REVIEW PAPER ON SECURITY INITIATIVES AND CHALLENGES: WOMAN SAFETY AUTOMATED DEVICES

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ABSTRACT: In today's world, main issues on every girl's mind is about her security and safety. A few years back, women had to face the social system (social media) to protest and warn about sexual harassment. The worst fact in today's world is the increase in cruelty against women. A UN Women-supported study in Delhi found that 95% of women and girls feel unsafe in public. According to various studies, one-third of women and all girls have experienced physical or sexual violence in their lives. As technology has advanced, many systems have evolved to assist women in at-risk situations. If the women find themselves in a dangerous situation, they should set up an automatic detection system that will send them an alert, including the location of the police station, to ensure their safety. This paper proposes a smart security device to help women to be safe during times of utmost danger. This can be done by sensing various factors such as abnormal sounds, body reaction like trembling, GPS and GSM modules which can be sensed using sensor and to provide the alert message. In this paper, we surveyed the existing mechanism for detecting locations, for sending communications and collecting physical parameters of the human body using sensors.

Keywords: Women safety, Arduino micro-controller, Resistive touch sensor, Automatic detection, alert message, heartbeat.

INTRODUCTION:

The safety of women is declining day by day and hence a smart security device to ensure women safety is the need of the hour. The world is becoming so much unsafe for women. The world is becoming a lot dangerous for ladies. In present day global, maximum of the girls are stepping out at any time from their house for working. Even though many technologies have been delivered for women still kidnapping, eve teasing and sexual harassment are taking area in our usa. Because the previous couple of many years, the popularity of ladies has been going through lots of modifications. To survive in this world and to be independent, a woman works in various places and supports their family. They work in different areas like call canters, IT firms, and so many places like it. Many women are working in corporate sectors, in both morning and night shifts. There is a feeling of insecurity among those working women. The proposed device is like a safety and security system in case of an emergency. Sound detectors also are used to locate the variations in ladies voice whilst they're in risk situation. maximum structures use cellular devices for detecting ladies' unsafe conditions, consisting of smartphone mike to discover girls scream, digital camera to take photos and to report video.

This system consists of a WiFi module and GPS. GPS is used to track the location of the women, and the WiFi module is used to send the tracked location as SMS to the emergency contacts. while the

women face into unsecured conditions, to make sure the protection, computerized detection device wishes to advanced which send an alert message to the police department and people. The accelerometer sensor detects the shaking action. One can also send the alert to the social media's by pressing the sharing option. Using this option, one can share their location either on Facebook, WhatsApp, Twitter, etc., by sharing the alert in social media, the victim can be easily tracked in a fast manner, and the harasser can get arrested so quickly. This can be achieved with the aid of sensing different factors along with ordinary sounds, body reaction like shivering, sweating and heartbeat which may be detected the use of sensor and to provide alert message with the different factors to become aware of the safety of women are-

➢ Mechanisms for detecting location using street images
➢ Schemes for Communication(GSM)
➢ Schemes of communication(Wi-Fi)
➢ Schemes on Sensor
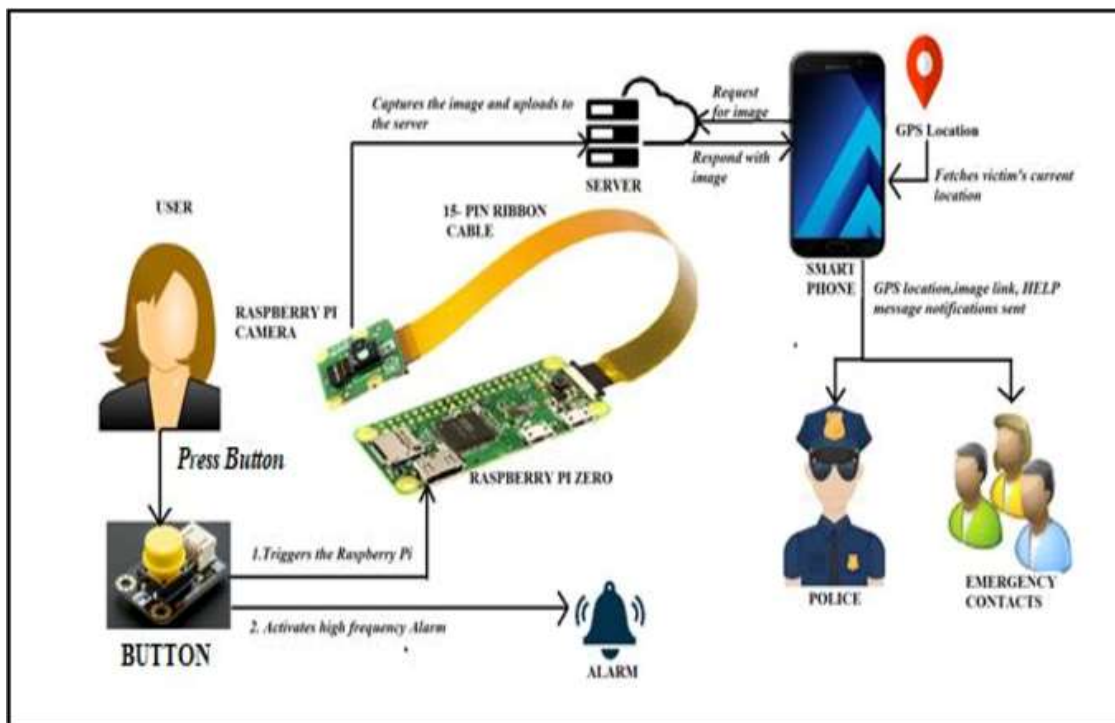
Fig-1 woman safety Devices

