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Woman Safety Jacket

Bhakti Tandel, Ankita Chaudhari,Dhruvi waghela,Sailee Pimple

EXTC, Theem College Of Engineering

EXTC, Theem College Of Engineering

EXTC, Theem College Of Engineering

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Abstract — ***India which sees itself as a promising superpower and an economic hub, is still trapped in the clutches of various patriarchal evils like molestations, dowry, crime against women, worst among all is Rape. The atrocities against the women can be now brought to an end with the help of a device called Women safety jacket. It is to flash a warning giving an instant location of the distressed victim to the police so that the incident could be prevented and the culprit apprehended. This would help reduce crime against women.***

Keywords- GPS, GSM, Microcontroller, Bluetooth

I. INTRODUCTION

The device is a security system specially designed for women in distress. It is a simple and easy to carry device with magnanimous functionality. The basic approach is to intimidate instant location and a distress message to the cops and registered number, so that unfortunate incidents would be averted and to provide real time evidence for swift action against the perpetrators of crime against women. The security system for women which allows immediate response in case of any harassment and mainly focuses on two digrent parts, one is developed mobile applications for women safety and protection and secondly, the proposed work .The users can press a button that is located on device. The Bluetooth device is embedded with it and sends data to the mobile phone. Mobile phone processor will perform the task and sends the messages to predened contacts in which one is for police women cell where they can get the information about location of the victim through GPS and message alert for help.

II. THE EXISTING SYSTEM

The paper [1] proposes a voice keyword recognizing app to recognize the user and activate the app functionality even when the mobile keypad locked. The GPS module tracks the longitude and latitude to trace an exact location of a user and sends the pre-stored emergency message including location to the registered contact numbers. The Audio Recording module starts the recording of the conversation for five minutes and stored as evidences. The message goes in queue if network problem and send when network gets available. A notification is generated for successful deliver message. Also user can select contact through voice based contact list and make a call. Note: The spoken keyword converted into a text to compare with the registered keyword.

The paper [2] proposes an emergency response situation recognizing app called as IPROB to provide women safety even in the situation like terrorist attacks or natural disaster, by just shaking the mobile above the predefined threshold value automatically activate the system. It starts capturing the surrounding voice to test and confirm the unsafe IPROB situation where it raised the notification and user fail to respond in predefined time then the message alert sends to the register contacts. If the mobile profile at the receiver is in silent mode then convert it into the General profile to give the voice notification as "YOUR CHILD IS IN TROUBLE PLZ HELP...PLZ HELP …" continuously like a ring tone, until they stop it. If a register contact confirms a PROB then appropriate emergency services like ambulance, fire brigade are alerted. If a register contact responds with an audible notification, then it automatically connects and enables the speaker phone at the victim side. An integrated tri-axial accelerometer used to evaluate the unique movements that a phone experiences as threshold.

The paper [3] proposes a SCI WARS app (Spy Camera Identification and Women Attack Rescue System) which consist of two modules. A first module act as an intelligent alerts system which detects the infrared rays coming from every Night-vision hidden cameras placed in changing rooms, hotels room etc. and also informed the user about unsafe place through message. Now it's the user responsibility whether to register a complaint or not by forwarding the notification with the location to legal authorities such as Police. The second module will get activated by pressing any key continuously which will provide the help to the victim from psychic attack in unsafe situation. It sends the emergency message containing location to register contacts. It also records the voice and captures the images of the surrounding for 45 seconds. This information also stored in secret location of mobile for future evidences. This app also able to converts the receiver mobile profile from silent to general mode, and also supports the auto-call receiving system at victim side.

