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WOMEN SAFETY SYSTEM USING GSM AND GPS TRACKING

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Abstract- Women's safety plays a very vital role now a days due to rising crimes against women. To help resolve this issue we propose a GPS based women's safety system that has dual security feature. The proposed system consists of a dual alerts that is buzzer and message is sent through GSM. This system can be turned on by a woman in case she even thinks she would be in trouble. This Project presents a women safety detection system using GPS and GSM modems. The system can be interconnected with the alarm system and alert the neighbours. This detection and messaging system is composed of a GPS receiver, GPS Receiver gets the location information from satellites in the form of latitude and longitude. The user receives the information from GSM which receives the processed information from the Microcontroller. A GSM modem is interfaced to the MCU. The GSM modem sends an SMS to the predefined mobile number. When a woman is in danger and in need of self-defence then she can press the switch, which is allotted to her. By pressing the switch, the entire system will be activated then immediately a SMS will be sent to concern person with location using GSM and GPS.

Keywords: GPS, GSM, Microcontroller, Alarm

I. Introduction

We know that India is a most famous country all over the world for its great tradition and culture. It is the country where women are given most respect in the society from the ancient time. Women are given the place of Goddess Lakshmi in the Indian society. In India women works in many different fields like aeronautics, space, politics, banks, schools, sports, businesses, army, police, etc. All the above said are which we actually see in our daily life however behind this there are many crimes against women at home, offices, streets, factories etc. The safety of women is in doubt due to incidents happened in recent years like rape cases, acid attacks, etc. The mere fact that "Women hold up half the sky"-they are not given a position of dignity and equality.

Technologies used:

Here we used technologies like, GSM technology, GPS technology Arduino software technology

II. Literature review

Children and women are facing many security problems nowadays. So in such cases they feel handicap and need help to protect them. In the light of recent outrage in kopardi which shook the nation and woke us for the safety purpose for women, people are finding up in different technique to defend. Hence there must be a system which can protect them in such difficult situation. This paper suggests a new technology for a women safety with one touch system using GSM & GPS so that women never feel helpless while facing such social problems or challenges. Here we

introduce a device which ensures the protection of women. The problems we have overcome here using raspberry pi, GSM, GPS and force sensor. Anytime when women sense danger only button is to be pressed on the device. In such case GPS tracks the location of the women & sends emergency message using GSM to saved contacts & police control room. The system proven that it is providing complete security to women's and kids wherever we are using it. The Indian women's movement has always raised the issue of- violence against women (which is basically, gender-based violence) and the violence that follows from structural inequalities like caste, poverty or identity. No such city or country is present in the world where women and girls live from free of the fear of violence. No leader can claim: this is not happening in my backyard. Unfortunately, the news has recently come into the notice about the instances of abuse, kidnapping and rape. Schools and universities must compulsory teach the students to learn about physical education and art, schools do not equip students with basic skills of life - especially the safety one. It's necessary for a project that instructs young girls how to defend themselves is immense. This work focuses on a security system that is designed to serve the purpose of providing security to women, while facing such social challenges they never feel helpless. The system consists of various modules such as PIC, GSM, GPS, audio and video recording and force sensors, the system with GSM and GPS interfaced with the PIC microcontroller. Recently many methods were introduced for such application. "One touch alarm system for women's safety using GSM" [1], this system operates with the push button, whenever switch is pressed the current location is send through GSM to receiver side. In this the smartphone is not require like other systems, without smartphones the device operates. Whenever the women feel unsafe, by pressing switch of the device, she can get help. This device can only send the message and received the message. The various problems arise has overcome with the "All in one intelligent safety system for women security" [7], in this mobile application, SOS Key Press Module and Voice Recognition Module. Any one action can be activates the system, which sends the message including the user location to the registered contacts. At the receiver, just by clicking on the location link provided in the message it can show the location on the Google map. "Smart girls security system" [2], is developed using GPS, GSM and pressure sensor. In this, GSM help to find the exact location of incidence and the information of incidence can be conveyed by using GSM through message. In this system the pressure sensor activated if any incidence happened and a screaming alarm blow for asking the help from near by people. The women security system architecture will be introduced in section II. The processing of the system will be described in section III. The advantages of the system is given at section IV. The results and conclusions will be explained in section V and VI.

III. System Model

A. Microcontroller

The microcontroller acts as the brain of the system, coordinating the inputs from sensors and modules and executing programmed tasks. The microcontroller ensures all the system's component work in unison, interpreting and executing commands like reading GPS data,

processing user input triggering an alert via GSM.

B. GPS Module

The GPS (Global Positioning System) module is responsible for acquiring the geographic coordinate (latitude and longitude) of the user. The GPS module provides the critical feature of location tracking, enabling the system to share the user's position during emergencies.