2. EXISTING SYSTEM:

 The existing system describes equipment which consists of a GPS module by which one can get the geographical location via SMS. In case of any emergency situations, she will press a button as soon as, after which the place will be tracked and despatched to police and relation so that they will realize the precise vicinity of the man or woman, so that the incident will be averted and the wrongdoer is apprehended

3. MECHANISMS FOR DETECTING LOCATION:-
3.1. GLOBAL POSITION SYSTEM (GPS):-

GPS, in complete worldwide Positioning system, space-based totally radio-navigation gadget that declares noticeably correct navigation pulses to customers on or near Earth. This is mainly used in military forces; this technology can be used to track the location of a person and to determine the position of an object. The working/operation of the worldwide positioning device is primarily based at the 'trilateration' mathematical principle. The position is decided from the gap measurements to satellites. From the determine, the four satellites are used to determine the position of the receiver on the earth. The target vicinity is showed by means of the 4th satellite. and three satellites are used to trace the area region.
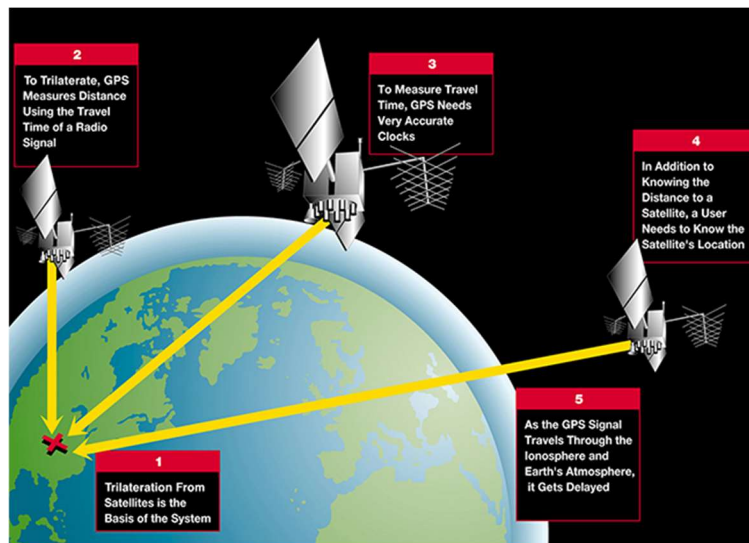
Fig2. GPS Determines a Position

The GPS does not require the user to transmit the data; it operates independently through internet reception to enhance GPS positioning information. This GPS system is available as a module that can be embedded in any mobility devices, so this system can be helpful for women to track the location information when they feel unsafe or in danger situations.

GPS is used on some incidents in several ways, such as:

- To determine position locations; for example, you need to radio a helicopter pilot the coordinates of your position location so the pilot can pick you up.
- To navigate from one location to another; for example, you need to travel from a lookout to the fire perimeter.
- To create digitized maps; for example, you are assigned to plot the fire perimeter and hot spots.
- To determine the distance between two different points.

