

DIGITAL WEARABLE TECHNOLOGY FOR WOMEN SAFETY

Ms. Prajakta Raut

Student

Department of Electronics and Telecommunication
MTech (VLSI)
Jhulelal Institute of Technology, Lonara,
Nagpur, India

Mr. Narendra Bawane

Principal

Department of Electronics and Telecommunication
MTech (VLSI)
Jhulelal Institute of Technology, Lonara,
Nagpur, India

Abstract— Women safety has always been an issue even in these modern times with so much advancement in technology. Women are not safe anywhere and are most vulnerable when traveling alone into lonely roads and deserted places. Existing handheld devices that are available for women safety require women intervention to activate them such as pressing the button or shake the device etc after sensing the danger. However, for some reason if a woman has no time to activate it when she is danger, then the purpose of the safety device is not solved. Most of the attacks on women happen when they are traveling alone or are in a remote area where they are not able to find any help or proper assistance. This paper proposes an IoT based solution to address the problem of women safety and that overcome the shortcomings of existing devices. The proposed design comprises of features to notify family members and nearby police station for immediate assistance when women are not safe. Moreover, a shock wave generator is a part of the proposed design which women can use to attack the perpetrator.

Keywords: Digital Wearable Technology, Internet Of Things.

I. INTRODUCTION

In today's world, women safety has become a major issue as they can't step out of their house at any given time due to physical/sexual abuse and a fear of violence. Atrocities towards (and against) women are forms of oppression hindering the development of women and thereby resulting in gender injustice, this being ideologically supported by a value system, which is androcentric and gender insensitive. Deepening inequalities and struggles by the oppressed section to assert their rights (granted under democracy) have unleashed retaliations by the more privileged and, women situated as they are in the social matrix as non-free, dependent subjectivities, become specially affected ones. Even in the 21st century where the technology is rapidly growing and new gadgets were developed but still women's and girls are

facing problems. Even today in India, women can't move at night in secluded places and even at day time crowded places hundreds and thousands of incidents of physical/sexual abuse happening to every day women in this country. Among other crimes, rape is the fastest growing crime in the country today. As more and more women are joining jobs and are trying to work in those areas which a few years back were catered by male counterparts only. Women have started accepting odd jobs and are also open to working in odd hours. This has resulted in increased cases of crime against women apart from all the other reasons. Offenders have found it convenient to harass women while they are moving out in odd hours and this has resulted in spurt in many crimes related to women like intimidation, stalking, molestation and rape. This has motivated us to arm such women with the device with the help of she is able to convey to her near and dear one's about her whereabouts if she is in danger

II. LITERATURE SURVEY

EXISTING SYSTEM

Keeping the same concern in mind many developers have come up with innovative applications. Few of such applications are as follows

1. VithU app: This is an emergency app initiated by a popular Indian crime television series "Gumrah" aired on Channel in this app when the power button of the Smartphone is pressed twice consecutively, it will begin sending out alert messages with a link to the location of the user every two minutes to the contacts fed into the app. [15]
2. SHE (Society Harnessing Equipment): It is a garment designed by three engineers from Chennai. This garment

has an electric circuit that can generate 3800kv of current which can help the victim to escape. In case of multiple attacks, it can send up to 82 electric shocks. Since the fabric is bilayer, the user is not affected. It can also send emergency messages.[16]

3. ILA security: The co-founders of this system, McGivern, James Phillips, and Neil Munn, have designed three personal alarms that can shock and disorient potential attackers and draw attention to dangerous situations.

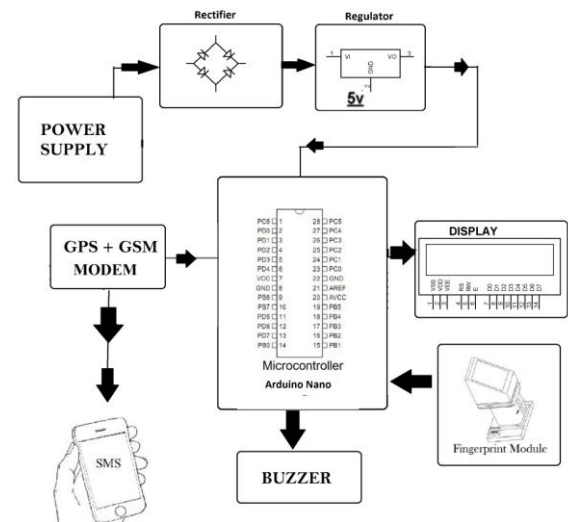
4. USING PRESSURE SENSORS: The proposed system is to design a portable device which resembles a normal belt. It consists of Arduino Board, threshold of the pressure sensor crosses, the device will get activated automatically. Immediately the location of the victim will be tracked with the help of GPS and emergency messages will be sent to three contacts and one to police control room every two minutes with updated location. The screaming alarm unit will be activated and will send out sirens to call out for help.

