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Women's Safety Device in Crucial Situation

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Abstract -Women's safety is a critical issue that requires effective solutions to address the prevalent concerns of harassment, stalking, and violence. This paper presents a comprehensive women's safety system that leverages the capabilities of Global Positioning System (GPS) and Global System for Mobile Communications (GSM) technologies to provide real-time location tracking and emergency alerting features. The proposed system consists of a wearable device equipped with a GPS module and a GSM module. The GPS module continuously tracks the user's location, while the GSM module enables communication with a central monitoring station and designated emergency contacts. In case of an emergency, the user can trigger an alert by pressing a button on the device, which will transmit the current location along with a distress signal to the monitoring station and pre-configured emergency contacts.

1. INTRODUCTION

In today's world, Women's safety is a significant concern, and the need for effective solution to enhance personal security has never been more pressing.

The introduction of a women's safety device that leverages GPS (Global Positioning System) and GSM (Global System for Mobile Communications) technology offers a promising approach to address this issue. This device aims to provide real-time location tracking, emergency communication, and immediate assistance in critical situations.

Women's safety is a paramount concern, and the integration of GPS and GSM tracking technologies has proven to be an effective solution. This system is designed to provide real-time monitoring and emergency assistance for women in distress situations. At the core of this system lies a wearable device equipped with a GPS module and a GSM module enables communication with a central monitoring station or designated emergency contacts. In case of emergency, the user can activate the system by pressing a button.

The device will immediately transmit the user's location coordinates along with an alert to monitoring station or pre-send periodic location updates, enabling continuous tracking and ensuring the user's safety during travel or in unfamiliar areas. The integration of these technologies provides a send periodic location updates, enabling continuous tracking and ensuring the user's safety during travel or in unfamiliar areas. The integration of these technologies provides a reliable and efficient means of enhancing women's safety, offering peace of mind and a sense of security in various situations. Reliable and efficient means of enhancing women's safety, offering peace of mind and a sense of security in various situations. set emergency contacts.

Additionally, the system can be programmed to we have to create a self-protection awareness where women can protect themselves at the time of distress.

Rural areas, developed or developing countries-women are vulnerable to sexual assault, fear and various acts of abuse. This hinders their freedom to travel about freely and limits their access to vital services. This allows for prompt response and assistance from concerned authorities or trusted individuals.

2. OBJECTIVE

The objective of this project is :

- The main purpose of this device is to act as an emergency device for women who are in potential danger of being attacked.
- To provide safety to women's.
- To provide integrity, confidentiality.

3. PROPOSED SYSTEM

In Recent years, acts of a violence and assault against women are rising. With the escalation of female employees in industries and other sectors of the commercial market, it is now- coming to a necessity for females to travel at late hours and visit distant and isolated locations as a part of their work. However, the exponential increase in assault and violence against women in the past few years is posing a threat to the growth and development of women. Protection isn't the only measure that can suffice against this increasing abuse. A security solution that creates a sense of safety among women needs to be developed. In instances of attack, it is largely reported that women are immobilized. Therefore, there is a need of a simpler safety solution that can be activated as simply as by pressing a switch and can instantly send alerts to the near ones of the victim. This project focuses on a security system that is designed uniquely to serve the purpose of providing security and safety to women. The objective of research work is to create a portable safety device for women, which provides following facility:

1. Alerts family and friends by sending message.

4. SYSTEM ARCHITECTURE

The proposed architecture depicted below shows the exact flow of control of the android application. Here the database acts as a storing media between the two mobile devices. The database information i.e., to which database the information has to be sent the location coordinates are sent continuously to the registered contacts of the user. A system architecture can consist of system components and the sub-systems developed, that will work together to implement the overall system.

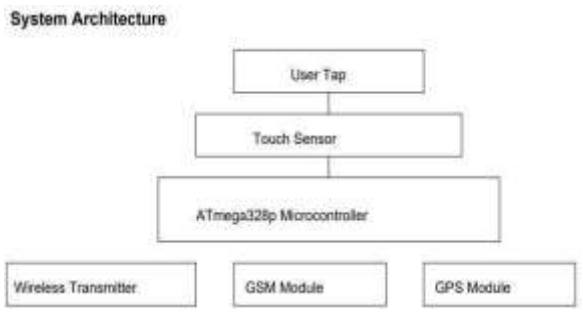


Diagram 1.1: System Architecture

5. SEQUENCE DIADRAM

A sequence diagram shows object interactions arranged in time sequence. It depicts the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario. Sequence diagrams are typically associated with use case realizations in the Logical View of the system under development. Sequence diagrams are sometimes called event diagrams or event scenarios.

A sequence diagram shows, as parallel vertical lines (lifelines), different processes or objects that live simultaneously, and, as horizontal arrows, the messages exchanged between them, in the order in which they occur. This allows the specification of simple runtime scenarios in a graphical manner.

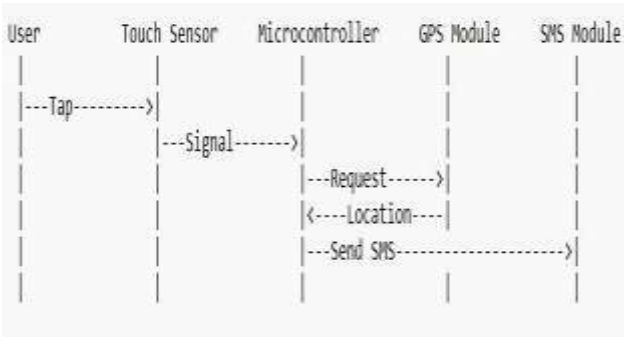


Diagram 1.2: Sequence Diagram

6. FLOW CHART

A flowchart is a type of diagram that represents a workflow or process. A flowchart can also be defined as diagrammatic representation a step-by- step approach to solving a task.

