

Smart Women Safety Device using IoT

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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 travelling alone into lonely roads and deserted places. The hand-held safety devices for women require human intervention for activating the device. The work aims at designing an IoT based safety device that relies on providing security to women by fingerprint-based method of connectivity to the device and alerting nearby people and police when a woman is not safe. An unsafe situation is sensed by the device and then it will automatically alert nearby people, parents and police. Additional features such as sending messages, audio recording, capturing the image of the situation are also part of the device.

Keywords—*Arduino, Camera, GPS, GSM, Panic Button, Raspberry pi 3 model B+, Temperature Sensor, Tilt Sensor.*

I INTRODUCTION

In the present scenario ladies stay aware of men inside and out of life, however tragically at the expense of being presented to harassing, viciousness and fierceness out in the open and even in their own homes. They cannot leave their homes whenever of the day they cannot wear garments as indicated by their will and cannot go to work in harmony. There is a shame towards ladies that pulverizes their feelings of opportunity, yet besides, sabotages their trust and dreams. Because of the above factors, it is quite clear that in the country there is a struggling need for women's safety. This paper makes the strength of an insurance gadget that is planned simply to serve the reason for bestowing security to women so they never experience powerless while managing such social requesting circumstances. A propelled framework can be assembled that can help women when they are in harm's way. In this paper, we are using Raspberry pi which is a low cost and can be portable and we using a temperature sensor, GSM, GPS, and Camera module. In our paper using three ways of connecting to the concerned authorities. For women safety and security purpose we made a device which is extremely compact and may be triggered utilizing sufferer just clicking the button and use of temperature and heart rate and voice data which integrated to the raspberry pi.

IoT is arrangement of related sensors, registering and advanced gadgets spread over the globe over the web which can convey among them to share and move data utilizing exceptional id which is relegated to each and each gadget, as UIDs (unique identifiers). With the developing of various business premises and social orders, the concentration to computerize these premises have expanded definitely. The application sends an alert by way of an SMS with the person's location to the configured group through the Global Positioning System (GPS) and the captured picture of the incident is stored in an external remote server. The application also makes a phone call to one of the managed contacts. It can

also be used in case of attempted molestation, accident, family emergency and chain snatching. This application can also be used by a person who witnesses the incident. The users are required to submit personal details such as email id and emergency contact numbers. The users can configure their own list of contacts including close relatives and friends.

The remaining part of the paper has been presented as follows: section II describes the literature survey, section III describes the proposed module of the women safety device, section IV explain the working of the module, section V include the result, Section VI gives the conclusion, followed by references by the end in section VII.

II LITERATURE SURVEY

Islam et al. [1] purposed "Design and Implementation of Women Auspice System by Utilizing GPS and GSM". In this system, they used a GPS module, three pushbuttons, PIC16F887 microcontroller. GPS is used to get to the area of the client quickly. Three press catches are executed to characterize the kinds of a mishap casualty is confronting. At the point when the client faces any issues wherever, it can press any of these three catches. At that point, the microcontroller will get it and send an SMS to the particular telephone number. The area of the client will be constantly followed until the client switch off the framework when saved. What's more, to control the entire framework they have utilized a PIC16F887A microcontroller fueled by four AA batteries.

Muskan et al. [2] Implemented "Women Safety Device Designed using IoT and Machine Learning". This study is going to design a device. For generating alarm, the device is customized to learn the individual pattern of temperature and heart rate and find out the threshold when both temperature and heart rate exceeds above the

threshold it automatically sends SMS and location to emergency contact number to take action.

Navya R Sogi [3] purposed "SMARISA: A Raspberry Pi based Smart Ring for Women Safety using IoT. They have actualized a wearable gadget for ladies as a savvy ring (SMARISA) and contain Raspberry Pi, camera, signal and catch to initiate the administrations and the gadget is very compact and can be enacted by tapping the catch that will bring her present area and catch the picture of aggressor employing Raspberry pi camera and send to the crisis contact number.

A. Priyadarshini [4] suggested "Women Empowerment towards developing India". Women fortifying bases on empowering every woman in the country to make them selfruling in all perspectives as a rule open, to be careful about the rights and cause them to get ready about physical security. This paper centers around portraying the issues that ladies are looking in their day by day life plans accessible for Women Empowerment in India and Self-Help Group which is

effectively running in the province of Tamil Nadu, proposals on Self Help Group for future upgrade and a contextual investigation of Women Empowerment Cell.