The paper [4] proposes an android app to provide security at two different situations as follows. The First module provide security to Women at Emergency Situations propose a Save Our Souls (SOS) app to provides the security on a single click of SOS button for the women travelling at night or alone. No need to unlock the screen, instead

by just pressing the power button it directly triggers the application to run at the background, to send the emergency message including the location in the form of latitude and longitude to the registered contacts. The second module proposes an android based home security system that provides security of house belongings and Senior Citizen in the user absence. Since the security of senior citizen is always a concern with increasing number of robbery incidents. This app informs the user about an attempt of intrusion activity at home through a message and a feedback SMS triggers an alarm in the house. The minimum requirement is the android mobile a hardware circuit embedded with a switch and GSM modem that are connected to the door. When an intruder tries to open the door, the switch triggers an interrupt for the micro controller to activate the GSM modem to send warning SMS to the store registered number in the modem. At the receivers end the application pop up the menu frequently for user attention. If the user fails to acknowledge in the defined time interval, then the automatic positive acknowledgement message get sent to the remote GSM modem which in turn interrupt the micro controller for an alarm.

The paper [5] proposes an app, in which a single click of SOS sends a message containing the location and/ or audio- video call to the guardian number. At receiver touch the location URL in the message to view it in the Google Map. It also provides different help tools like First-Aid help, Fake Call Help and video call. The First-Aid help tool provides the help on various health issue problems occurred at an accidental or emergency situation during the night time. First aid help for various problems are as: unconscious and not breathing, choking, bleeding heavily, burns, heart attack, diabetes etc. The Fake call help to escape from the meetings- parties at a time when women start feeling uncomfortable and think that, "if someone calls me then I can leave this place". Fake call ringtone same as that of normal incoming call ring and once call accepted it stop ringing. It also supports Fake Hang Up option. The guardian contacts are by-default for this app, but it able to search the cops, firemen, hospitals contacts nearby to your location. It also sends the audio-video recording via Email-Gmail of emergency situation taken by the user where user unable to speak or tell the circumstances.

The IEEE real project [6] propose an automated highly reliable women security device which consist of the advanced sensors embedded in a wearable dresses. It consist of advanced sensors, GSM and ATMEGA8 microcontroller with ARDUINO tool which keep user under observation at all the time. It monitors the heartbeat-rate, temperature and vibration in body through sensors to check for uneasy situation. In such situation it will activate the GPS module to track the location and wireless camera to capture the images that get send to the control room of the receiver through GSM modules to take necessary actions. At the same time processor activate the mice unit with amplifier which strengthens the voice of the women to screams or shout above the threshold limit.

The Paper [7] proposed a portable device as a belt which is automatically activated base on the pressure difference crosses over the threshold in unsafe situation. A GPS module track the location and sends the emergency messages to three emergency contacts every two minutes with updated location through GSM. The system also activates the screaming alarm that uses a siren, to call out for help and also generates an electric shock to harm the attacker for self-defense which may help the victim to escape. The device mainly consists of micro controller on the ATMega328 board which programmed using the ARDUINO programming language.

The paper [8] proposes the women security device called as "Suraksha" which is an easy to operate device. This device can be activated through- voice command, Press a switch key and shock (i.e. when the device is thrown with force, a force sensor used to activate the device). In emergency situation it will send the message including instant location to the police, via the transmitter module and registered numbers via a GSM module. Currently the work is under process to embed it in jewelries, mobile or other carrier like belt etc. It can play a major role in the proposed projects where all the police stations are connected and share the criminal records, crime investigating cases etc.

The paper [9] proposes an extended vehicle tracking system to track the vehicle based on GPS with that it also provides the safety through an emergency button kept under the vehicle seat using GSM. As the increasing economic growth rate of a country, many companies are establishing their setup in the nearby region of the cities. Since, the security of women employees inside the private transportation is the company's' responsibility

III. PROPOSED SYSTEM

Mobile application will connect with hardware circuit of Jacket via Bluetooth module. In emergency situation women can press the Emergency switch attached to the jacket. This will activate the shocker circuit through the relay which will offend the attacker. There is an alternate way if women is not able to press the switch then by stretching the wire the system can be activated. Buzzer is used as alarm to generate beep sound in both the conditions. The Bluetooth module is used to send signal to mobile when in danger case. By GPS and GSM based system the continuous tracking of location will be send to victim's family even if she is constantly moving

