A Survey on Implementation of Reliable Smart Safety System

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Abstract:
In today’s world women’s face a lot of challenges every day and have many issues regarding their security purpose. Today also women’s feel unsafe while getting out from home or travelling at odd hours. Many of the parents feel unsafe to send their daughters for studies and jobs at different localities. Women’s are being restricted in many sectors due to security issues. The counts of the victims are increasing day by day. Women’s Safety hence, has become a very important issue due to rising crimes against women these days. Therefore, there is a need to construct a reliable smart safety system to ensure women’s safety. In this paper, we initiate a model which will help to ensure the safety of women all over the global. The system is being implemented using different sensors like heartbeat sensor, temperature sensor to analyse sudden changes in victim. Mobile applications are being developed for proving the details regarding the nearest helping point also to send alert to the nearest police Department. The GPS and GSM module is being used which will help to detect location of the device and also send alert messages to guardians, relatives and police station. We have proposed IoT (internet of things) based device that will continuously monitor values of different sensors and GPS used in device.

Key Words: IoT, GPS, Sensors.

1. INTRODUCTION

One universal truth which is felicitous to all the countries, cultures and communities, that any kind of misbehavior or violence is assuredly not acceptable, never pardonable and never bearable against women. In today’s world, women safety has become a substantial concern as they can’t step out of their house at odd times due to physical/ sexual assault and a fear of brutality. Even in the 21st century where the technology is swiftly growing and new gadgets were developed but still women’s and girls are facing many problems. We come across many headlines reporting cases of sexual assault, molestation, sexual harassment, rapes, trafficking, abuse of women in houses, ruthlessness against women in remote areas etc. The citizens, have to take up some fundamental duties in order to ensure dignity and respect for women so that she can also enjoy her fundamental rights with sense of pride, freedom and confidence. To ensure this, the society must work together to give a solution. For example, women’s must be provided with devices with latest technology which provides her location using GPS technology to a central control room of police or provide he with the route of nearby helping locations. This paper focuses on a security system that is being designed simply to assist the purpose of providing security to women so that they never feel helpless while facing trouble in any situation. An advanced system that can monitor the location and condition of victim that will allow us to take action accordingly based on electronic gadgets like GPS (Global Positioning System), LCD (Liquid Crystal Display), body temperature sensor, pulse rate sensor and IOT. To precisely detect the real time situation of the women in critical abusive situations we can make use number of sensors. A higher heartbeat of a person in such situations helps to make decisions along with other sensors like temperature sensor which detects the abnormal temperature of the women while she is victimized. In the case of panic situations she can press a button once then the location will be tracked and the information will be sent to police and family members so that she can be saved at proper time.

2. LITERATURE SURVEY

“A Novel Approach to Provide Protection for Women by using Smart Security Device” by K.Seelam Asst.Prof. Department of EIE, K.Prasanti Asst.Prof. Department of EIE, V.R. Siddhartha Engineering College dated 2018. This paper based on safe and secured electronic system for women which comprises of an Arduino controller and different sensors. When the women is in dangerous situation, the device grasp the body parameters like heartbeat rate, change in temperature, the movement of victim by flex sensor, MEMS accelerometer and the victim’s voice is sensed by sound sensor. As soon as the sensor exceeds the threshold limit, the device gets activated and traces the location of the victim with the help of GPS module. The victim’s location is sent to the registered contact number using the GSM module. The sensors which are involved in the proposed system are flex sensor, temperature sensor, MEMS accelerometer, sound sensor, pulse rate sensor. Each sensor is used to detect signals of victim. When the values of any sensor crosses the threshold limit it is indicated that the women is in danger and according to victim condition, the buzzer is activated when 4 sensors out of 5 sensors crosses the threshold. Hence the GPS module transmits the location to the Arduino, then the Arduino transmits the signal to the GSM module. Finally the alert message “I am in danger” along with the latitudinal and longitudinal location is send to the registered contact number. Thus activation of sensor and buzzer traces the location of victim using GPS and with the help of GSM 800L used sends the message of location to the corresponding contacts with a 10secs delay. [1]
“Women Safety Measurement Tracking System Using Raspberry Pi” by R.Meghana, K.G. Rashmi, H.Keerthana, S.Saranya UG Scholar, ECE, Department, RR Institute of Technology, Bangalore. L.Niranjan Asst. Professor, ECE, Department, RR Institute of Technology, Bangalore. In this paper, the proposed belt model will provide Women need to be safe, so they can do this late at night jobs. The proposed model contains various sensors Continuous measurement of different parameters. The Raspberry Pi controller as the primary source for receiving input signals from the sensors so that the sensors receive input signals from threatened or dangerous or abnormal people in case. The sensors used are temperature LM35 sensors, MEMS accelerometers, heartbeat sensors, flexible sensors and acoustic sensors. GSM is used to send an alert message to the registered contact number. Track the location of people (females). The principle behind this is to detect the body parameter signal from the corresponding sensor in contact with the negative in a threat state such that after detecting the signal, the sensor sends an electrical signal to the controller. The Raspberry Pi receives the signal from the sensor as an analog input signal, so it generates output parameters for each sensor. The sensors are used to detect the signal of a person (female) who is in an abnormal situation. If the value of any sensor signal exceeds a threshold limit indicating that the woman is in a threat state and depends on the victim condition, the buzzer is activated when 4 of the 5 sensors exceed the threshold limit.

