

WOMEN SAFETY DEVICE

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Abstract:- *Women security is a major issue of concern in today's world. Women are subjected to unethical physical harassment. Women safety methods such as various mobile apps and other technologies have been tried and implemented, but the need of the time is that they need is a device that can be carried everywhere easily. The idea to develop a smart device for women is that it's completely comfortable and easy to use as compared with already existing women security solutions. Here we present an idea to design one such device which can be attached to the hand glove. It will be flux sensor that detects the presence of a person when that person touches the sensor. The other features used are, GSM and GPS for sending messages to the family members and the police officials, and finally an alarm setup.*

Keyword:- Flux sensor, GSM, GPS.

I. INTRODUCTION

Women are adept at mobilizing diverse groups for a common cause. They often work across ethnic, religious, political, and cultural divides to promote peace. We are all aware of importance of women's safety, but we must realize that they should be properly protected. Women's are not asphysically strong as men, in an emergency situation a helping hand would be a relief for them. The best way to minimize your chances of becoming a victim of violent crime (robbery, sexual assault, rape, domestic violence) is to identify defense and call on resources to help you out of dangerous situations.

If you're in trouble or get separated from friends during a night out and don't know how to get back home, this device with you will protect you and can reduce your risk and bring assistance when you need it.

The purpose of this project is to design an easy and portable device for women safety. Here we are mainly focusing on designing a prototype in which the device can be easily carried around.

If a woman is subjected to attack by an adversary, then a switch has to be pressed by her manually or if she cannot

press it then by touch of the attacker in the sensor known as flux sensor then the system starts to work. This will trigger the microcontroller to activate by producing alarm first for nearby help. To track location and for message sending GPS and GSM are used. Next, the Global Positioning System (GPS) receiver will acquire the location co-ordinates of the woman subjected to attack, and will send these to the pre-decided cell phone numbers typically the family and the police, via GSM module.

II. LITERATURE REVIEW

The literature survey of some existing systems is done:

[1] Women safety device and application. In this paper an ARM controller and Android application are used in which both the device and the smartphone are synchronized using Bluetooth, hence both can be triggered independently. It can record audio for further investigation and can give an alert call and message to the pre-set contacts with the instant location every 2 minutes and can be tracked live using the application. Hidden camera detector is also a distinct feature used which ensures privacy.

[2] A mobile-based women safety application. In this paper, mobile-based application is developed with the Android support to know whether a woman is safe. It gives the location of the woman in danger by giving fake phone calls, video forwarding, location and first-aid information.

[3] Advanced Security system for women. The paper proposes an automated highly reliable women security device which consists of advanced sensors embedded in a wearable dress. It consists of advanced sensors and ATMEGA8 micro controller with Arduino tool which keep user under observation at all the time. It monitors the heartbeat rate, temperature and vibration in the body through sensors to check for uneasy situations.

[4] Woman safety, the system has different sensors like heartbeat sensor, temperature sensor, accelerometer sensor for detecting the heartbeat, temperature and sudden change in motion of the user. GPS and GSM which will

help to detect the location of the device and to send an alert message to guardians, relatives and police station.

III. METHODOLOGY

In this project we show that how we monitor women security with the help of suitable device.

- **PIC MICROCONTROLLER.**

PIC16F877a is a 40 pin PIC Microcontroller. It has 5 ports in total. Five ports starts from Port A to Port E. It has three timers and supports serial communication for which it has 2 pins TX and RX.

- **FLUX SENSOR**

A flux sensor uses a carbon on a strip of plastic to act like a variable resistor. The resistance changes by flexing the component. The sensor bends in one direction, the more it bends, the higher the resistance gets. Flux sensors are usually available in two sizes. One is 2.2 inch and another is 4.5 inch. Although the sizes are different the basic function remains the same.

- **GPS/GSM MODULE**

GPS is used to track the live location of the user. The location is traced from the satellites orbiting the earth. The location is retrieved in the form of latitude and longitude coordinates.

GSM is used to send data from source to destination according to the input signals from the sensor.

- **BUZZER MODULE**

When the module activates, it continuously gives out siren which helps to grab the attention of the nearby public.

