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Women Safety System Using ARM Micro controller and Arduino

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ABSTRACT

This abstract presents a comprehensive women's safety device leveraging modern technology for effective emergency response. The device integrates various components including the Neo6M GPS module, module, Arduino Nano microcontroller, push button for emergency alert, , pulse oximeter MAX30100, and temperature sensor LM35. The Arduino Nano serves as the central processing unit, orchestrating data collection, processing, and transmission.Incorporating a Python Flask WebApp and ThingSpeak platform, the device ensures real-time alerts and cloud storage capabilities.

The Flask WebApp facilitates user interaction and customization, enabling users to set preferences and receive notifications. ThingSpeak enables seamless data logging and retrieval from the cloud, ensuring data integrity and accessibility.Upon activation, the device initiates location tracking via the GPS module and triggers an emergency alert through the module. Simultaneously, vital signs such as pulse rate and temperature are monitored using the MAX30100 pulse oximeter and LM35 temperature sensor respectively. These data are transmitted to the Flask WebApp and ThingSpeak platform for real-time monitoring and alert generation.This innovative solution aims to provide women with a reliable, multifunctional safety device capable of prompt emergency response and continuous monitoring, ultimately enhancing their safety and well-being in various settings.

Key Words: Safety system, ARM micro-controller, Arduino, GPS, Alerting, Web-Application.

1. INTRODUCTION

In Indian society women are given the position of Lakshmi. Indian women are seen working in space, politics, banking sector, schools, sports, business, military, police, aviation and many other fields. We cannot say that this country is not concerned about women, but we cannot ignore the positive things that India has for women. If we remember our history, the woman in Mahabharata Panchali (Draupadi) was allowed to marry five men (Pandavas), Kauravas tried to oppress her and Sita was abducted by Ravana in Ramayana, but if we look behind the curtain, we see crimes against women at home, office, street, everywhere. As will be seen, some crimes against women in India such as rape incidents, acid attacks etc. Seeing this, doubts have arisen about the safety of women. Women's safety whether at home, outside or at work.

Ensuring the safety of women has become an increasingly urgent issue in today's society. With the advent of technology, innovative solutions are emerging to address this concern effectively. One such solution is a comprehensive women safety device integrating various modules and technologies to provide immediate assistance in emergency situations.

At its core, this device utilizes cutting-edge components such as the Neo6M GPS module, module, Arduino Nano microcontroller, and a push button for emergency alert activation. The Neo6M GPS module enables accurate location tracking, allowing quick response teams or authorities to pinpoint the exact whereabouts of the user in distress. Meanwhile, the module facilitates communication by enabling the device to send SMS alerts or make calls to predefined emergency contacts.

In addition to location tracking and communication capabilities, the device incorporates advanced features to enhance safety further. A provides audible alerts to nearby individuals, drawing attention to the emergency situation. A pulse oximeter (MAX30100) and a temperature sensor (LM35) add health monitoring functionality, enabling the device to detect vital signs and anomalies in real-time. This ensures that medical assistance can be promptly dispatched if necessary.

1.1 MOTIVATION

Nowadays, women’s safety has become the most critical issue of the times. It has been one of the most important, undisputed concepts and policies of any civilized society for centuries. Denial of basic rights to security, freedom to practice as they wish, personal decision, sexual and physical empowerment are not new issues. But, unfortunately, these are some of the problems that have not been managed in a way that can be eradicated even in recent times.

Countless people are crying for you to find better ways to ensure women's safety and make things easier and more convenient for them. Finally, it looks like people are starting to figure it out and the developers will have something. Studies show that around 61% of women

regularly take necessary steps to prevent sexual harassment in their daily lives.

With the advancement in science and technology, we are happy that the idea of women safety apps has been developed in the market to ensure that women in general are completely safe. Thus, if you are planning to hire a top application development agency to guide you in developing women safety apps, it is better to start now. Here in this article, we have included almost all information related to women safety apps.

1.2 RESEARCH CONTRIBUTION

Some of the major research contributions:

1.Sexual Harassment :Sexual harassment is defined as 'unwelcome behaviours of a sexual nature that inclused physical contact, sexually coloured remarks, a demand or request for sexual favours, showing pornography and any other unpleasant physical, verbal or non-verbal conduct of a sexual nature.

2. Public Place:A public place is defined as 'an area either indoors or outdoors, either publicly or privately owned to which the public have access by right, invitation or through payment , but not a place when used exclusively by one or more individuals for a private gathering or other personal purpose.

