Avathi: Smart Vanity for Women Safety

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Abstract- *In global scenario, the prime question in every girls mind is about her safety and the harassment issues. The only thought haunting every girl is when they will be able to move freely on the streets even in odd hours without worrying about their security. This project suggests a new technology to protect women. This project focuses on a security for women so that they will never feel helpless. The system consists of various modules such as GSM, GPS, Accelerometer, memory card, shock circuit, buzzer, camera, Arduion Uno Board.*

Today there are many cases which are happening about women. It was high time where we women needed a change. This project is based on women security where women feel protected. This paper describes about safety electronic system for women, built in vanity bag as nowadays most of the women are being molested, kidnapped and harassed at work places. In each field there is a special impact of women like sports, dance, education, business, in politics also. Women are leading in each field. Are the girls in India are really safe? Always we get the answer No. Hence implemented electronic system is fitted in the vanity bag which has GPS, GSM, Accelerometer, Camera, Shock circuit, Buzzer, memory card which are interfaced with Arduino Uno board to control all of the above.

Key Words: GPS, GSM, Arduion Uno, Accelerometer, Camera, Arduion board,

1. INTRODUCTION

In our country, even though it has super power and economical development, but still there are several crimes against women. Most of the women are harassed at the work place. About 56% women believe sexual harassment at the workplace has increased over the years. At present there are so many systems that are based on android applications. When the emergency situation occurs then women cannot operate the smart phones. Also, when they are in risk immediately they cannot pass and send their location to the police and family members. The atrocities against women can be brought to an end with the help of our product. This system can automatically sends the location and also women can protect herself from the physical harassment.

2. PROPOSED ARCHITECTURE

2.1 Arduino Uno

Arduino Uno is a microcontroller board based on the ATmega328P. It has 14 digital input/output pins, 6 analog inputs, a 16MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button.

2.2 Global Positioning System

GPS, which stands for Global Positioning System, is a radio navigation system that allows land, sea, and airborne users to determine their exact location, velocity, and time 24 hours a day, in all weather conditions, anywhere in the world. A GPS operates independently of the user's internet connection or telephone signal.

2.3 R.F Detector

R.F signal detector is a tool used for detecting the presence of radio frequency signals in our surroundings. In order to detect the hidden cameras. R.F power, rather than voltage, is the primary measure of a wireless signal. In a receiver, signal strength is a key factor in maintaining reliable communications.

2.4 Global System for Mobile

A GSM module is a chip or circuit that will be used to establish communication between a mobile device or a computing machine and a GSM.

2.5 Accelerometer

An accelerometer is an electromechanical device used to measure acceleration forces. By measuring the amount of static acceleration due to gravity, you can find out the angle the device is tilted at with respect to the earth. By sensing the amount of dynamic acceleration, you can analyze the way the device is moving.

2.6 Safety Spray

Pepper spray is a chemical compound that irritates the eyes. That cause a burning sensation, pain, and temporary blindness used for self-defense, including defense against everything.

2.7 Push Button

A push button is a switch which causes a temporary change in the state of an electrical circuit only while the switch is physically actuated. An automatic mechanism returns the switch to its default position immediately afterwards, restoring the initial circuit condition.

2.8 Camera Module OV7670

A camera module is an image sensor integrated with a lens, control electronics, and an interface like Ethernet or plain raw low-voltage differential signaling. In this system we are attaching a camera on vanity bag which will capture the image of culprit. So that it will be easy for police to search the culprit.

2.9 Buzzer

A Buzzer is a device which makes a buzzing or beeping noise. It is a piezoelectric element also produces a voltage in response to pressure.

2.10　Shock Circuit

For self-defense we are using shock circuit, especially for the women for self-protection. When the culprit attacks, he will get shock because of the shock circuit.

