

A Smart Alarm System for Women's Security

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ABSTRACT

This paper detailed about a smart alarm system for women's security. Women all over the world are facing much unscrupulous physical irritation. This acquires a fast pace due to lack of a suitable investigation system. The system look like a group on the wrist merged with pressure switch as an input which when triggers shows the result loud alarm imposed for self-defensing purpose and send location and messages to the emergency contacts. The whole process will be held in Arduino Microcontroller. The digital switch incorporates with the controlling unit. Whenever the user presses the digital switch, the emergency message will be passed to the server unit via GSM SIM 800A module. By implementing the proposed system, the physical harassment on the women will be reduced.

Keywords-- Arduino Microcontroller, GSM SIM 800A, Switch, Women Security, Message Transmitting.

cases these guys end their life by committing a suicide. The de facto spokesperson of United Nation Ban Ki-Moon, stated that there is one universal truth applicable to all countries, cultures and communities: violence against women is never acceptable, never excusable, and never tolerable [1]. The report of WHO states that, a violence act against female gender disturbed the public health life of society and also it violates the human rights of women [2]. The status of women in India has gone through many inordinate changes over the past few millennia. In modern India, women endure to face social challenges and are frequently victims of abuse and violent crimes and, according to a global survey conducted by Thomson Reuters, India is the fourth most hazardous country in the world for women, and the vilest country for women among the G20 countries. This paper focuses on a security system that is designed exclusively to serve the purpose of providing security and care to women so that they never feel helpless while facing such social challenges. The Delhi Nirbhaya case that prompted the whole nation was the utmost motivation for this paper. It was high time we women needed a change [3]. The suggested device is more like a safety system in case of emergency. This device can be tailored in a jacket (like to a blazer for women). It is comfort and easy to carry device with more features and functions. The emergency push button is held to one of the buttons in the jacket. The main purpose of our invention is to intimate the parents and police about the current location of the women by message through GSM. A GPS system is used to track the current location of the victim and a GSM modem is used to send the message to the pre-defined numbers. There are numerous applications that reduces the risk of sexual abuse by sending SMS but in our model we also provide an audio circuit which is more useful for physically challenged people. In this paper section 2 represents the certain analysis of the existing

I. INTRODUCTION

India which sees itself as a promising super power and an economic hub can achieve its goal if and only if a large numbers of women participate in the development process. This paper presents an examination review on the primary need of intelligence security system with technology requirement and experiments to build the system. Since the prediction of such incident is not possible hence to minimize the possibility of physical violence (robbery, sexual assault etc.) by keeping all the help tools ready to safely escape from violent situation. This reduces risk and brings assistance when needed. The social networking is the part of our life and also a source for women harassment by uploading the offensive photograph taken by hidden cameras, even though these cases might happen with innocence males, in some such

system, section 3 describes the proposed method of GSM based women's security system and section 4 describes the results and implementation and section 5 represents the conclusion of our proposed methodology.

II. EXISTING SYSTEM ANALYSIS

The world is becoming unsafe for children and women in all aspects. The crimes against women due to sexual harassment and eve teasing are increasing at a higher rate. The employed women are feeling threaten due to increasing crime rates. There are many methods raised for providing security to the women. In this section we discussed few methods for women's security.

2.1 Women and Children's Security based Location Tracking System

Now-a-days children and women are fronting many safety related difficulties. In such circumstances, they are helpless and don't have any way to protect them or inform it to their family supporters, neighbours or police station and they feel as handicaps. Hence there should be a system to guard them in such times. So this system helps them to search for help in any critical condition. For that, the system comprises GPS to detect location and GSM mechanisms to pass their current position to any one of the trusted contacts as a google map link and services are provided to track the locations from that moment onwards to save the person [4].

2.2 Smart Security Solution for Women Based on Internet of Things (IOT)

They propose to have a device which is the integration of multiple devices, hardware comprises of a wearable "Smart band" which continuously communicates with Smart phone that has access to the internet. The application is automated and loaded with all the required data which comprises Human behavior and responses to different situations like anger, fear and anxiety. This makes a signal which is communicated to the smart phone. The software or application has access to GPS and Messaging facilities which is pre-programmed in such a way that whenever it receives emergency indicator, it can send help request along with the site co-ordinates to the nearest Police station, relatives and the people in the near radius who have request. This action allows help immediately from the Police as well as Public in the near area who can reach the victim with great precision [5].