***2.* Literature Review/ Related Work/ Related Study**

B.Vijayalakshmi in proposed a scheme to improve the women safety by using GPS and gsm model. A small device with a and microcontroller is designed, and it can be placed on band or watch. When any insecure situation, the woman can make use of this device to send alert SMS by pressing this to predefined numbers(5 members). But this scheme cannot generate automatic alert SMS. Instead, it requires the human interaction during a panic situation.[1]

Rameshkumar.P in described a scheme to identify the location of the individuals by using image metadata. A device GPS mapper is used to identify the location of a person using image and video by utilizing background metadata. With the help of GPS mapper, it can identify the altitude, longitude and position of a person who has uploaded their images to social media. But this scheme cannot generate the image of a person who has not uploaded the image in the social media.[2]

Charranzhou in proposed a mechanism to find the trip ends while travelling or not - travelling by using the smartphones based on GPS tracking system. The author modelled a device using PR (Promoted Recall)technology and data-driven machine language to find the speed, distance, heading direction. These features are used to characterize the smart phone holders and identify the travel point identification. The author has tested PR technology in the random forest and accurately tracked the distance of trip ends This scheme will take many days to find the location of trip ends.[3]

Jakuryamaekawa in proposed a scheme to determine user's current location preference using user's coordinate point, user's location information is disclosed to external providers even if this is not user's wish. A local Wi-Fi network is used to detect a user's location privacy preference. This enables to save energy and protect a user's private location. The disadvantage is Wi-Fi won't be available at everywhere and will be limited in space.[4] Humgnguyen in developed the system called ambulatory based on the inertial sensor to observe and detect the person's behaviour in daily life with PD (Parkinson disease) and facilitate early treatment. It will identify the disease in short time. From the free environment, observe the disease and take treatment. The limitations of measuring the device will be fixed in objects. If the person away from the object can't be predicted.[5]

Ignore in proposed a scheme to determine Discovery Of Global And Original stir Changes In mortal Crowds which may arise in sporting events, function etc. A Groups Are Detected Grounded on position, haste and tracked the time using association algorithm. The geste changes of people can be detected by using holistic approaches and videotape surveillance by representing in the 2D histogram. But it can not be suitable to descry the movements changes in mortal crowds in 3D histogram representation.(6)

Dawei fan in proposed a scheme to monitor, record, analyse the person psychological, the behaviour characteristics of a person and environmental change in indoor and outdoor actions. A wireless sensor device is used to analyse the data. The information of body area network obtained from the wireless sensor is stored in Sdcard. It is mainly designed to check the behaviour changes of humanbody diseases such as chronic disease and other health conditions. Hence it will improve the healthcare and quality of life.[7]

JG Lourens in has formulated a technique to Detect and logging advertisements using its sound. The technology uses Pattern matching approach and Time warping sensitivity for detecting the sound of each advertisement played in radio frequency. Once the correlation between the broadcasted advertisement and signature formulated has been determined, this correlation value has been compared to a threshold to find matching advertisements. The performance of the system is based on the false alarm and miss rate of each sound frequency.[8]

HasmahMansor in proposed a scheme for measuring Body Temperature using Remote Health MonitoringSystem.A device temperature detector and the wireless detector is used for measuring body temperature and heart rate. The temperature detectors will shoot the readings to a microcontroller using XBee wireless communication. To shoot the real- time data to health monitoring database, wireless original area network(WLAN) has been used. Arduino with Ethernet guard grounded on IEEE802.11 standard has been used for this purpose. Test results from a group of voluntary shows the

real- time temperature reading successfully covered locally(at home) and ever(at croaker 's computer), and the readings are similar to the marketable thermometer.[9]

Yanbozhao in proposed a wireless home security system with low cost, low power consumption. The system contains a GSM/GPRS gateway and three kinds of wireless security sensor nodes - door security nodes, infrared security nodes and fire alarm nodes. The nodes are easy for installing. The system can respond rapidly to alarm incidents and has a friendly user interface including an LCD (Liquid Crystal Display) and a capacitive sensor keyboard. The wireless communication protocol between the gateway and the nodes is also suitable for other home appliances.[10]

Mr.Amar Saraswat in proposed a model to sense the heart beat and body temperature using Arduino .LM35 is used for the sensing the body temperature which is a basic parameter for monitoring and diagnosing human health. Heart beat sensor was used for sensing heart rate. This device will allow one to measure their mean arterial pressure (MAP) in about one minute and the accurate body temperature will be displayed on the Android. Though the system can be used to measure physiological parameters, such as Heart rate (Systolic and Diastolic), Pulse rate, It is not possible for a doctor to observe a patient's heart rate per minute and body temperature all the time.[11]

A.H.Ansari in proposed 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. A device using raspberry pi, GSM, GPS and force sensor ensures the protection of women. Anytime when women sense the danger situation the only button is to be pressed on the device. In such case, GPS tracks the location of the women & sends an emergency message using GSM to saved contacts & police control room.[12]

Women's Security : It is a mobile web application developed for women safety, the user has to save their email address, message to be sent and recipient numbers, this app is initialised in the domestic screen, when ladies touch the app, it consequently starts a benefit that records sound of the environment for seconds and sends it along with the mobile location to the recipient numbers, if the network coverage is not available, it used SOS service to send text message.[13]

