



Smart Safety Protector: A Comprehensive Approach to Enhancing Personal Safety for Women

Shashank Dev

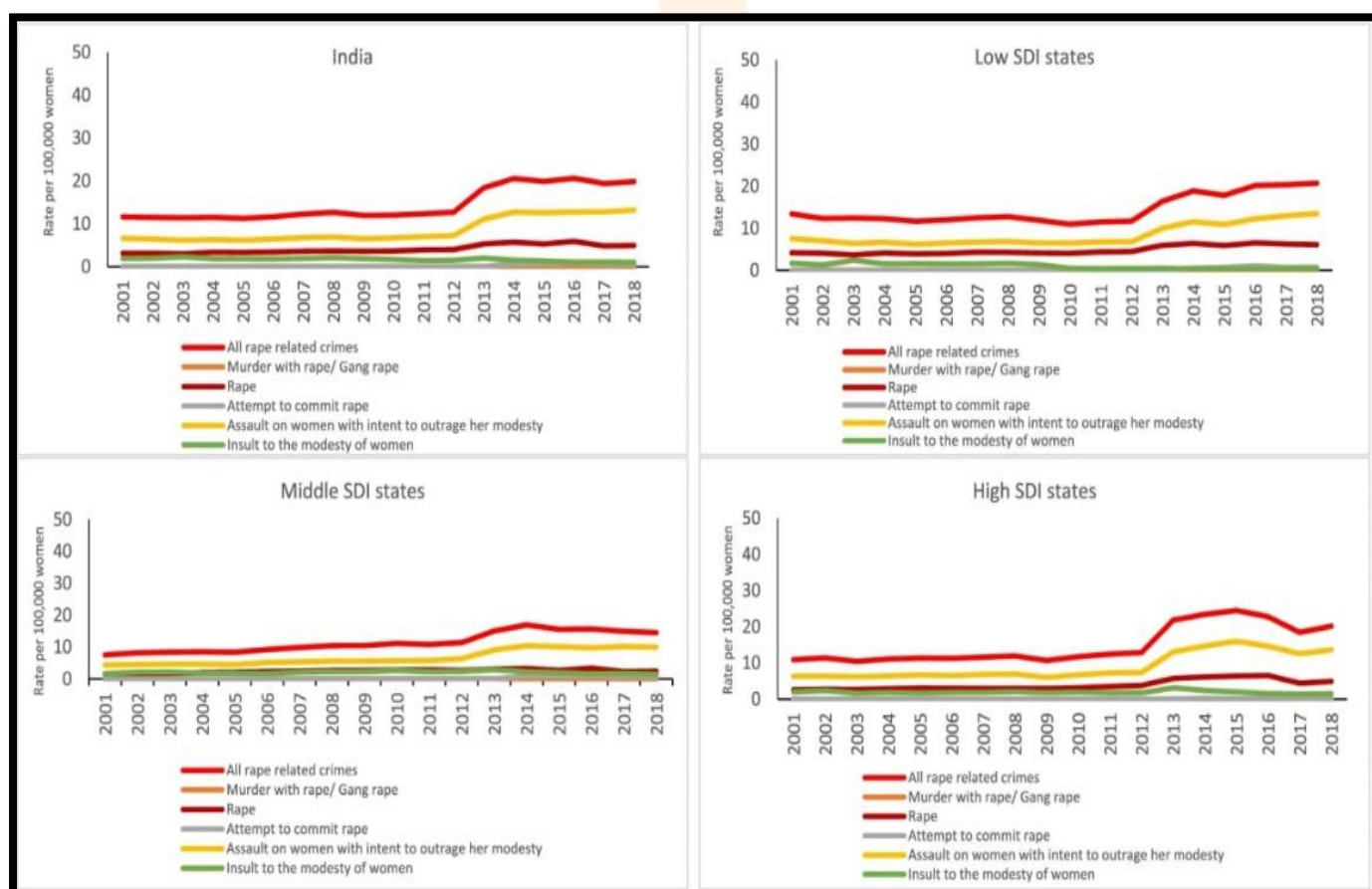
Gyan Niketan Boys School

Abstract:

This research paper explores the development and functionality of the Smart Safety Protector, a revolutionary device designed to address the pressing issue of sexual assault and harassment faced by women. The project integrates cutting-edge technology, including a GPS module for real-time tracking, GSM module for communication, shock system for self-defense, and a microcontroller as the device's central processing unit.

1. Introduction:

Sexual assault and harassment continue to pose significant threats to women's safety, necessitating innovative solutions. The Smart Safety Protector aims to empower women by incorporating advanced features that provide a holistic safety tool. This paper delves into the device's key components, highlighting their roles and interactions.



2. Components of the Smart Safety Protector:

2.1 GPS Module:

The GPS module is at the core of the device, utilizing signals from global positioning satellites for precise location determination. Triangulation techniques calculate latitude, longitude, and altitude coordinates, ensuring accurate real-time tracking.

2.2 GSM Module:

Facilitating communication, the GSM module connects the device to cellular networks, enabling the transmission of distress signals, alerts, and recorded call files. Adhering to the GSM standard ensures seamless network connectivity.

2.3 Shock Gun:

A crucial safety feature, the shock gun for self-defense tool that delivers a formidable 400 volts of shock, rendering assailants temporarily unconscious for a span of 10-15 minutes. This device proves invaluable in situations where your safety is threatened, empowering you to protect yourself effectively.

2.4 Microcontroller:

Functioning as the device's brain, the microcontroller manages and controls various components. It processes data from sensors, executes programmed instructions, and coordinates communication between modules, ensuring efficient and effective operation.