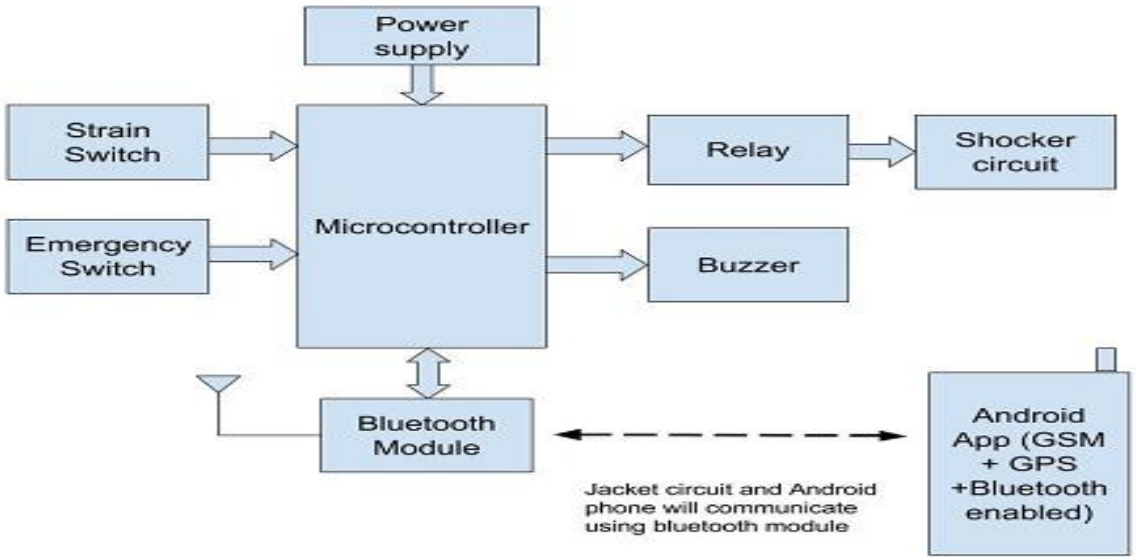
IV. RELATED WORK

The main objective of this project is to protect the woman from the crimes that are happening with them.so many time we have seen that they could not contact with the police officers when they are in trap. With the help of our project a message with location of the particular woman will be sent to the nearest police station.

4.1 Block diagram

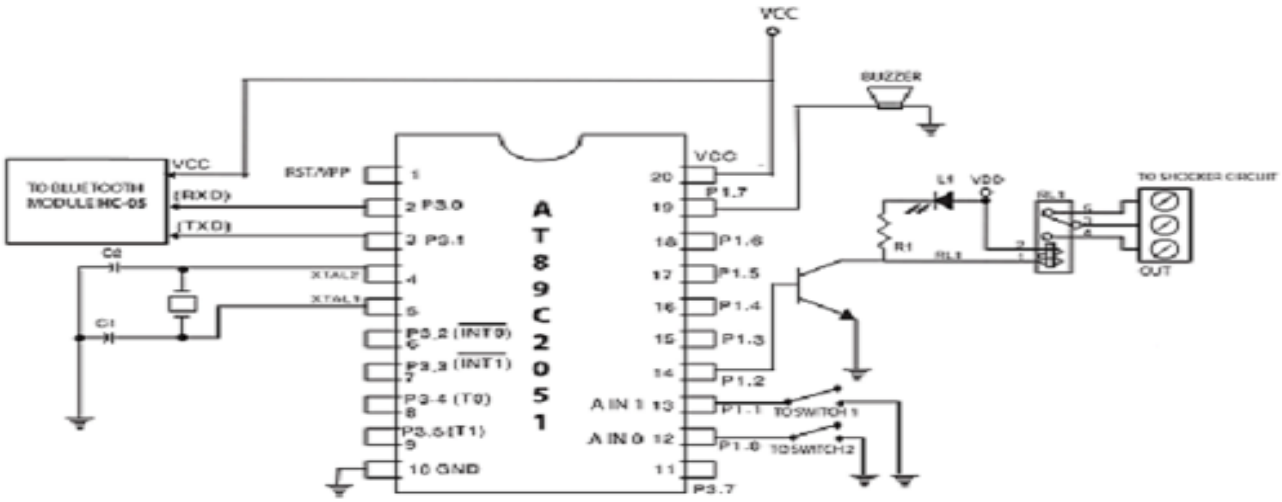
The figure shown below is the Block diagram of WOMEN SAFETY JACKET. System comprises of mainly three block. The input blocks that are Power Suppy, Emergency Switch and Strain Switch.The Communicating blocks Microcontroller and Bluetooth and Relay module. The output blocks contains Shocker Circuit, Android App (GSM + GPS + Bluetooth enabled) and Buzzer. The microcontroller AT89C2051 used is the heart of the device as when victim is in trouble and she switches ON strain switch which will send signal to the Microcontroller and microcontroller further will stop the on going service and will service the interrupt i.e. will switch the relay and activate shocker circuit.