Safetipin: It is a personal app for safety that helps user to take safer decisions, a safety score is provided for each area , based on the safety score of an area. The location is termed as safe or unsafe. When user enters an unsafe location, it alerts them to a warning message, as long as the application is in the background, a user can also invite their friend and family to track their location. This app also provides alternate route to the destination; the user can check the safety and choose the route based on it.[14]

Life360 It's a family locator mobile operation enables the stoner to partake position with their family members. The stoner can produce a group with their musketeers and family members; it warn the stoner when the group members come near them, this app also helps in exigency situations for girls when they're in peril situation, it sends the position to the group members.[15]

Vithu: This mobile web application is used to alert the women's guardians when she is in danger by pressing the button for twice, this process initiates a cycle that sends the location of the mobile to the created contacts for every 2 minutes. The location is sent in SMS(short message service). This application also provides updates of crime scene happened in India with tips feed; those updates can also be done by the user of this application.[16]

2.1 RESEARCH FINDING/GAP:

From the literature presented above, we can see that while the issue of the safety of women in public places has been studied in India, these studies have looked at either the metros or rural areas. There is very little literature apart from newspaper reports that discuss safety in public places in Tier II cities like Delhi, Uttar Pradesh, Patna and many more in india.The kind of information that the research seeks to uncover would not only generate new knowledge but also enable a comprehensive understanding of the issue as understood in different parts of the country. There is also the issue of the differences in lived experiences of different people and the state of affairs differ from region to region. As such while the problem may be universal, the solutions to the problems cannot be. To come up with suitable policy and infrastructural solutions to this deeply rooted problem, there is a need to understand the problem as it exists in a certain space. In India there is the increase complexity of changing cultures and social mores from region to region. In this context there is a need to build the knowledge base of existing data to efficiently address the problem.

Research questions

The paper asks primarily the following questions:

1. What is the perception of safety in public places?

2. Which are the groups which are considered vulnerable due to lack of safety?

3. What is the perception and experience of sexual harassment in public places?

4. What are the causes, impact and solution to sexual harassment in public places?

Findings

The paper questionnaire generated for the purpose of data collection was thematically structured And findings will also be presented under these thematic areas.

Perception of public safety

This section looks at the conclusions generated on the areas considered, on the perceived levels of security Unsafe, reasons for place being unsafe, unsafe means of transportation and safety concerns people have.

First, when asked how safe they felt in their city, most people said the city was somewhat insecure (45.45%) and some (34.55%) felt somewhat safe. Only 5 percent said so was completely safe and 15% said it was completely unsafe. The night time after dusk was considered the most vulnerable time of the day. Few people to Felt unsafe in the morning and afternoon. Reasons for lack of security included lack of Visible/effective guards, lack of respect for women, crowded places and men in states Alcoholism was most commonly put forward. According to the data collected, the most vulnerable places are roadsides 40% responsive roads. Other places like parks, bus stands and railways Stations were also commonly mentioned. Sexual harassment was the most commonly cited security concern followed by theft and Sexual assault. Buses are seen as the most vulnerable followed closely by autos. However, the reasons It is too little to be vulnerable. Autos are most vulnerable due to high chances of Sexual harassment, buses are most vulnerable due to their overcrowding. When crowded Autos are also bad, things like theft in buses are more likely when in autos, Long periods of time and lack of personal autonomy increase the chances of sexual harassment Choosing a place to land.

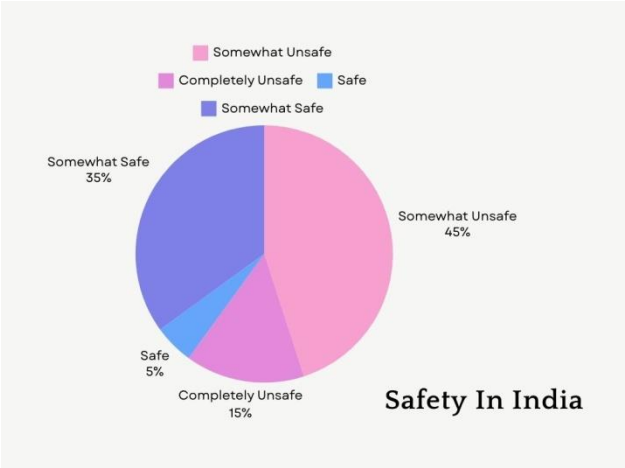


Fig.1: How safe is India?