3. Purpose and Development:

The Smart Safety Protector was developed in response to the urgent need for effective measures to protect women from sexual assault. The integration of GPS allows real-time tracking, while the shock sensor and GSM module provide proactive threat detection and communication capabilities. The purpose is to empower women and create a safer environment through technological innovation.

3.1 Enhance Safety:

The device aims to empower girls by equipping them with a tool that can deter potential perpetrators and provide immediate assistance in times of distress.

3.2 Real-time Tracking:

The GPS module enables real-time tracking of the user's location, ensuring accurate coordinates for prompt assistance during emergencies.

3.3 Seamless Communication:

The GSM module establishes a connection with cellular networks, allowing the device to communicate with designated contacts, such as parents or emergency services, to transmit distress messages and GPS coordinates.

3.4 Deterrence Mechanism:

The shock system serves as a deterrent against potential perpetrators by delivering a non-lethal electric shock or emitting a high-intensity noise, providing the user an opportunity to escape or seek help.

4. Innovative Features:

The device's innovative features include real-time GPS tracking, a proactive GSM shock system, automatic call recording for evidence collection, and a call bombarding feature for swift response. These features collectively offer a comprehensive safety solution for women, leveraging technology to combat sexual assault and harassment effectively.

5. Advantages Over Existing Projects:

Compared to existing projects, the Smart Safety Protector offers comprehensive integration, real-time tracking, proactive alert systems, evidence gathering capabilities, multiple contact notifications, family integration, and a user-friendly interface. These advantages contribute to a more robust and efficient personal safety solution.

6. Things To Consider In A Smart Safety Protector:

It's helpful to understand what features are most vital and play important role in women safety device.

- a. Ease of Use- It's important for the parent to make sure that tracking device is easy to use for their child and also it should be comfortable.
- b. Non-Removable- It should be taken care that whether they can put it on and take it off on their own or not. It should also be kept in mind that child could remove it from their cloths. So, it non-removable.
- c. Battery Life- The battery life required for these devices is more. The more is the battery life of the tracker is, the more likely you are to leave home without any tension of ending up with a battery that becomes dead very fast.
- d. Alerts and Notifications- Many GPS based devices come with the different notification and alerts settings. Some location updates are very fast.

7. Feasibility:

The Smart Safety Protector's feasibility is supported by the availability and maturity of the underlying technologies. GPS, GSM, and shock systems are well-established technologies that can be integrated into a compact and wearable device. The device's discreet and practical design ensures ease of use and inconspicuousness, enhancing its feasibility and adoption by the target users.

8. Impact Assessment:

The Smart Safety Protector has the potential to make a significant impact by addressing the issue of sexual harassment and enhancing the safety of girls. The device provides a sense of security, empowerment, and peace of mind to the users and their families. By deterring potential perpetrators and facilitating prompt assistance, it can help prevent and mitigate incidents of sexual harassment. Ultimately, the device aims to contribute to creating a safer environment for girls and reducing the prevalence of sexual harassment.

9. BASIC BLOCK DIAGRAM

The basic block diagram of the system is shown in the figure 2. This system is based on a GSM and GPS based SMS communication mode which responds on the particular button from the devise. It consists of a GSM and GPS module which is connected to Arduino. Arduino is connected to various button and other components. Arduino collects data from the sensors and GPS connected to it and then performs predefined set of logics on it. This gives a required output to the user on their phones in form of a SMS and Call.

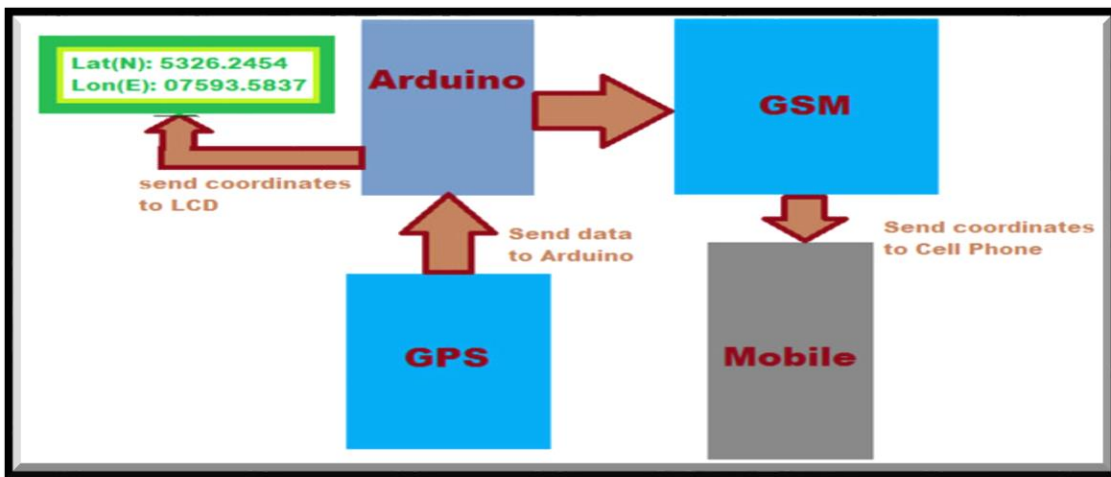


Figure-2

10. Conclusion:

The Smart Safety Protector stands as a beacon in the pursuit of women's safety. By merging technological innovation with a deep understanding of the challenges women face, it provides a comprehensive solution that empowers and protects. This research paper sheds light on the device's components, purpose, innovative features, and advantages, emphasizing its role in creating a safer world for women.