By switching Emergency Switch ON Microcontroller will send information to the Bluetooth device which will connect to Android App and send traced location to the predefined number. Buzzer will help to alert the surrounding people to help the victim.



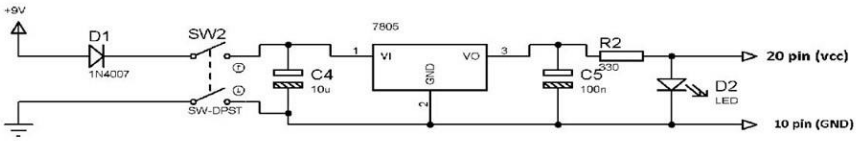
4.2 Microcontroller

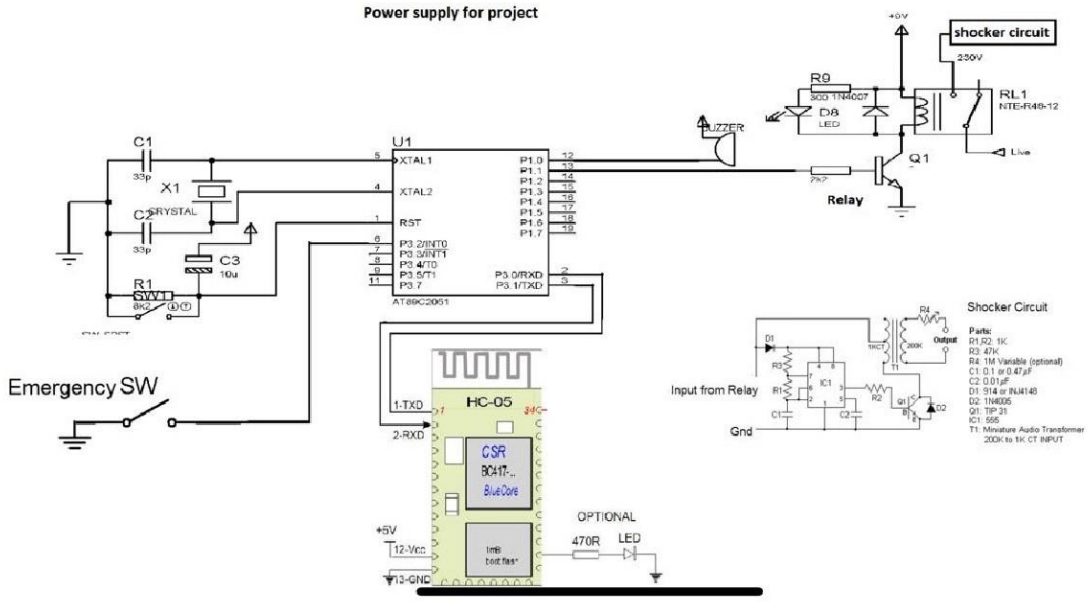
This project consists of 20 pin microcontroller which is AT8920C51 and input is given to the pin no 12 and 13 i.e. to the port (P1.1, P1.2) where the strain switch and emergency switch are connected. When women are in distress situation she will press the emergency switch which is attached to the jacket. This will activate the shocker circuit through the relay. If she is not able to press the switch then by stretching the wire, shocker system will be activated. Buzzer will beep continuously alerting the nearby people around the victim. Mobile app is connected with hardware circuit of jacket via Bluetooth module. Bluetooth module will send signal to mobile when in danger case. Mobile will send SMS to predened number with location using Android app. GPS is used to track live location and hence GPS of the phone needs to be ON all the time. Call facility is available through android app. When in emergency button is pressed, along with alert message same person will get a call through android phone.