3. IMPLIMENTATION AND WORKING

The block diagram of smart vanity for women safety is as shown in figure 1.
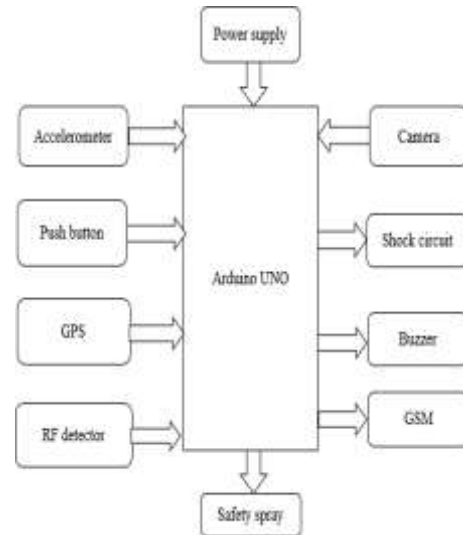

Fig -1: Block diagram of smart vanity for women safety system

The system consists of various modules such as GSM, GPS, Accelerometer, shock circuit, buzzer, safety spray, amera, R.F. detector which are interfaced with Arduino Uno Board. Our proposed system for women safety is a vanity; it has the ability to help women with technologies that are embedded into a compact device. In case of any harassment happens the short circuit will automatically ON and the information about the location will be send as an SMS to the predefined number. When the user finds that someone is going to harass, then the user can press a push button, shock circuit will be ON and location will be send to the predefined number using GSM MODEM.

The RF detector can be used to find whether there is any hidden camera in the surrounding to help our privacy. The RF detector works with the help of RF signal interface. When the RF signal is interrupted, camera can be detected. When the system is ON, shock circuit will be automatically ON, pepper spray will be sprayed, location of the device will be sent to the predefined number, camera will capture the picture, RF detector detects the presence of hidden camera, buzzer will beep.

The system consists of embedded hardware and software co- designed for this dedicated application and supports various features.

4. RESULTS AND CONCLUSION

When the value measured by the accelerometer crosses the threshold value, the entire system will turn ON. This sensor senses the change in position, based on this observation threshold value will be set.

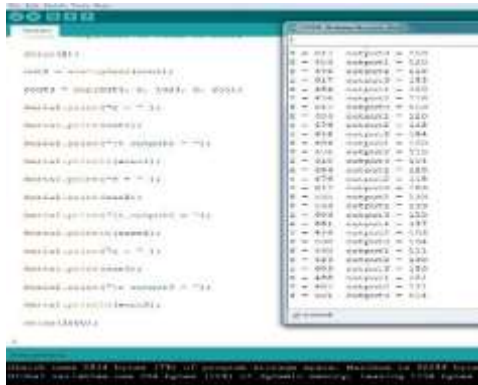The outcome of the 3-axis accelerometer is as shown in the figure 2.

 Fig -2: Snapshot of result from the 3-axis accelerometer.

The image captured by the camera module is shown in figure 3.

Fig -3: Image captured by the OV760 camera module

GSM will be helpful in sending the message to the predefined number and GPS will be helpful in tracking the location. Their outcomes are as shown in the figure 4 and figure 5 respectively.

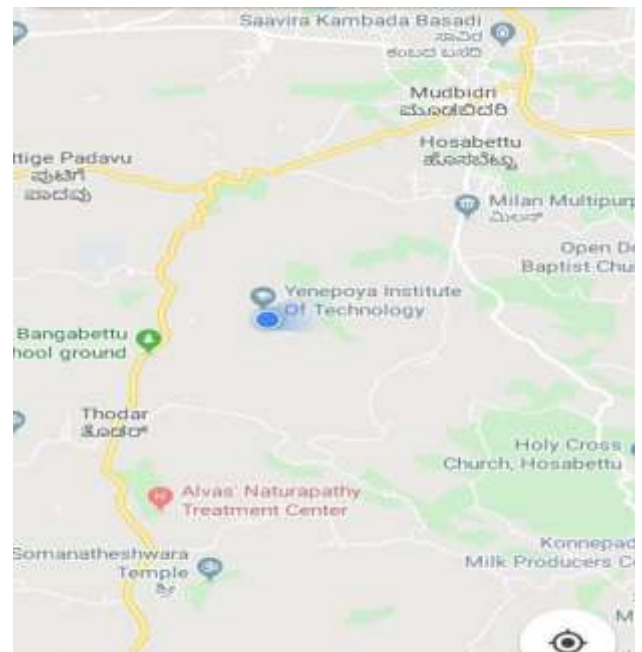

Fig -4: Received message.

Fig -5: Tracked location.

The proposed design will help the girl when she is in danger. She can rescue herself from danger using this features in the project. The project will remove or reduce the tension of the women when she walks alone at night.

The culprits face will be captured by the camera so that police will be able to catch him easily. If this system is in hands of every women, she will not feel helpless anymore.

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