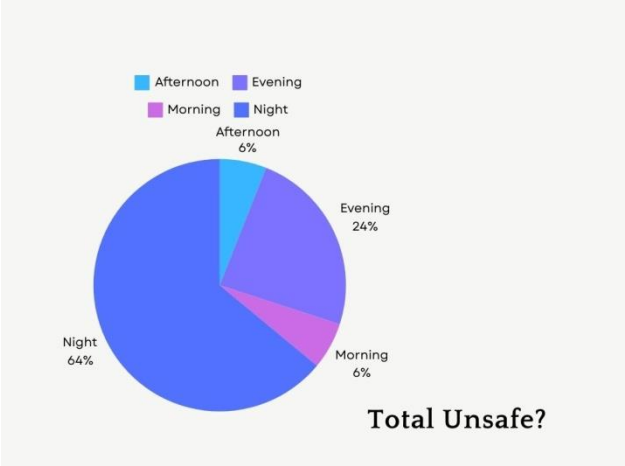


Fig.2: What time is unsafe?

Vulnerable Groups

The difference in vulnerability depends on age, sex, economic status and various other factors. The paper has looked at these three indices and tried to identify which groups are most vulnerable to lack of safety. In terms of sex, both men and women agree that women are more vulnerable to lack of safety than men and a few also think that both are vulnerable. The percentage of women who think there is a danger to both men and women is higher than men who think women are more vulnerable. The most common reason cited by both men and women for the lack of safety for women is due to the fact that they are physically weaker. More men than women think this however. Another important factor for men is the fact that women are moving alone. More women said that it is the domination of men in society that make it unsafe for women in public places. Both men and women agreed that women were seen as easy targets and that they were not respected.

Perception and Experience of Sexual Harassment

The idea of sexual harassment had to be conveyed to the respondents in the local language. As such the definition of sexual harassment was already provided. The term sexual harassment in English would evoke ideas of violent and physical assault on women. As such the terms ‘chhed chhad’ or ‘chhedkhani’ wee used. Even so many respondents did not see the visual aspects of harassment as leering, staring as sexual harassment as it has become so internalised that it has become a part of the everyday lives of both men and women. It has become a new social more as it is assumed that men will stare and that women should ignore these instances. Most people thought that it was women who were victims of sexual harassment (85.45%) while the remaining (14.55%) thought that both men and women could be victims of sexual harassment. Most of those who answered that it could be both were men. Women almost unequivocally stated that they’d never heard of a man being sexually harassed. Even when a woman said yes, it was mostly because they were looking at sexual crimes on young children of both

genders. There was a very slight variation when it came to the perpetrators of sexual harassment. There as a 2% drop when it came to naming males as perpetrators as men said that even women if they got the chance and opportunity harassed men. This finding is corroborated with the information gathered from informal discussions with students of the india Women's College who admitted to doing this within their campus. It is however important to note that this is a very small percentage compared to men. Also women mostly indulged in these when they were within what they considered secure spaces of their own like a Women's college campus, an all-women's gathering etc.

On the question of how common sexual harassment was in India, answers varied between Very common and Not Very common. More than 50% of the respondents said that it was very common, the next 20% saw it as fairly common. The remaining found it to be a rare occurrence. The difference in responses seemed to point towards a class bias. Those who had certain means of ensuring safety for themselves experienced or observed fewer incidences of sexual harassment compared to those that didn't. There was also a certain age difference in 0.00% 10.00% 20.00% 30.00% 40.00% 50.00% 60.00% 70.00% 80.00% 90.00% 100.00% All divorced unmarried widowed Female Male 17 the responses where the younger respondents who were either school or college going students insisted in the pervasiveness of the phenomena while an older age group of people saw it as less common.

35% of those that experience sexual harassment said that it had happened more than 5 times in the past year while 30 percent said that it was between 2-5 times. 9 percent women said that they face sexual harassment in the public every day while 26 percent had experienced it at least once in the past year.

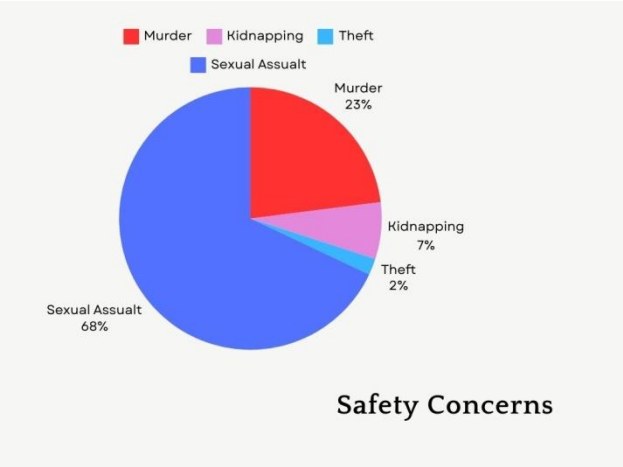


Fig.3: What are the concerns you have at these places?