Therefore, the GPS sends the location to the Raspberry Pi, which then sends the signal to GSM. Finally, the registered contact number will receive the alert message” I am at risk” and the latitude and vertical position. Thus, the activation of the sensor and buzzer uses GPS to track the victim’s location and, with the help of the GSM 800L used, sends the location message to the corresponding contact with a 10 second delay [2]

“The Personal Stun- A Smart Device For Women’s Safety” by Shivani Ahir, Smit Kapadia, Prof. Jigar Chauhan, Prof. Nidhi Sanghavi Bachelor of Engineering Student, Assistant Professor, Universal College of Engineering, Kaman, Mumbai. This paper developed a prototype that is a smart band which gets activated by tapping on the screen twice. Once the device is activated it starts sending the GPS location to the ICE contacts and police control rooms. A Piezo buzzer siren will get activated after 1-2 mins of the actual device getting turned on.

The range of the buzzer is of 80-110 dB which can be heard from a distance of 50 feet long. An electric shock circuit is designed that emits electric current. On the top of the band screen there are two metal points that generates the shock when the two metal points come in contact with any surface or anybody. The device supports a micro usb charging. A smart application has been developed on the android platform which is connected with the device via Bluetooth interface that shows the sensed data of the subject to the ICE contacts. Until the device is turned off it will send the location on the interval of 5 mins and will keep on beeping continuously [3]

“Geographical Information System Based Safe Path Recommender” by Aman Jain, Simran Sharma, Hrishav Kumar, Deepak Parashar, dated on 2019. This paper aims to find and suggest the safest path for women while travelling from one place to another. The system determines the various paths form source to destination, as entered by the user on the map interface, by calculating the danger index.

This index is found on the basis of the crime rate of the grouped locations. The locations are grouped by clustering them on the crime history of that location. The app as a result suggests the best three path in different colours (Green, Red, Yellow)[4].

3. LIST OF HARDWARE AND SOFTWARE USED:

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4. DIFFERENT MODULES USED IN THE SYSTEM:

a) GPS Module – GPS stands for Global Positioning System is a location tracker by which anyone can always obtain the position information. It tracks the exact current location which is in form of longitude and latitude.

b) IoT Module - An IoT module is a small electronic device embedded in objects, and things connected to wireless networks and sends and receive data. IoT has advanced due to merging of different technologies like machine learning, real-time analytics, sensors and embedded systems into computer-based systems which results in accuracy, efficiency.

c) Buzzer - A Buzzer or electronic device which is audio signaling device which may be mechanical, mechanical, electromechanical, or piezoelectric. Typical uses of buzzers includes alarm devices, timers, and confirmation of user input such as a mouse click or keystroke. When the module activates, it continuously gives out siren which helps to grab the attention of the nearby public.

d) LCD - LCD is an acronym used for Liquid Crystal Display. It is basically a display technique in which liquid crystals are used in order to produce an image on the screen. A very common type of LCD module that is used in projects is 16 x 2 LCD module. It displays the values read by sensors.

e) Fingerprint Scanner: Fingerprint scanners are security system of biometrics. They are used to unlock the security applications. It is a type of technology that identifies and authenticates the fingerprints of an individual in order to grant or deny access to particular system.
MODULES USED IN SMART PHONE:

Sensing Unit: The women safety device senses the emergency situation with help of the sensing unit that consists following elements:

a) Temperature Sensor: The temperature sensor keeps a track of women's body temperature and sends the generated analog data to controller. In emergency case body temperature varies drastically which can trigger module for rescue.

b) Pulse rate sensor: It is an integrated optical amplifying and noise eliminating circuit sensor. It takes the reading of heart beat and also monitor it. It gives digital output of heart beat. When heart beat detector is working the led flashes for every heartbeat. To calculate the beats per minute (BPM) rate this digital output will be connected to microcontroller directly

5. CONCLUSION

The main motive of this project is to ensure that every woman around us, in the society feels safe and secure while stepping out at night, travelling on lonely roads, while going to schools, colleges, workplaces, etc. With this real time device, we can solve the problems to an extent. The system perform the real time monitoring and detect the violence with a good accuracy. With further research and innovation, this project can be implemented in different sectors of security and surveillance. This system will help women to overcome the fear of stepping out and pursue their careers and work.

6. REFERENCES


[6].“The Personal Stun- A Smart Device For Women’s Safety”byShivani Ahir, Smit Kapadia, Prof. Jigar Chauhan, Prof. Nidhi Sanghavi Bachelor of Engineering Student, Assistant Professor, Universal College of Engineering, Kaman, Mumbai. Volume 6 Issue