D. G. Monisha et al [5]., Proposed a system which contain a location tracking mechanism, it works if the suffered person press a single click it sends a SOS message with current location to pre-set contact of every 2 minutes, if the person clicks a button double times then it records and sends SOS message and also it calls to the pre- set contact numbers when the person pressed a button for a longtime.

III PROPOSED WORK

Our system serves as android phone-based technology to track the culprit with the geographical identification of the incident. The users are required to submit personal details such as email id and emergency contact numbers. The users can configure their own list of contacts including close relatives and friends. At the time of any critical incidents our application will save the women by intimating the nearby police station to rescue her and also it will give information to her family.

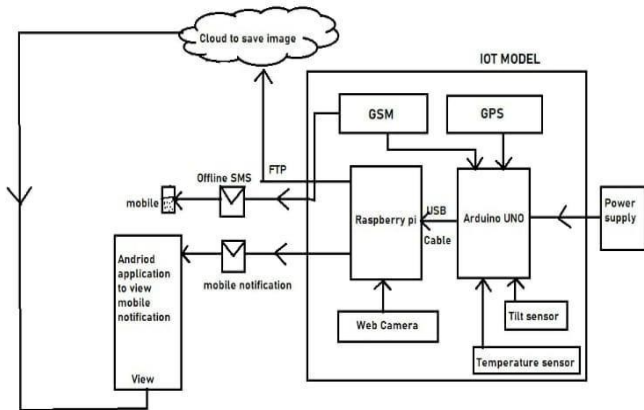


Fig: 1 Block diagram of women safety device

Fig 1 shows the block diagram of proposed work. The system architecture comprises the power supply, Arduino, temperature sensor, raspberry pi module, camera, GPS, GSM, panic button acts as a input to the device.

A. Power supply

This is a 5v Micro USB power connector into which you can plug your compatible device.

B. Arduino UNO

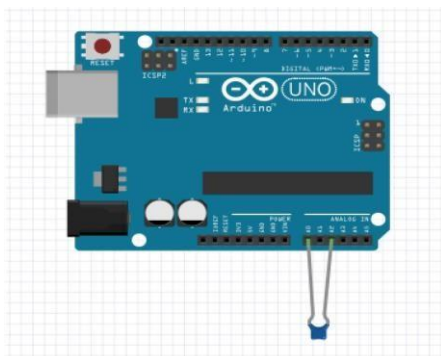


Fig 2 Arduino UNO

Aurdino UNO is a microcontroller which has built in RAM and ROM and built-in memory space. It is used for mobility purpose. It has 14 digital pins and 6 analog pins, power pins section (Vin/Vout is 5V), Crystal Oscillator(16MHz), Register ICatmega328P.DHT11 sensor is used to measure the temperature and humidity of the surrounding area of the water and sends the data to controller.

C. Raspberry pi

.Raspberry Pi is a portable microcontroller supported with latest programming language and support many OS just like depth of machine to perform various process before the data is sent to cloud. It works on less power connection and should be able to create hotspot to nearest Wi-Fi devices. It also accessible or controlled from the remote place. Therefore, it is also called as IOT hub.



Fig 3: Raspberry pi module

D.GSM (Global system for mobile communication)

GSM (Global system for mobile communication) is used to send preset messages to family and police control room. It works with the frequency of 2.4GHz for 4G internet. SIM800 module is used for this type of communication. The GSM module communicates with the microcontroller via UART port, which supports SIMCOM enhance AT Commands. It is a chip or circuit that will be used to establish communication between a device or a computing machine and a GSM or GPRS system.



Fig 4 GSM

E.GPS (Global positioning system)

GPS gives the information about the latitude and longitude of the victim’s location. Here we use SKG13BL GPS module. It is an external type lengthy antenna and operating frequency is 1575MHz and operating voltage is 3-5V. The data synchronization is high in this type of module. NMEA-National Marine Electronics Authority is used to get data from satellites.



Fig 5: GPS

H. Temperature Sensor

The Dallas temperature (DS18B20) is a water proof sensor which is used for sensing ambient temperature and humidity. It consists of sensing temperature knob and mainly has three pins Red-VCC, Black- Ground and Yellow-Data.

F. Web Camera

Web camera is a camera that captures the images and videos through a computer network. These are smaller in size.