2.3 Prototype of an Intelligent System Based on RFID and GPS Technologies for Women Safety

The main objective of this paper is to design and implement a highly reliable system for protecting women from being harassed. In this paper, they have developed an intelligent women safety system using Radio Frequency

Identification (RFID) and Global positioning system (GPS). The main idea here is using an active RFID tag with passive RFID reader to test the information and this information is conveyed to the AT89C52 microcontroller where in the connections of around 4 to 5 people is kept in the data base. Once the data is received by the controller, it sends the note to the contacts through GSM module and the location is tracked through the GPS. The simulation is done in ISIS proteus [6].

2.4 Ultra-Low Power Self-Security System

This system adopts a hidden camera system that makes smart decisions and becomes active on recognizing human postures and hand gestures maintained in the database. On processing and recognizing gestures by the frontend of the camera system, the system starts recording the video and sends an alert message to the authorized officials. As the self-security system is supported with IOT environment, it enables the system to transmit the video to the cloud platform. And the anti-social activities could be monitored through smartphone/PC. Moreover, the hidden Markov and Baum-Welch algorithm is adopted to classify, train and test the system. In order to enable an ultra-low power operation, the system is implemented using ARM cortex A8 processor with optimized algorithm [7].

2.5 Domestic Violence and Information Communication Technologies

Physical violence against women is pervasive throughout the world and domestic violence has been a longstanding issue in feminist activism and research. Yet, these familiarities are often not characterized in technological research or design. In the move to consider HCI at the margins, in this paper, we ask: how have ICTs pretentious the familiarities of domestic violence survivors? We interviewed female fighters living in a domestic violence housing about their experiences with technology. Contestants testified that they were stressed with mobile phones, skilled additional harassment (but also support) via community networking sites, and tried to resist using their information of security and confidentiality [8].

III. PROPOSED ONE TOUCH ALARM SYSTEM FOR WOMEN'S SECURITY

Fig.1 shows the block diagram of our proposed methodology. Whenever the emergency switch is pressed by the user, the Arduino controller automatically send the alert SMS to the Server unit via GSM SIM800A. The Arduino controller also enables the alarm unit for surrounding alertness. So the Arduino controller acts as a heart of our proposed method.

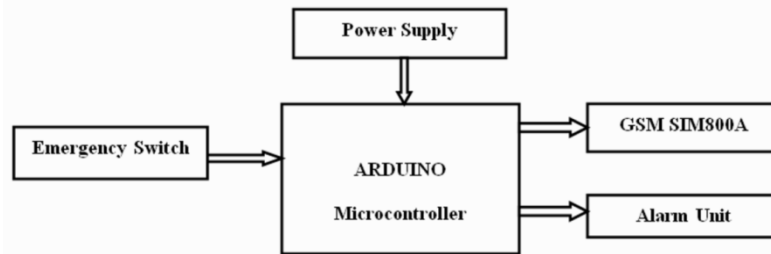


Fig. 1 Block Diagram of Proposed One touch alarm system for women's security

3.1 Arduino Microcontroller as Controlling Unit

The Arduino Uno is a microcontroller board built on the ATmega328 (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz pottery resonator, a USB assembly, a power jack, an ICSP header, and a reset button. It covers all mandatory to sustenance backbone of the device that is the microcontroller; simply bond it to a computer with a USB cable or power it with an AC-to-DC connector or battery to get initiated. The Arduino Uno has a number of amenities for collaborating with a computer, another Arduino, or other microcontrollers. The ATmega328 offers UART TTL (5V) serial communication, which is accessible on digital pins 0 (RX) and 1 (TX). An ArduinoU2 on the board channels this serial communication over USB and looks as a virtual com port to software on the computer. The serial communication will be held in the GSM SIM800A and Arduino Controller.