The diagram you provided represents the working architecture of a women's safety device that uses a touch sensor for activation and incorporates GPS and SMS functionalities.

Touch sensor Acts as the activation trigger. When touched (usually in distress), it sends a signal to the transmitter. Transmitter wirelessly transmits the signal from the touch sensor to the receiver. Receives the signal from the transmitter. Main control unit of the device. Takes action based on the received input. Controls both the GPS Module and the SMS Module. Captures the real-time location (latitude & longitude) of the user. Sends an emergency message, along with location details, to predefined contacts (like family, friends, or emergency services).

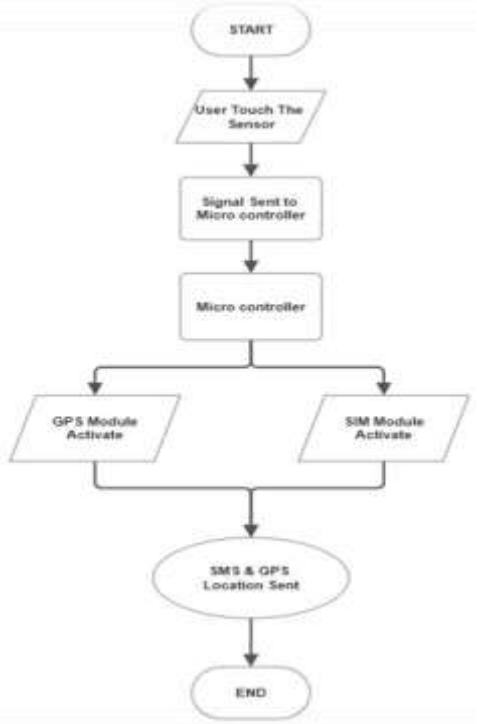


Diagram 1.3: Flow Chart

7. METHODOLOGY

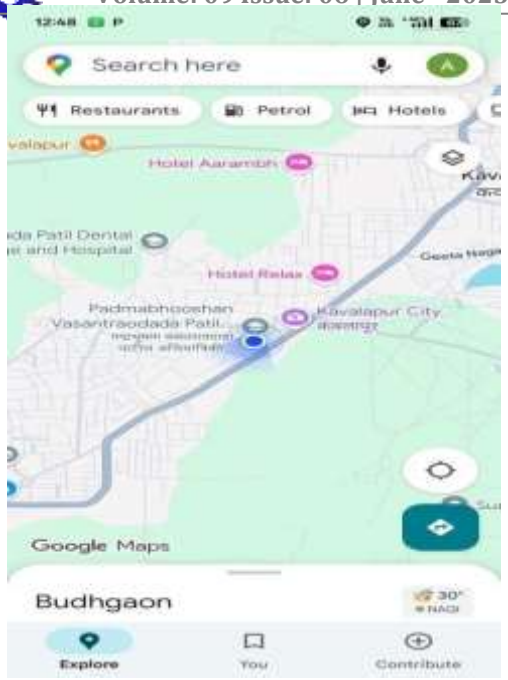
Developing women safety device with GPS, GSM module. All components are integrated with ATmega 328P which is development platform. These devices send Help message to emergency contact with current location. With all this feature this device contain shock device.

- **Components**

ATmega328
GPS6MV2
SIM800L (SIM MODULE)
Battery 3.7 V
Switch
Touch Sensor (GSR)
Buck Converter
RF Frequency Transmitter and Receiver 2.4 F

8. RESULT AND DECISION

A women's safety system leveraging GPS and GSM technologies can provide an effective solution for enhancing personal security. The system typically consist of a compact device that can be worn or carried by the user. This device integrates a GPS receiver to pinpoint the user's location and a GSM module for wireless communication. When the user triggers the device in an emergency situation, immediately sends their precise GPS coordinates along with a distress signal to predetermined emergency contacts or a central monitoring station via the GSM network. The system can also be programmed to automatically share the user's live location at regular intervals with designated individuals
for continuous tracking. Additionally, some advanced systems incorporate features like two-way voice communication, panic buttons, and integration with mobile applications for added convenience and functionality.



(a)

The image you provided is a screenshot of Google Maps showing a region in Maharashtra, India, specifically around Budhgaon, Kavalapur, and Vishrambag areas in the Sangli district. The current location (blue dot) is near Padmabhooshan Vasantraodada Patil Institute of Technology, Sangli.

(b)

The image shows an emergency SMS alert interface, possibly generated by a women's safety device or emergency alert system. Here's a breakdown of the key elements:

1. Alert Message: "Need Help! Location." This means the device or phone get a reliable GPS signal at the moment.
2. Location Link: These are direct Google Maps links that point to a specific latitude and longitude, helping responders or contacts locate the person in distress

https://maps.google.com/?q=16.861776,74.571259.

(c)

9. CONCLUSIONS

The development of a women's safety device utilizing GPS and GSM technology represents a vital advancement in personal security solutions. In crucial situations where every second counts, this device offers a reliable means of communication and location tracking, significantly enhancing the safety and well-being of women. By providing immediate access to emergency contacts and real-time location sharing, the device empowers users to take control of their safety and respond effectively to threats. The GPS and GSM-based women's safety device is more than just a technological tool; it is a crucial ally in the fight for personal safety and empowerment. By prioritizing the safety of women, we take significant steps toward creating a more secure and equitable society for all.

10. REFERENCES

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