Causes, Impact and Solutions of Sexual Harassment

While the respondents gave various reasons for why people indulged in sexual harassment in public places – four most commonly cited reasons included poor upbringing and lack of social values, the lack of any fear of repercussion, lack of respect for women and for fun. These together accounted for almost half of the reason cited by the respondents. People also saw illiteracy and unemployment as big factors for the incidences of sexual harassment. The idea that the 'joblessness 'and the lack of purpose in the lives of young men was seen as crucial to the existence of these problems. Few also identified the increasing modernisation of the way women dressed as a reason for the increase in sexual crimes. What the respondents didn't question were existing structures of society. While lack of respect for women was considered the reason for the existence of lack of respect was not. There was a marked difference in the responses of different age groups with those in the younger age group answered that it was for fun, to show off, older respondents pointed to the way women dressed, the timid nature of women, and the mentally sick attitudes of those who partake in such activities.

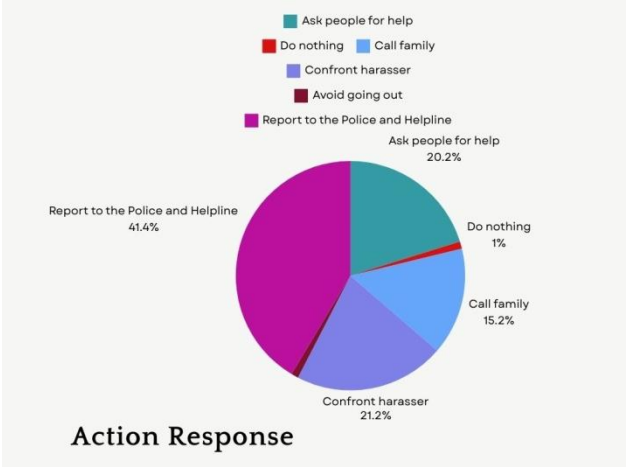


Fig.4: Ideal Action

3. Proposed System / Proposed Methodology / Method.

The proposed methodology for the development of the Women Safety Device integrating various components including Neo6M GPS, Module, Arduino Nano Microcontroller, Push Button for Emergency Alert, , Pulse Oximeter MAX30100, and Temperature Sensor LM35, along with Python Flask WebApp and ThingSpeak for real-time alerts and cloud storage, entails a systematic approach to ensure functionality, reliability, and user-friendliness.

The development process will commence with a thorough understanding of the requirements and specifications of the Women Safety Device. This will involve comprehensive research into existing solutions, user needs analysis, and technical feasibility assessment. Once the requirements are defined, the hardware and software components will be selected based on factors such as compatibility, performance, and cost-effectiveness.

The hardware integration will involve connecting and configuring the Neo6M GPS module, Module for GSM communication, Arduino Nano Microcontroller to control

various sensors and actuators, Push Button for triggering emergency alerts, for audible notifications, Pulse Oximeter MAX30100 for monitoring vital signs, and Temperature Sensor LM35 for environmental sensing. Careful attention will be given to wiring, power management, and component placement to ensure optimal functionality and reliability.

On the software front, the Arduino firmware will be developed to interface with the hardware components, process sensor data, and handle emergency alerts triggered by the user. Python Flask will be utilized to develop a web application for configuring device settings, viewing real-time data, and managing alerts. Integration with ThingSpeak will enable cloud storage of sensor data and facilitate real-time alerts via email or SMS.

The development process will follow an iterative approach, with regular testing and validation to ensure that each component functions as intended and integrates seamlessly with the overall system. User feedback will be solicited at various stages to incorporate usability improvements and address any concerns or issues.

Once the hardware and software components are integrated and tested successfully, extensive field trials will be conducted to evaluate the device's performance in real-world scenarios. This will involve testing various functionalities such as GPS tracking, emergency alert triggering, vital sign monitoring, and data transmission to the cloud platform.

Throughout the development process, emphasis will be placed on ensuring the safety, privacy, and security of the end user. Measures such as data encryption, secure communication protocols, and robust authentication mechanisms will be implemented to safeguard sensitive information and prevent unauthorized access. In conclusion, the proposed methodology provides a structured approach to the development of a Women Safety Device that leverages advanced hardware components, software technologies, and cloud-based services to enhance safety and security for users. By following this methodology, we aim to deliver a reliable, user-friendly, and effective solution that addresses the pressing need for women's safety in today's society.