C. GSM Module

The GSM (Global System for Mobile Communications) module enables the system to communicate with emergency contacts via text or calls. The GSM module enables long-range communication, ensuring that the alert reaches predefined contacts or authorities irrespective of the user's location.

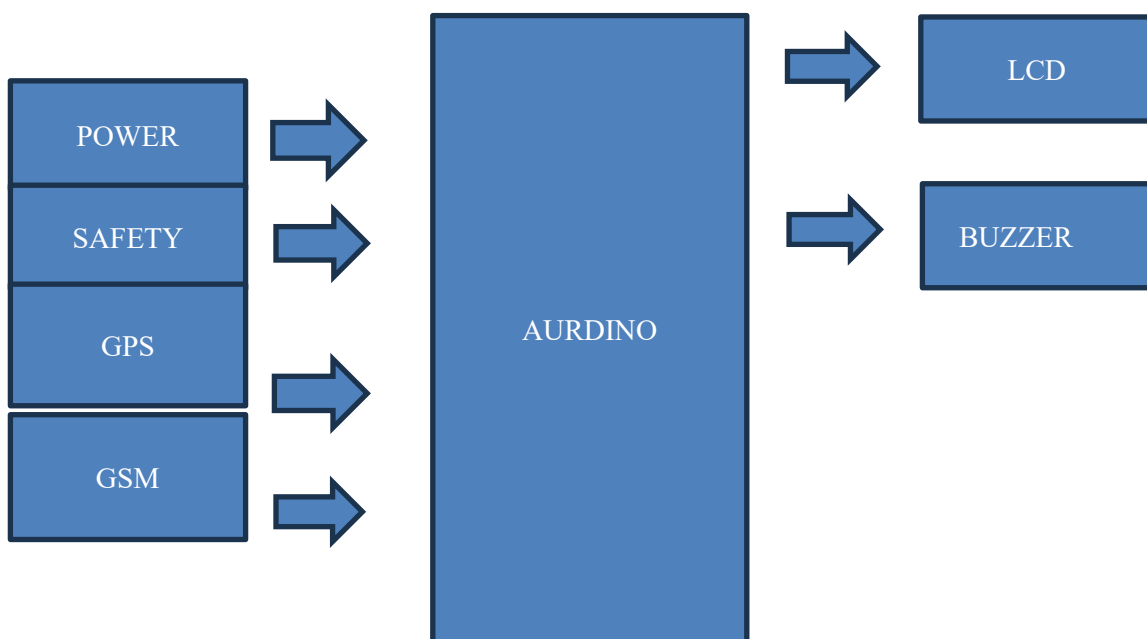


Fig 1: Block diagram of Women Safety System using GPS and GSM Tracking

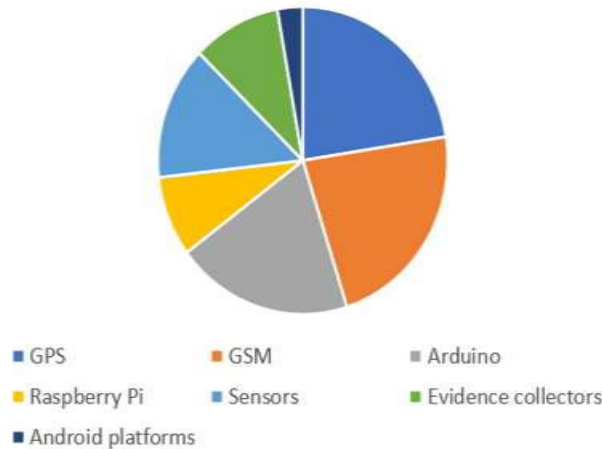
C. LCD

An LCD (Liquid Crystal Display) is an optional but highly useful component in a Women Safety System to display information such as the status of the system, GPS coordinates, or confirmation of an alert sent via GSM.

D. Buzzer

The buzzer provides an audible alarm, attracting nearby help and deterring attackers. The buzzer is an additional layer of safety, especially useful in crowded or noisy environments..

Technology Comparison



Pie chart analysis on Technology comparison

This analysis gives largely on the various systems being used in different safety devices and the components interconnected with it for making it more feasible for an easy adoption.

IV. Result

We observed that Women Safety System using GSM and GPS tracking effectively ensures the safety of users during emergencies. It provides real-time tracking by accurately retrieving the user's geographic location and transmitting it to predefined contacts via SMS or calls. The system is designed for quick activation through a panic button, ensuring immediate alerts are sent. Its compact and portable design makes it suitable for everyday use, offering a reliable solution for personal security. Additionally, optional features like a buzzer for audible alerts enhance its effectiveness by attracting nearby help or deterring attackers. Overall, the system delivers a practical and efficient safety mechanism, empowering users with confidence and protection in critical situations.