A. BLOCK DIAGRAM

The block diagram of the conceptual system is shown in below figure

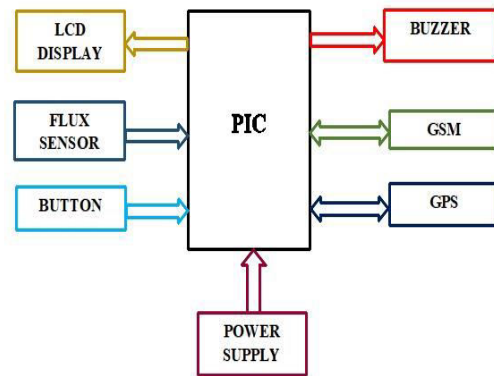


Figure 1:- Block Diagram

B. WORKING

Mainly two sections are considered:- One is using button and other is without using button.

Consider the idea of using button in which if you sense any sort of dangerous situations then press the button provided to create alarm to inform nearby locations that we are in trouble. At the same time if you are not able to press the button then the sensors attached along with this device measures the body parameters and if the measured value is above the normal then automatically sound is generated.

During this case there may be a chance of getting help but if in a situation where less or no people are nearby then this idea may not work. To avoid this disadvantage GPS and GSM module is used for tracking the location and sending the SMS to stored contacts of family members, police officials, etc.

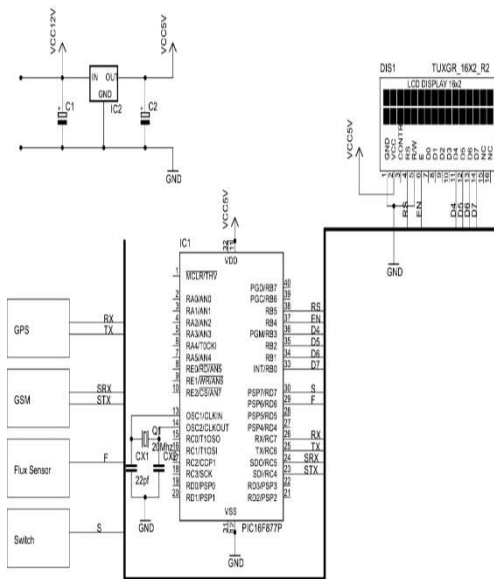


Figure 2:- Circuit Diagram

The sensor here used is a flux sensor that when touched beyond the limit the system starts working by producing alarm. The location tracking system is an important part since it makes sure that help is on the way for the victim. Hence, it is required to be fast and efficient. Location tracking intends to update the location of the victim continuously to either the police or the family of the victim.

The programming is such that the longitude and latitude of the victim is reported at multiple instances and at different times. On pressing the correct reading, the microcontroller commands the GSM (Global System for Mobile) module to transmit the data through an SMS by using AT commands.

C. SOFTWARE USED

MICROC is the powerful C compiler integrated in super-flash which produces programs which can be run not only by this application, but others as well. MICROC supports a simplified sub-set of the ANSI C standard. It implements the syntax and the typical operators of C, interprets the control structures, but does not manage pointers. By means of the virtual type, it is easy to access

the mixed database of the super- flash variables.

MICROC is also a powerful compiler independent of the hardware, is simple and reliable, rich in functions and performances. With MICROC, the user can extend the functionality of the Development system enormously: in fact, more than 500 functions are available for numerous sought-after applications. The programs compiled with MICROC operate under the strict control of the runtime engine. This means only correct instructions are carried out, keeping the high level of reliability peculiar to super- flash. Since it does not produce a machine code, the programs do not have to be recompiled to be used on other platforms.

D. FLOWCHART

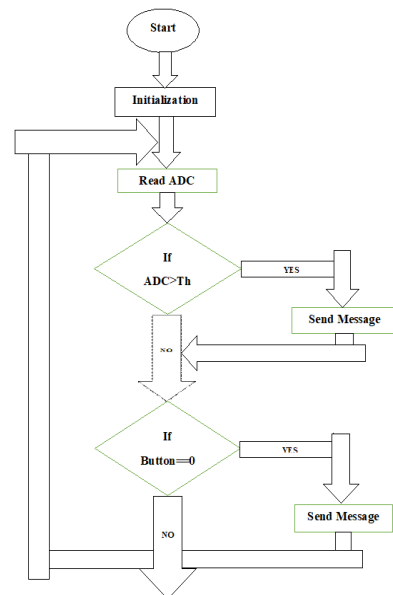


Figure 3:- Flowchart

IV. RESULT

The Women Safety Device senses the emergency situation with the help of flux sensor attached to it. After that the microcontroller starts to work and it triggers its alerting unit which alerts the nearby people about the crime by loud noises. Location of women along with an emergency Short Message Service (SMS) is sent to police and relatives by GSM module. GSM/GPRS module is used to establish communication between a computer and a GSM-GPRS system. Global System for Mobile (GSM) is an architecture used for mobile communication in most of the countries.