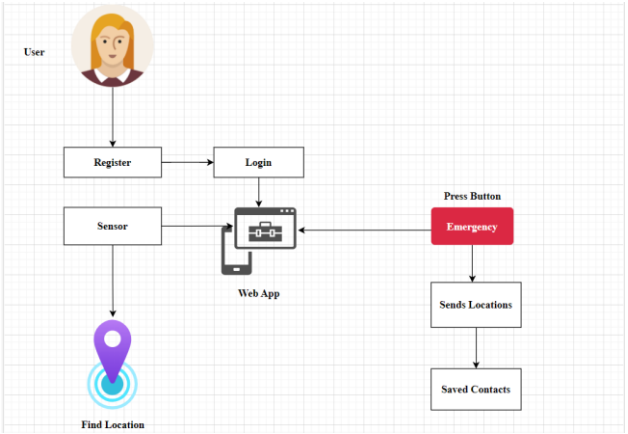


Fig.5: System Architecture of Women safety system

The following diagram shows the architecture of the proposed system m we here designed equipment for alerting the system. In this project we here used the ARM micro-controller and Arduino nano microcontroller for the controlling the whole process of the system. The GSM is used to send SMS regarding GPS locations. is for displaying and switch is pressed when the person is in danger. Here we are adding switch which will activate when the women press the Emergency button.

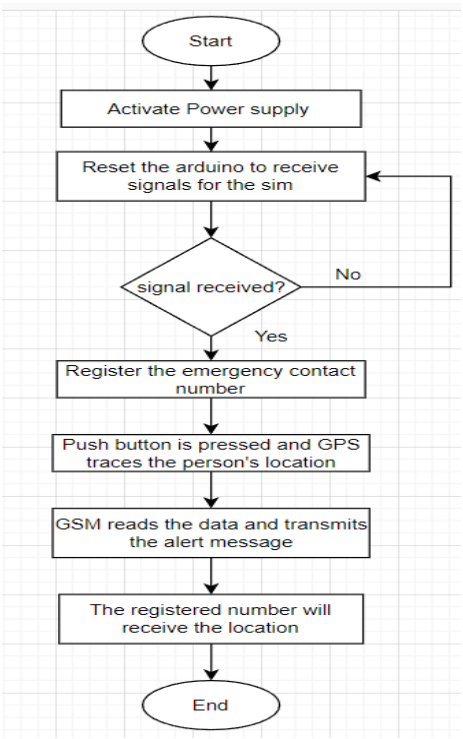


Fig.6: Flow Chart of Women safety system

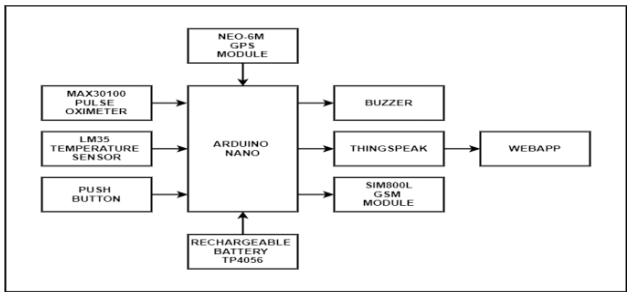


Fig.7: Block Diagram of Women safety system

3.1 Implementation Method

Ensuring women's safety is paramount in today's society, and the integration of advanced technology offers innovative solutions. One such solution is a comprehensive Women Safety Device designed to

provide real-time assistance and support during emergencies.

At the core of this device is the Arduino Nano microcontroller, which serves as the central processing unit. The device utilizes a Neo6M GPS module to accurately determine the user's location, essential for emergency response. The module enables communication via SMS or calls to pre-configured emergency contacts.

In case of an emergency, a push button is readily accessible for the user to trigger an alert. Upon activation, a emits a loud sound to attract nearby attention, increasing the chances of timely intervention. Additionally, a pulse oximeter (MAX30100) and a temperature sensor (LM35) provide vital health data,

The device incorporates Python Flask WebApp for seamless integration with ThingSpeak, facilitating real-time data transmission and cloud storage. ThingSpeak enables the monitoring of sensor data and triggers alerts based on predefined thresholds. This integration ensures that relevant information is securely stored and accessible for analysis or emergency response purposes.

The user interface of the Python Flask WebApp provides an intuitive platform for users to configure emergency contacts, set alert thresholds, and monitor real-time data. In case of an emergency, the WebApp sends immediate alerts to predefined contacts via SMS or email, along with the user's location coordinates.

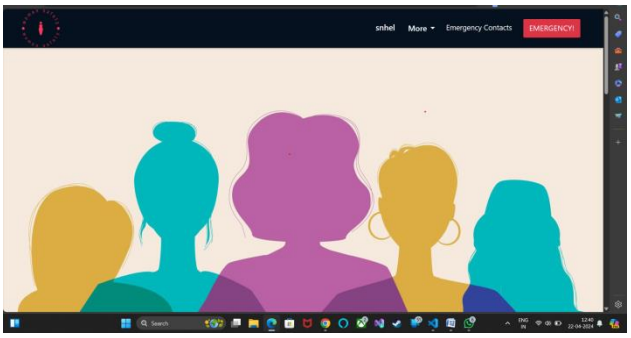
Overall, this Women Safety Device harnesses the power of advanced technology to offer a comprehensive safety solution. By combining GPS tracking, communication capabilities, health monitoring, and real-time alerting, it empowers women to navigate their surroundings with confidence and peace of mind.