Aspect	Before Using GSM & GPS Device	After Using GSM & GPS Device
Location Tracking	No real-time location tracking.	Real-time GPS tracking allows monitoring of the user's location.
Emergency Alerts	No instant alerts available for emergency situations.	Immediate alerts can be sent to family, friends, or authorities.
Response Time in Emergencies	Delayed due to lack of quick communication channels.	Faster response time due to instant notification and tracking.
Communication	Limited to basic communication(e.g., phone calls).	Quick access to emergency contacts via SMS, voice call, or

		app alerts.
Ease of Use	No specialized tools for emergency situations.	Simple to use, with emergency buttons for immediate help.
Privacy & Security	Vulnerable to non-secure communication, no privacy protection .	Secure communication using encrypted data, ensuring privacy.
Tracking by Authorities	Difficult to track without constant communication.	Authorities can track the user's movements in real-time, enhancing security.
Battery Life	Standard phone battery life may not last long in emergencies.	Devices designed for safety often have longer battery life or low-battery alerts.
Coverage	Coverage limited to network areas; often unreliable in remote areas.	GSM & GPS devices provide broader coverage, even in remote or rural areas.
Psychological Impact	High anxiety, especially in isolated areas or unfamiliar places.	Increased confidence and peace of mind knowing help is always accessible.

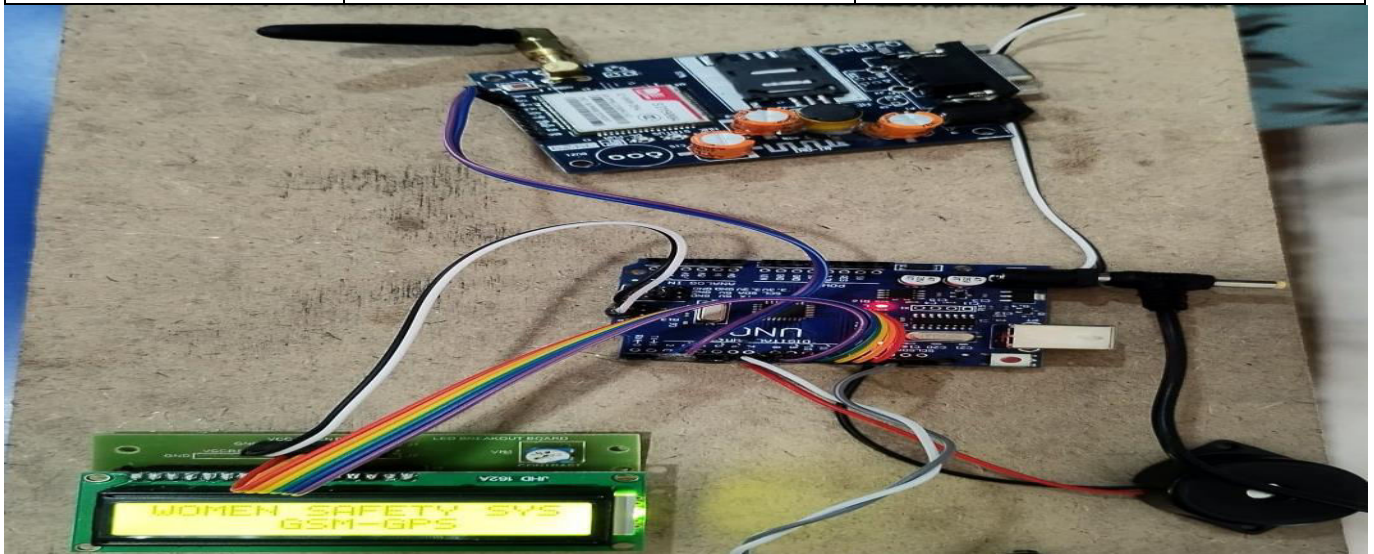


Fig 2:Kit and the process of women safety system using GSM and GPS tracking

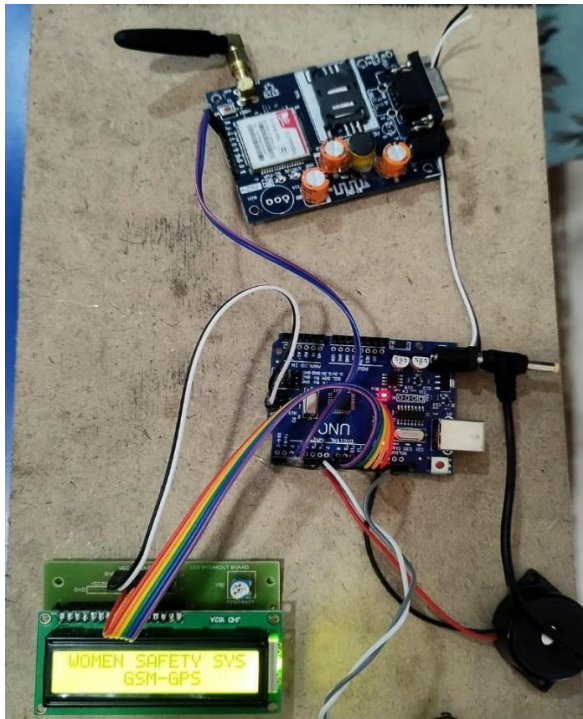


Fig3:(Initialization)