3.2. RF TRANSMITTER AND RECEIVER:

The transmitter is connected with the device that is stored on the bag, and the receiver is saved at the

slipper. If the signal between the receiver and transmitter goes low, the SMS is despatched to the emergency contacts, and alert sound might be provided.
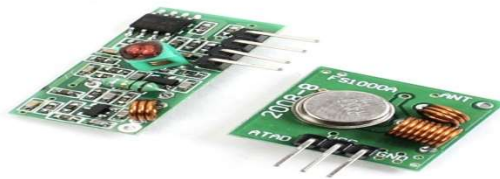

Fig.3. RF Transmitter and Receive

4. SCHEMES OF COMMUNICATION:-
## 4.1 GLOBAL SYSTEM FOR MOBILE COMMUNICATION (GSM):-

GSM or worldwide system for cellular Communications is the most popular wi-fi cell communication method, used for public conversation. The GSM fashionable become developed for placing protocols for 2d generation (2G) digital cell networks. GSM provide various services based on voices and data delivery, some of the GSM services are Tele-services, bearer services and supplementary services. GSM mainly used for its tele-services for voice transmission and messaging services, when two users need to communicate via GSM system, a connection between the mobile node and nearby base station is established, the base station reaches the nearby base station of other user using BSC(base switching center), thus a connection is established between the two users within few seconds, GSM also provides emergency communication which has higher priority that preempts other connections, the advantage of GSM communications are wireless communication and worldwide connectivity, better frequency efficiency and many users can access at a time, hence this system can be used for emergency communication when a woman faces a difficult, unsafe situations.
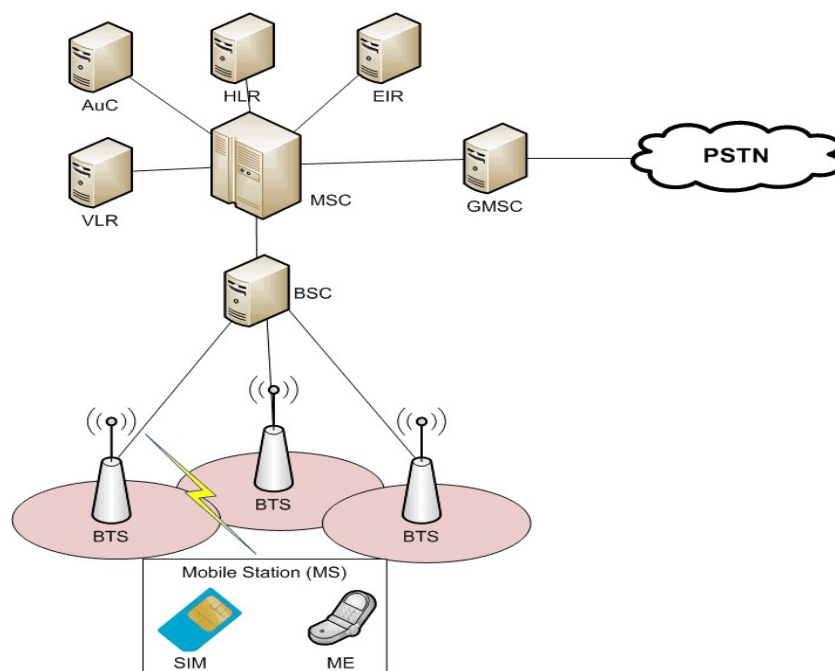
Fig.4 Fig – GSM Network architecture

4.2. WIFI MODULE:-

Wi-Fi is wireless communication devices based on IEEE 802.11 standards, most commonly used Wi-Fi module are ESP8266, which is a low-cost Wi-Fi microchip with full TCP/IP stack and microcontroller capability. This module can be integrated with any mobility devices. With the help of the WiFi module, GPS facts is sent to the cloud. This data is saved within the cloud using HTTP name, which is programmed in php MySql platform
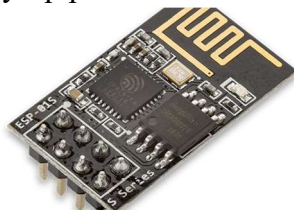

Fig.5 Wi-Fi module

5. SCHEMES ON SENSOR:-

The sensor community device generally includes sensor nodes, sink nodes, and control nodes. A large numbers of sensor nodes are randomly deployed in or near the monitoring area and can form a network through self-organization. The information monitored by the sensor node is transmitted hop by hop at the side of different sensor nodes.