5. Such device is designed which is a portable one which can be activated as per the requirement of the individual which will locate the victim using GPS and with the help of GSM emergency messages can be sent to the respective locations as per the design. The gadget provides an alarm system, call for help, and electric shock to get rid of the attacker. The system contains a normal belt which when gets activated, tracks the location of the victim using GPS (Global Positioning System) and sends emergency messages using GSM (Global System for Mobile communication), to the three emergency contacts and the police control room. It describes a GPS and GSM based vehicle tracking and women employee security system that provides the combination of GPS device and specialized software to track the location of the vehicle as well as provide messages and alerts with an emergency button trigger. The information of vehicle position provided by the device can be viewed on Google maps app. The proposed system with the push of one button, people can alert selected contacts that the person is in danger and share the location. With this personal safety app, you'll never walk alone. The personal safety application needs the name and number of the person who is to be contacted in times of emergency. Users can add multiple people's mobile numbers in the emergency contacts list. These are the people who will receive notifications in case of an emergency. All it needs is the user's

action to trigger an SOS button provided and it shoots messages as fast as the device can manage.

III. PROPOSED METHODOLOGY

METHODOLOGY

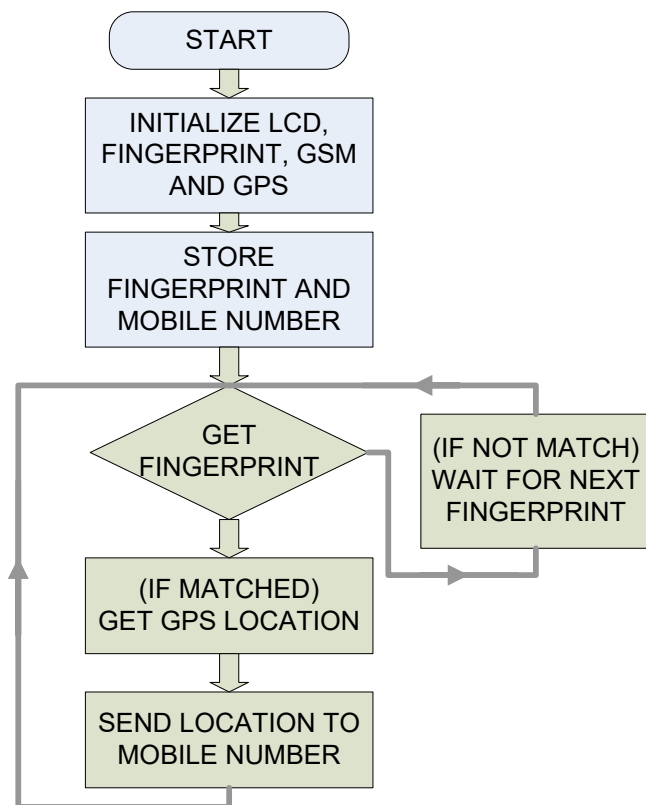


Block diagram of the proposed system

Working of the proposed system

The proposed women safety device provides assistance to a woman who might be in an unsafe situation. The device is essentially ready for all the situations that might go against the will of the woman. Fig.1 shows the hardware design of the safety device. It uses Arduino as a microcontroller. The design comprises of fingerprint scanner to activate the device, GSM (Global System for Mobile Communications) module for sending alert messages, buzzer for alerting the environment. It has a LCD that displays the message.

Flow Chart



The working of the device is as follows: The fingerprint of the woman must be registered initially and it is used to activate the device. Whenever the woman finds herself in difficulty she can place her finger on the fingerprint sensor. The scanner matches the finger and GPS forwards the latitude and longitude through the GSM to the registered mobile number and thus she is able to share her location details to the registered mobile and thus she may be in a position where help can be forwarded to her in case of an emergency

III. APPLICATION

- Auto motives and transport vehicles
- Security, Remote monitoring, Transportation and logistics
- This system is also can be interfaced with Vehicle airbag system

IV. CONCLUSION

Being safe and secure is the demand of the day. It is to fabricate a gadget which is so compact in itself that provide advantage of

personal security system. This design will deal with most of the critical issues faced by women and will help them to be secure. In this project work, we have studied and implemented a complete working model using Raspberry Pi as Microcontroller. This work includes the study of GSM and GPS modems using sensors. The biggest advantage of using this project is, whenever the vibration sensor experiences a force in case of a potential attacker attacking the woman, it will trigger the microcontroller to obtain the location details from the GPS and forward it in the form of an SMS on the registered mobile number using the GSM and at the same time the webcam will record the picture of the offender and store it in the SD card. Once the location is tracked, safety measures can be adopted.

FUTURE SCOPE

By encrypting the GOOGLE MAPS in the GPS sensor, it can detect the area instead of latitude and longitude information. By using Nano-sized materials, the kit size can further be reduced such that it gets a size of a wearable device. The system can be upgraded by an Android Application.

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