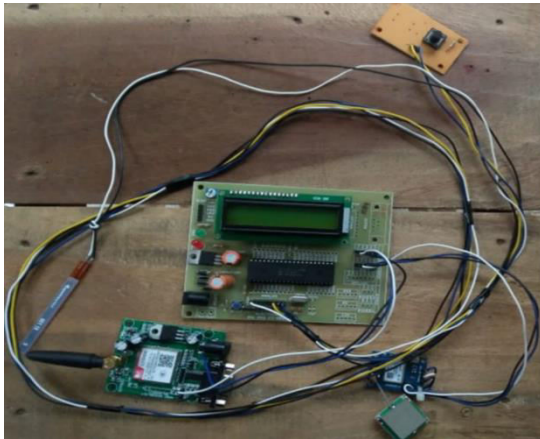


Figure 4:- Hardware Setup

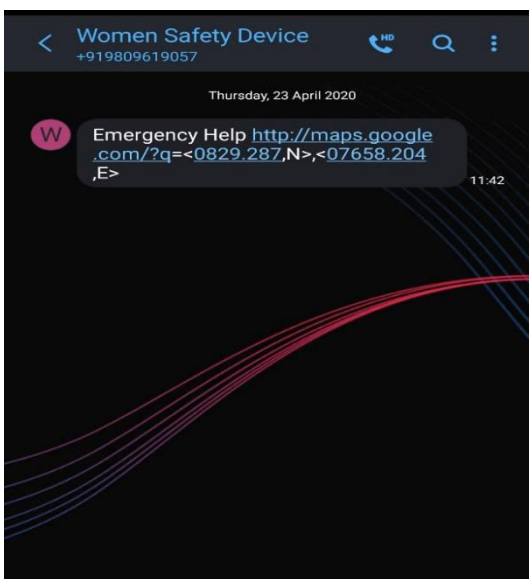


Figure 5:- Location Status Output

Some other ideas that can be implemented along with this device are:-

As the technological changes or new requirement from user to enhance the functionality of product may require new version to introduce. Although the system is complete and working efficiently, new modules which enhance the system functionality can be added without any major changes to the entire system. By keeping this ability of the product in mind, among the various modules few are identified, which can be done by making small changes in the above design. These are as follows:-

Primary School Children Safety: -

As the school children safety are major concerns for parents as well as school management due to the recent

incidents of child crimes like children missing, abuse etc. This module can be used to monitor the child safety when they are travelling in school buses. Once they have reached the school they press button and message is sent to the parents that, 'The child reaches the school safely'. The device can further be extended as capability of audio recording when activated that can be listened by the parents or authorized person.

Vehicle Safety System Module:-

The Safety of four and two wheeler car is also a major concern in the society due to the increase in the crime rate of stolen car. The location tracking and sensing module can be modified according to the requirement of vehicle safety system module.

V. ADVANTAGES

- It is safe and easy to use.
- It can be used by children, teenager girls, women, old lady.
- As many mobile numbers can be added.
- Easy portable system.
- Automatic sensing is available.

VI. APPLICATIONS

- Provide parents with a sense of security for their child in today's time.
- Can be used for the safety of physically challenged & elderly aged people.
- Used for tracking soldiers.
- Ensures women's safety.
- Can be used for tracking pets or wild animals.
- Live location tracking. Can be used as a legal evidence of crime with exact location information for prosecution.

VII. FUTURE SCOPE

- This device is can be made so small that it can be used as a hand band.
- This device can be compatible with mobile phones.
- Voice messages can be sent during need.
- Primary school children safety.
- Vehicle safety system.

VIII. CONCLUSION

In conclusion, this system is designed to help women in distress situations to call for help as well as alert the surrounding people. It has been developed as an idea to make the security device more portable and comfortable. Here measures are being made to overcome the flaws in previous designs and also to reduce the power consumption.

The Sensor, GPS and GSM are the main parts used to sense, track location and to SMS the registered mobile numbers in need of emergency help. So, the device achieved what it was aiming. The location of the woman was successfully tracked down and with the help of GSM, appropriate help can be sent on time and the suspect can also be tracked down ensuring complete safety and security of the woman.

IX. ACKNOWLEDGEMENT

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