The sensor network device generally consists of sensor nodes, sink nodes, and management nodes. A big number of sensor nodes are randomly deployed in or near the tracking vicinity and can form a community thru self-agency. The information monitored by means of the sensor node is transmitted hop by way of hop together with other sensor nodes. Sensors can be able to communicate in the wireless medium. Sensor network nodes cooperatively sense and manage the environment. They permit interaction among persons or computer systems and the surrounding environment.They

33

enable interaction between persons or computers and the surrounding environment. it can also communicate with each other, such communication network is known as wireless sensor networks. Many sensors are available as micro devices which are small and compatible, this can be embedded in any mobility devices to detect the changes, so sensors can be used to detect the condition of the women automatically when she is a danger.
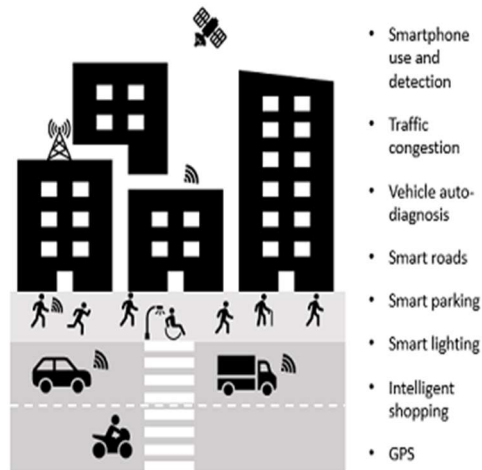
Fig.6. illustrates the widespread use of sensors connected via multiple sensor networks.

FOR THE SAFETY OF WOMEN, THE REQUIRED SENSORS:
 Some of the required sensors are-

5.1. Buzzer:-
There are many approaches to communicate between the person and a product. one of the excellent ways is audio communiqué the usage of a buzzer IC. So for the duration of the design process, knowledge a few technologies with configurations is very useful. It is a sensor, which gets input from the user and produces output in digital format. Usually a buzzer is a form of a switch, give output 0 when it is not pressed and gives one as output when pressed.

5.2. Temperature sensor:-
It used to measure the quantity of warmth energy produced by means of an object or human body, it produces an output in analogue format, a system is used to convert the the analogue signal into the temperature of human body.

5.3. Heartbeat sensor:-
It is used to measure the speed of heartbeat; this sensor can be placed in any nerves of human body. Usually, the output is in analogue format. Hence it can record the change in the heartbeat.
A person's heartbeat is the sound of the valves in his/her's heart contracting or expanding as they pressure blood from one location to any other. The quantity of times the coronary heart beats in line with minute (BPM), is the heartbeat charge and the beat of the heart that can be felt in any artery that lies lies close to the skin is the pulse.

Fig.7. Heartbeat sensor

Using a sensor: Heart Beat can be measured based on optical power variation as mild is scattered or absorbed at some point of its direction via the blood as the heartbeat modifications.

5.4. Sound detector sensor:-

A sound sensor is defined as a module that detects sound waves via its intensity and changing it to electric indicators. Sound sensor includes an in-built capacitive microphone, top detector and an amplifier (LM386, LM393, and so on.) that's enormously touchy to sound. This sensor used to detect when a sound has exceeded a set point you selected, it produces output in digital format. The sound is recorded via a microphone and stored in an LM393 op-amp. The set point of sound level is adjusted via a potentiometer. When the sound level exceeds the set point, the output is sent low.

5.5. Resistive Touch Sensor:-

Touch sensors are also called as tactile sensors and are sensitive to touch, force or pressure. they are one of the most effective and beneficial sensors. The working of a touch sensor is similar to that of a simple switch. When there is contact with the surface of the touch sensor, the circuit is closed inside the sensor and there is a flow of current. When the contact is released, the circuit is opened and no current flows. Resistive touch sensors are used for a longer time than capacitive solutions as they're simple control circuits. A resistive touch sensor does no longer depend on the electrical belongings of capacitance. Therefore, resistive touch sensors can accommodate non – undertaking materials like stylus and glove wrapped finger. In evaluation to capacitive touch sensors which measure the capacitance, resistive touch sensors sense the pressure at the surface.