Fig 6: Web Camera

G. Panic Button

Panic button is an electronic device which are used in emergency situation to alert someone when the victim is in danger. This device gets activated when an individual call for help. It is a resistive sensor and cannot get stable data



Fig 7: Dallas temperature Sensor

I. Tilt Sensor

A Tilt sensor is a small device which is used to sense the body inclination with respect to reference plane (angle of inclination 0 to 140 degree). When the output of the sensor is high it sends the mobile notification to the emergency numbers



Fig 8: Tilt Sensor

IV WORKING

- The device is turned ON manually by the woman, when switch is pressed in particular abuse.
- The Raspberry pi will get activated when it receives signal from pushbutton.
- It triggers the camera to capture the image and GPS tracks the location and GSM module will sent the image and location will be sent as message to the respective person.
- Here, TTL module will be operated as a bridge for GSM module and GPS. It also shares the data between the GSM and GPS.
- The captured image and location will be sent to emergency contact and emergency mail in your phone and police, via the smart phone.

V RESULT

This section represents the performance of the project model with the use of hardware raspberry pi and to obtain results we are using Embedded C as the programming language with the use of this software we get the outcome of our project.

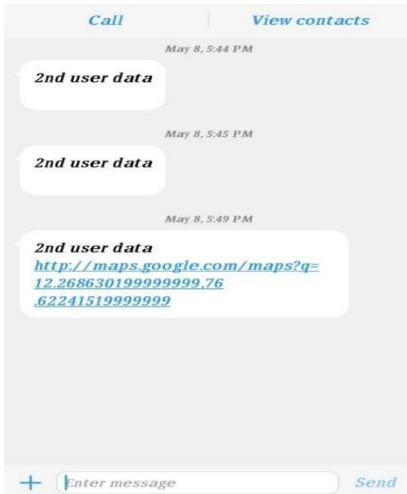


Fig 9: SMS Sending using GSM

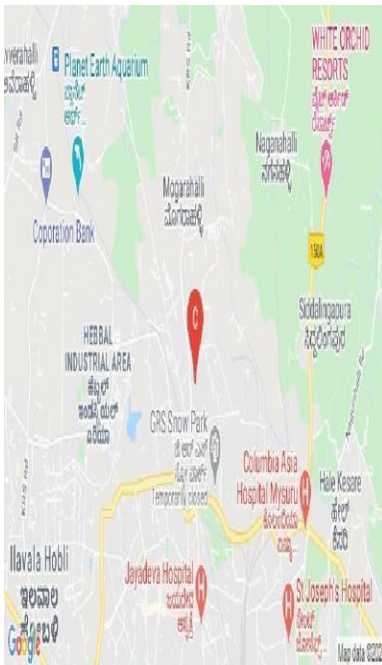


Fig 10: The location of the Victim

VII REFERENCES

- [1] Auspice System by Utilizing GPS and GSM”, International Conference on Electrical, Computer and Communication Engineering (ECCE), 2019, pp. 1-5.
- [2] G C Harikiran, Karthik Menasinkai, Suhas Shirol, “Smart Security Solution for women based on Internet Of Things(IOT)”, International Conference on Electrical, Electronics, and Optimization Technique IEEE-2016.
- [3] Abhijit Paradkar, Deepak Sharma, “All in one Intelligent Safety System for women security”, International Journal of computer applications, Volume 130-No.11, November 2015
- [4] Divya Chitkara, Nipun Sachdeva ; Yash Dev Vashisht, “Design of a women safety device”, 2017 IEEE.
- [5] A.P. Thaware, “Safety device for women’s security using GSM/GPS”, International Journal on Recent and innovation trends in computing and communication, vol.5, issue.4,5-7, 2017
- [6] A.Priyadarshini, R.Thiyagarajan, V.Kumar, T.Radhu, "Women Empowerment towards developing India", IEEE Conference in Humanitarian Technology Conference,21-23 Dec 2016, Agra, India,pp.1-6.
- [7] G C Harikiran, Karthik Menasinkai, Suhas Shirol,“Smart Security Solution for Women based on Internet Of Things(IOT)”, 2016 IEEE, pp.3551-3554.
- [8] Toney G, Jaban F, Puneeth S. et al. Design and implementation of safety arm band for women and children using ARM7. 2015 International Conference on Power and Advanced Control Engineering (ICPACE); Bangalore. 2015 Aug 12-14. p. 300–3.
- [9] Vigneshwari S, Aramudhan M. Social information retrieval based on semantic annotation and hashing upon the multiple ontologies. Indian Journal of Science and Technology.2015 Jan; 8(2):103–7. 5. Chand D, Nayak S, Bhat KS, Parikh

VI CONCLUSION

- The current mechanism are not robust enough to keep women from being criminalized. This project will allow to immediately identify themselves with the authority concerned when she is in danger.
- Our system is a user friendly device which provide the advantages of security purpose for the emergency situation that is helpful for women in critical time.