleged sexual assaults and harassment incidents by cab drivers all over the world

1. *Cab driver arrested for allegedly molesting a journalist* .

State/City: Delhi
Country : India
Date: 22nd January, 2016

2. *Cab driver suspended after he molested female passenger.*

State/City: Gurgaon
Country : India
Date: 6th January, 2015

3. *Uber driver charged with sexual assault*

State/City: Ontario
Country : Canada
Date: 14th March, 2016

keywords : Introduction, rape, cab, security, GSM, GPS

2. Technology Used 2.1 GPS Technology

Global Positioning System module tracks its own position continuously with relation to the GPS based satellite and keeps on updating its position continuously when powered up. Here, we are using S1315RL SKYTREK model that will send the location of the vehicle to the microcontroller in from of latitude and longitudes.

2.2 GSM Technology

The microcontroller will further send this location in form of SMS to the nearby police station by using the GSM technology.SIM 900A GSM Module has been used.

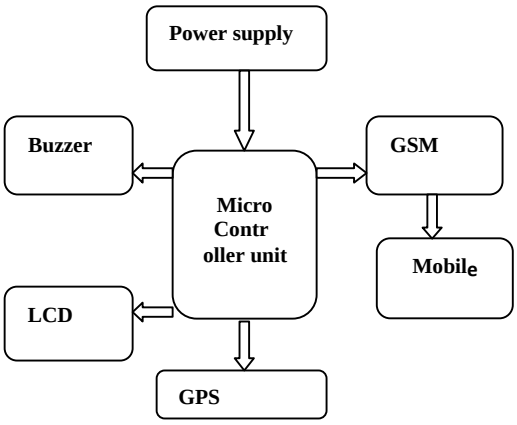

Fig 1. Block Diagram of the GSM and GPS System

2.3 Biometric Module

The circuitry employs a R305 optical finger print sensor that will scan a fingerprint and store it in its memory in form of templates.
Later on precise matching of two finger templates gives access to the authorized person.

2.4 Wireless Camera

The live video transmission is done by using Wireless camera

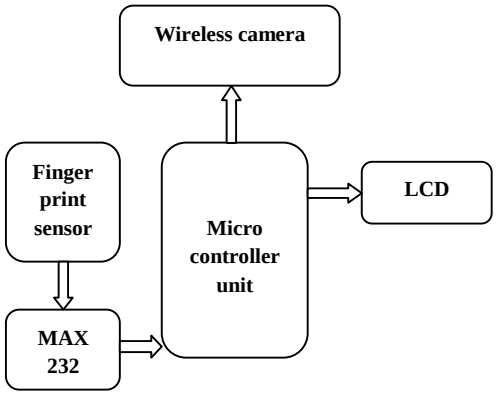

Fig 2. Block Diagram of the Wi Cam System

2.5 Voice Recorder and Playback System

The APR9600 device offers true single-chip voice recording, non-volatile storage, and playback capability for 40 to 60 seconds. The system consists of a Microphone, APR chip and a speaker.

Fig 3. Block Diagram of the APR (Recorder) System

2.6 Microcontroller

PIC 16F877A is one of the most advanced microcontroller from Microchip. Some features of this microcontroller are:

1. *High performance RISC CPU.*
2. *ONLY 35 simple word instructions 3. Interrupt capability (up to 14 sources).*
4. *Different types of addressing modes (direct, Indirect, relative addressing modes).*
5. *Power on Reset (POR).*
6. *Power-Up Timer (PWRT) and oscillator start-up timer.*
7. *Low power- high speed CMOS flash or EEPROM.*

2.7 LCD (Liquid Crystal Display)

Two 16*2 Alphanumeric liquid crystal Display has been used to show different statuses of the system.

2.8 Buzzer

A buzzer is used as an alarm to gather local attention.

keywords: Microcontroller, APR, Biometric, sensor, LCD.

3. Architecture and Design

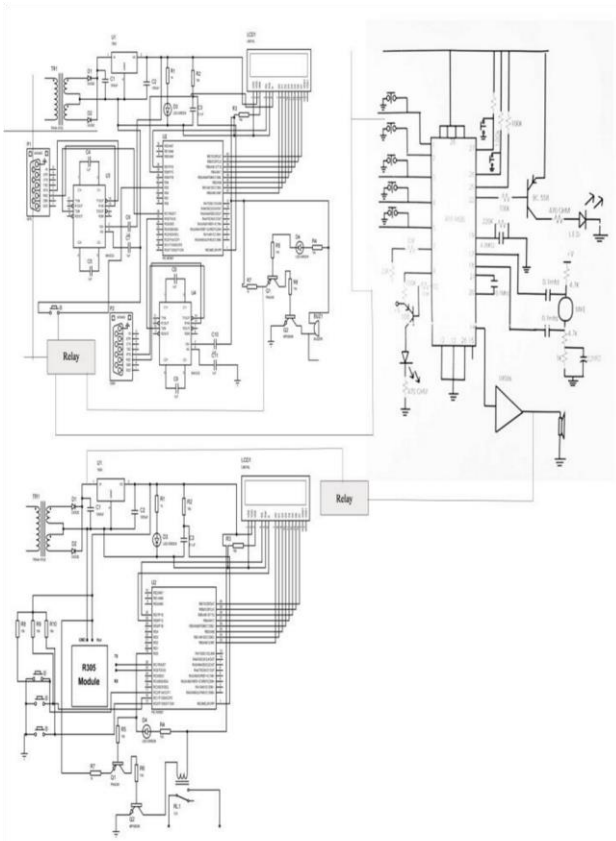

Fig 4. Circuit Diagram

Fig. 5 Snapshot showing the location of the vehicle received in form of a sms

4. Application

- Safety and Security of a Passenger.
- Safety and Security of the Driver.
- Intelligent System for Rapid Action from the authorities.
- Need of the hour during the current scenario.

keywords: application, need, safety, driver, passenger

5. Result

In addition to this, the circuit also records the audio in the car, transmits the video to the police station and the car ignition is turned off with the car siren turning loud to gain the local attention. System security is handled using biometric module.

6. Conclusion

Providing security is the fundamental aim of this project.GSM and GPS together will help in finding the crime location. Recorder audio will be useful in post crime investigation. Biometric will prevent access to unauthorized users and the buzzer will help in gaining the local attention.

keywords: conclusion

7. References

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