4. Result and Discussion

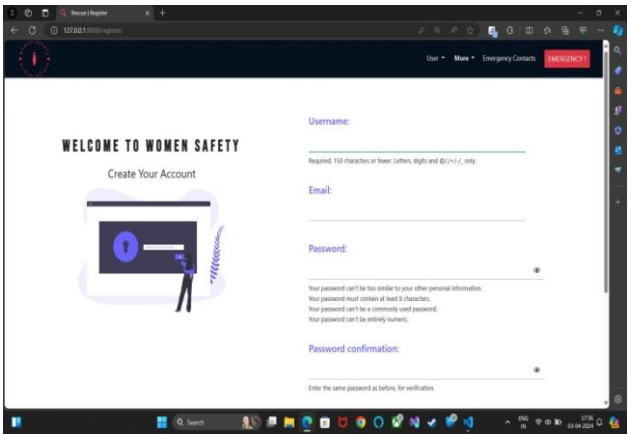
The part of the paper deal with the levels of awareness among people about the recourses that an individual can take up in cases of sexual harassment. As such questions were asked about the legal status of sexual harassment in public places, existence of awareness programmes and the programmes in place to tackle sexual harassment in public places. The most common response to the question of the ideal action to be taken was to report to the police and to confront the perpetrator. These responses indicated at what people thought women should do when faced with a situation of sexual harassment. However, information received from informal discussion with members of the women's helpline indicated that reportage was very low and even when there was reportage, women feared to file FIRs for fear of reputation and also the hassle of police related work.

This paper, "Women Safety System Using ARM and Web application" is successful in providing safety to women when she is in danger situation, and this system would work in two ways. By pressing the Emergency button. And sends alert message to her saved contacts.

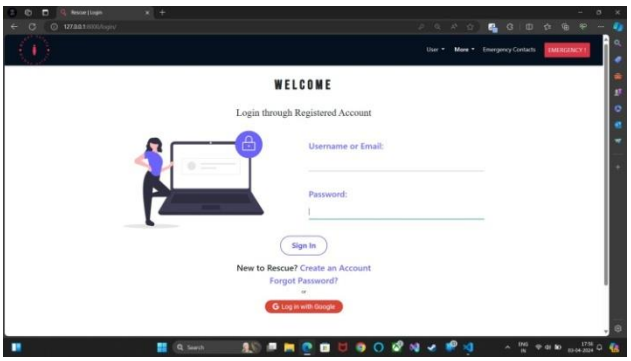
Here are the screenshots of our project.



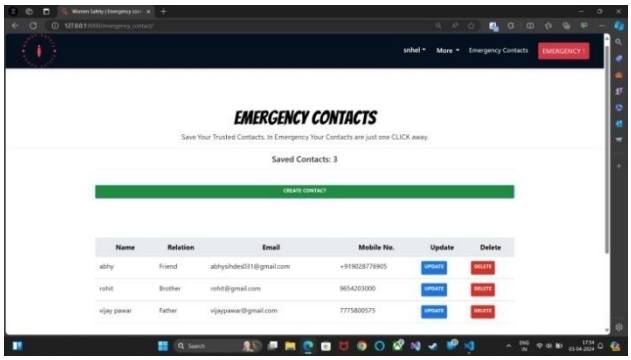
A] This is the homepage of our project where we can choose register and login.



B] This is the Registration page of our project where the user can register themselves.

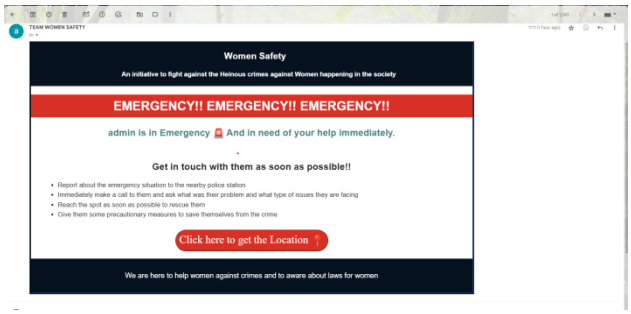


C] This is the Login page of our project where the user can login through registered account.