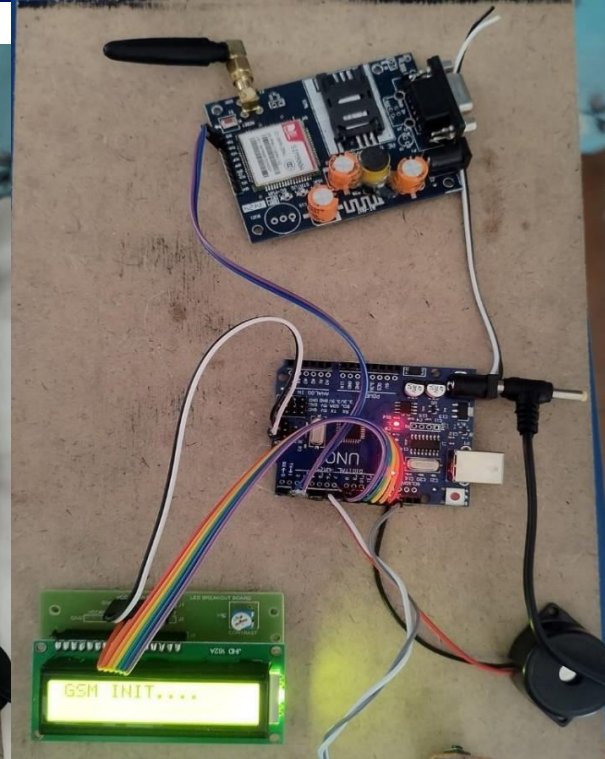


Fig4:(GSM initialized and sent SMS)

V. Conclusion

Now a day's being safe and secure is very important for women. Our main aim of this project is to design a system which is very easy to handle and provide personal security system. This design will deal with most of the critical issues faced by women and will help them to be secure. Existing systems provide the safety by using the internet connection through apps in the android mobiles and tracking the vehicle this type of security mechanism is very difficult to use. The proposed system will provide the latitude and longitude values of location of the victim which can further be tracked using Google maps. By using this system we can reduce the crime rate against the women. Women's security is a critical issue in current situation. The crimes can be reduced with the help of real time implementation of our proposed system.

References

1. <https://www.huffingtonpost.in>
2. <https://meta.wikimedia.org>
3. Premkumar.P, CibiChakkaravarthi.R, Keerthan.M, Ravivarma.R, Sharmila.T, "One touch alarm system for women's safety using GSM", International Journal of Science,
4. Prof. Basavaraj Chougula, Archana Naik, Monika Monu, PriyaPatilAndPriyanka Das "Smart Girls Security System", international journal of application or innovation in engineering&

management (ijaiem).

5.Nishant Bhardwaj and Nitish Aggarwal, “Design and Development of “Suraksha” A Women Safety Device”, International journal of information & computation technology

6.Poonam Bhilare¹ ,Akshay Mohite² , Dhanashri Kamble³ , Swapnil Makode⁴ and Rasika Kahane⁵ Women Employee Security

System using GPS And GSM Based Vehicle Tracking INTERNATIONAL JOURNAL FOR RESEARCH IN EMERGING SCIENCE

AND TECHNOLOGY, VOLUME-2, ISSUE-1, JANUARY-2015

7.Prof. Rupali Mahajan, SAYALI A. LAVHATE, SAYALEE P. WAGHMARE, PRERANA K. PINGALE A Survey on Women's

Security System Using GPS and GSM INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH IN COMPUTER AND

COMMUNICATION ENGINEERING volume 5 issue 2 feb-2017

8.Ms.Sonali S. Kumbhar¹, Ms.Sonal K.Jadhav², Ms. Prajakta A.Nalawade³ ,Ms. Tamanna Y.Mutawalli⁴ WOMEN SECURITY

SYSTEM USING GSM AND GPS International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056 Volume:

05 Issue: 03 | Mar-2018 www.irjet.net p-ISSN: 2395-0072

9.Mohamad Zi kriya, Parmeshwar M G , Shanmukayya R Math, Shraddha Tankasali , Dr.Jayashree D Malapur “ Smart Gadget for

Women Safety using IoT”, International Journal of Engineering Research & Technology, ISSN: 2278-0181, 2018

10.Remya E K , Dr. N. Revathy ‘One Touch Alarm System for Women’s Safety using GSM’ IJARIT, Volume 4, Issue 2, 2018.