5.6. Call A Contact:-
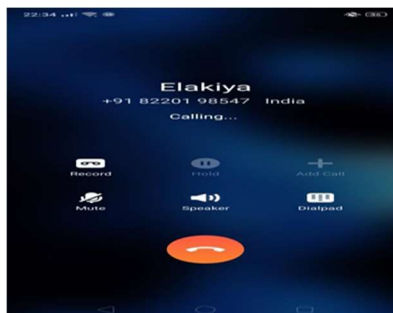
Fig.8 Call Alert

A Phone Call Component is added to the screen to make a call to a contact in times of emergency issue. A Sound Media Component is added to the designer page to save any siren sounds to alert the nearby people in case of any emergency issues. When the button is triggered, The Send Phone Call direct event automatically places the call, as shown in Fig.8, to that number, and the sound starts to play.

5.7. Location Sharing:-

Fig. 9.1 Women Safety App

**Fig 9.2 Save The contacts**

Fig 9.3 Location Sharing

The user interface is designed with logo buttons like help, ambulance, hearth service, secure, sharing, digicam, sound off, as shown in Fig nine.1. The location Sensor is introduced to track the location of the victim. A Tiny Db thing is used within the application to shop the text and speak to contacts and IMEI number. The Texting aspect is designed to send the location via SMS. The occasion send Message without delay allows the victim to send the SMS to the contacts automatically. In Tiny Db, store value procedure stores the contacts which are entered in text boxes, as shown in **Fig 9.2** along with a tag name. The location Sensor is disabled to begin, then enabled when the button is clicked and disabled over again when the place is decided. while the alert button is clicked, the location
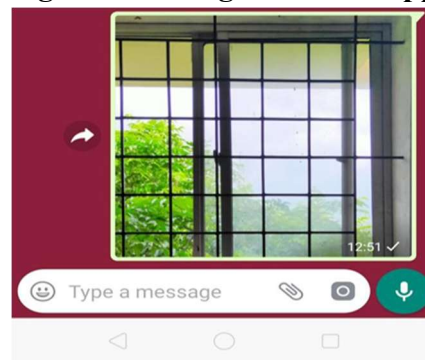
sensor tracks the current location of the sufferer and despatched the latitude, longitude values together with the present day address, as shown in **Fig 9.3** to the stored contacts.

5.8. Sharing Via Social Media:-
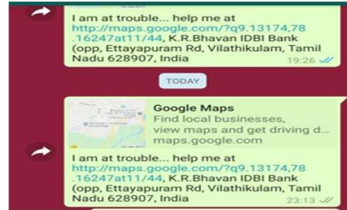
Fig.10.1 Sharing via WhatsApp

FIG 10.2 Camera Sharing

The component Sharing is added on the designer page. Sharing is one of a non-visible component that enables sharing files and messages between the app and other apps installed on a device. The component displays a list of the installed apps that can handle the information provided and will allow the user to choose one to share the content with, for instance, a mail app, a social network app, a texting app, and so on. When a victim needs to share the alert on social media, one can share them, as shown in Fig 10.1 using the sharing component. The method share file with the message is known as so that after one presses the sharing button, the alert can be sent to any social media. The camera thing is introduced so that possible send the camera image, as shown in Fig 10.2.

6. Challenges:-

- All the existing systems must be connected to the GPRS service to work properly, hence cannot be used during emergency if there is no internet connectivity.
- There may be no hidden digital camera detector that's transportable to ensure our privacy.
- Monitoring was tedious.
- Mischance in arriving rate
- GPS and GSM reliability: The GPS and GSM device are not dependable. those modules suffers issues in the course of overcast, additionally the GPS is not able to initialize speedy when saved below excessive interior. However if the GPS system locate the location

sometimes the GSM module does not have coverage and hence the messages are not sent to the stored contacts.

- Mobile network: The system sends emergency message to stored contacts but but it might not be beneficial if the receiver cell is out of insurance area.

7. Conclusion:-

From the above survey, we analysed that GPS, GSM and sensor can be used to track only users nearby locations and can only send alert SMS to limited people. In the existing system, there is a buzzer which alerts people when they are in danger, and mobile app ensures the safety of women by using a buzzer system to send alert SMS, the user will share place to their own family members and SOS provider to send the textual content message. So a new system needs to be developed which can send alert messages automatically without human intervention. The accuracy level of detecting violation of women can be improved by sensing more physical human body parameters.

ACKNOWLEDGMENT:-

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