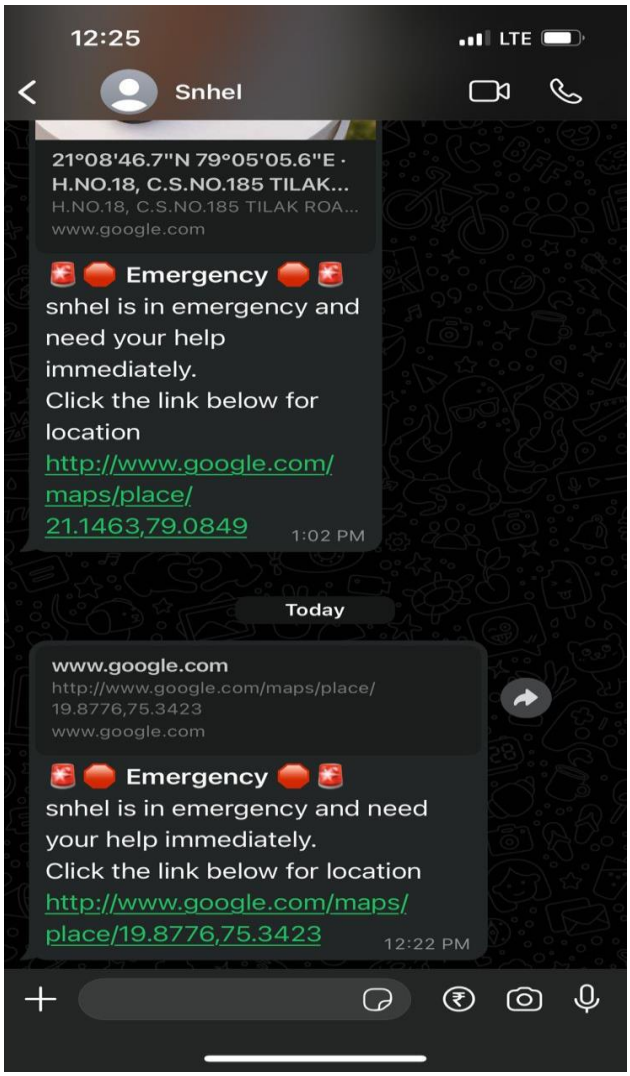


D] Screen when the User created emergency contacts.

E] Screen when the user in danger situation, it monitoring vital signs of users



F] Screen when the User press the emergency button, and sends her location to her saved mail



G] Screen when the User press the emergency button, and sends her location to her saved whatsapp contacts.

5. Comparative Analysis / Discussion

The study shows that sexual harassment in public places is a deeply rooted problem that has become normalised in the society. The onus is put on women for their safety while men are left loose to prey on vulnerable women as they step out to work, gain education or entertain themselves. Women feel unsafe and the population in general fees that it is unsafe for women out in the open. The mobility of women is restricted and only the daylight hours are available for women to move around freely with a certain sense of safety. In everyday functions of travel women face physical, verbal and visual harassment. Most of these women either do not retaliate or even if they do they do not report for fear of intensification of violence and the depreciation of their social value. Women deal with unwanted attention mostly by ignoring such overtures as they fear that any response could also be misconstrued as an invitation or flirting. Women are psychologically impacted by the constant volley of sexual

overtures and they develop a fear of being alone, of public places and places immense stress on their psyche. The respondents feel that it was lack of effective action by the government in the form of police and security. The public space is seen as a space for men and women are seen as trespassers and deviant. This is why men feel entitled to comment, leer at women who use these public spaces. The women who navigate these spaces alone are seen as uncontrolled and men see harassment as a way of controlling women and 'putting them in place'. This in a large extent is produced by the socialisation processes that create binaries of two genders and associate behaviours and actions to them. Therefore there results a 'proper' and 'improper' way of behaving for most genders. This becomes occupying the public space for men and being controlled for women. The demands placed on both men and women is enormous. It takes away the agency of individuals to behave. Even harmful acts get condoned as morality and character get tied to these behaviours. The kind of hyper masculinity that demands men to be 'macho' also results in the disrespect of women and the 'femininity' associated with women prevents and stops women from being bold enough to speak out against these. The gendered roles need to be broken down to open up the public space for people of all genders to occupy equally. For this the taboo and secrecy around the sexuality of women needs to be broken. The inequality in power relations need to be corrected in the social space and this can be done through gender sensitisation, reducing differences, desegregation and sharing of responsibility to enable those oppressed to emerge out of the shadows.

Conclusion

The development of a Women Safety Device integrating cutting-edge technology marks a pivotal step towards ensuring the security and well-being of women. By amalgamating the Neo6M GPS, Module, Arduino Nano Microcontroller, Push Button for Emergency Alert, Pulse Oximeter MAX30100, and Temperature Sensor LM35, this device offers a comprehensive safety solution. In times of distress, the push-button initiates an emergency alert, activating the for immediate attention. Furthermore, the inclusion of the pulse oximeter and temperature sensor adds an additional layer of monitoring, enabling swift responses in case of health emergencies. The integration with Python Flask WebApp and ThingSpeak facilitates real-time alerts and cloud storage, enhancing accessibility and data management. Overall, this device not only addresses safety concerns but also exemplifies the power of technology in safeguarding vulnerable individuals, fostering a safer and more secure environment for all.

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