3.2 Emergency Switch

Emergency switches are mechanical switches defined by the method used to activate the switch. The activation method is classically in the form of a plunger that is pushed down to open or close the switch. In the device, there are some pole and throw configurations for pushbutton switches. The number of switch communication sets used is known as the number of poles and the number of conducting positions (single or double) is stated to as the throw. This emergency switch is connected to the Arduino controller, whenever the user presses the switch the alert SMS will be send to the Server unit and also Buzzer turned ON.

3.3 GSM SIM800A

GSM is a digital cellular contact system. It is used for transmit memo or voice call to the receiver region. SIM800 is a whole Quad-band GSM/GPRS solution in a SMT type which can be embedded in the client applications. SIM800 offers Quad-band 850/900/1800/1900MHz, it can communicate Voice, SMS and data info with low power intake. With tiny size of 24*24*3 mm, it can appropriate into slim and compact demands of customer project. Including Bluetooth and Embedded AT, it permits total cost investments and fast time-to-market for consumer applications.

3.3.1 General features of GSM SIM800A

- Quad-band 850/900/1800/1900MHz
- GPRS multi-slot class 12/10
- GPRS mobile station class B
- Compliant to GSM phase 2/2+
 - Class 4 (2 W @ 850/900MHz)
 - Class 1 (1 W @ 1800/1900MHz)
- Bluetooth: compliant with 3.0+EDR
- Dimensions: 24*24*3mm
- Weight: 3.14g
- Control via AT commands (3GPP TS 27.007, 27.005 and SIMCOM enhanced AT Commands)
- Supply voltage range 3.4 ~ 4.4V
- Low power consumption
- Operation temperature: -40°C ~85°C



Fig. 2 GSM SIM800A module

3.4 Alarm Unit

Piezo buzzer is an electronic device often used to create sound. Light weight, simple structure and low price make it operational in various applications like car/truck reversing indicator, computers, call bells etc. Piezo buzzer is built on the inverse principle of piezo electricity exposed in 1880 by Jacques and Pierre Curie. It is the phenomena of generating electricity when mechanical compression is applied to certain materials and the vice versa is also true. Such materials are called piezo electric materials. Piezo electric materials are either logically available or manmade. Piezo-ceramic is class of artificial material, which poses piezo electric effect and is widely used to make disc, the heart of piezo buzzer. When exposed to an irregular electric field they stretch or compress, in accord with the frequency of the signal thereby making sound.

IV. IMPLEMENTATION OF PROPOSED METHOD

The whole implementation held in Arduino microcontroller and arduino programming takes as software implementation tool. The user press the emergency switch, the GSM SIM800A automatically passes the SMS to the Server unit. The following Fig. 3 shows the hardware implementation of our proposed methodology. The message transferred from GSM SIM800A to the Server unit was shown in Fig. 4. The message transferred from GSM SIM800A to the Server unit was shown in Fig. 4. The Sim inserted to the GSM SIM800A is used to find the users location and prevent the user.

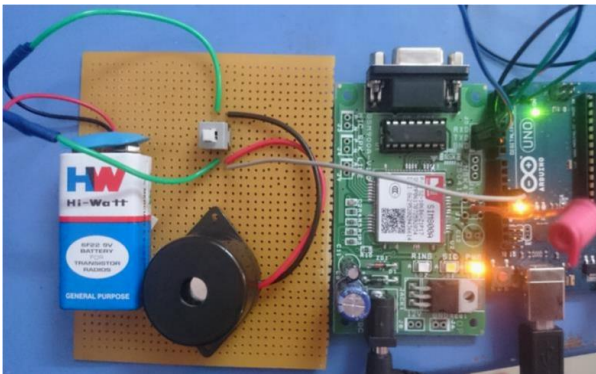


Fig. 3 Hardware implementation of proposed method



Fig. 4 Message from GSM SIM800A

V. CONCLUSION

Our primary goal is to safeguard every woman in our society to feel safe and secured. The paper would aid in enhancing the safety and security of all despondent and badgered women and children. This we believe would help not only one to feel secured but also help the law enforcing

authorities to bring the masquerading culprits to light. This paper is a step closer for us to improve our social security.

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