4.3 Circuit Diagram

The fig below shows the circuit diagram of proposed system.





4.3.1 Power supply

The input to the system is 9 V battery. Diode is used for circuit protection if connected inversely. 10uF capacitor is used for filtering of the input. LM7805 is the regulator in the circuit, output filtering is done using 100nF. Further resistor with led is used for indicating that the circuit is working.

4.2.2 Microcontroller

Crystal of 11.0592 MHz along with a pair of 33pF is used as oscillator input at 5 and 4 pin of microcontroller. 10 pin is connected to ground. 20 pin connected to VCC i.e. 5 V. Switch is used to activate the entire system which is connected to P3.2, switch is used to activate relay circuit. We are using relay for ON/OFF purpose (i.e used to ON/OFF shock circuit) connected to P1.1 bcoz pull-up resistor is there. The Bluetooth module is used to send signal to mobile (but Bluetooth module only send signal when women touch to touch plate i.e when she will be in danger situation).we are connecting Bluetooth module to P3.0 and P3.1 which acts as RX and TX

respectively. Bluetooth TX goes to the P3.0(RX) and Bluetooth RX goes to the P3.1(TX). Mobile will send sms to predefined number with location (This number will be store in mobile database)..

4.2.3 Shocker Circuit through relay

5 V relay cannot be directly connected to arduino so BD139 transistor is used as a switch to control relay operation. A diode (1N4007) is parallel to the relay which acts as a free-wheeling diode. A free-wheeling diode is used for following purpose. When a relay is switched off (de-energized) by switch, the collapsing magnetic field produces a voltage transient across switch in order to oppose the change of current flow. The voltage produced is given by V=-L*di/dt. This voltage transient if high can cause switch breakdown. Thus a diode across relay coil to suppress transient voltage across switch is generally used. Resistor and led is connected to relay to indicate whether relay is on or off.

Common pin of relay is connected to 5 V, and one end of vibration motor connected to NO(Normally Open) pin of relay. Shocker is usually powered by a 9V through relay. Here, we design a circuit using a 555 Timer to produce a current fluctuating signal and a voltage multiplier using a transformer and a multiple stage arrangement of voltage doublers using capacitors and diodes. A 555 Timer is used to produce an oscillating signal of frequency determined by the external passive elements connected to the Timer. It operate in astable multi-vibrator mode. These low current electric pulses are fed to a step up transformer to produce a high volt signal. For designing the astable multi-vibrator circuit, we select a 555 Timer. To design a 555 Timer in astable mode, passive external components need to be selected. The astable operation of 555 Timer starts. A pulsating electric signal of low current is produced, which is stepped up using a step up transformer. The signal from the Timer is fed through a transistor switch.

REFERENCES

The template will number citations consecutively within brackets [1]. The sentence punctuation follows the bracket [2]. Refer simply to the reference number, as in [3]—do not use "Ref. [3]" or "reference [3]" except at the beginning of a sentence: "Reference [3] was the first . . ."

For papers published in translation journals, please give the English citation first, followed by the original foreign-language citation [6].

Format of Reference

[1] Author1, Author2, "Paper Title", Journal Name with Issue number, Page Number, Year of Publish

Example:

[1] Dongare Uma, Vyavahare Vishakha and Raut Ravina, "An Android Application for Women Safety Based on Voice Recognition", Department of Computer Sciences BSIOTR wagholi, Savitribai Phule Pune University India, ISSN 2320–088X International Journal of Computer Science and Mobile Computing (IJCSMC) online at www.ijcsmc.com,Vol.4 Issue.3, pg. 216-220, March- 2015

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