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Sensible Protection for the Security of Women

.Nivishna S
Assistant Professor ,
nivishnas.ece@mkce.ac.in
M.Kumarasamy college of Technology

S.Kausalya
Assistant Professor ,
kausalya@ksrct.ac.in
K.S.Rangasamy college of Technology

V.P.Kalaiyarasi
Assistant Professor ,
kalaiyarasivp@ksrct.ac.in
K.S.Rangasamy college of Technology

ABSTRACT

The intelligent safety system for women's security based on the ATmega328 microcontroller is designed to provide a comprehensive and multifaceted approach to improving women's safety. A nerve simulator for self-defense, an emergency switch for instant alerts, GPS for precise location tracking, an LCD for vital information display, an IoT connection for remote monitoring, a camera for real-time video recording connected to emergency services, and a buzzer for audible alerts are all part of the system. This cutting-edge system aims to address the various aspects of women's safety, promoting a safer and more secure environment by utilizing the following features: video evidence collection, quick emergency response, location tracking, self-defense mechanism, remote monitoring, and real-time alerts via audio and visual cues.

OBJECTIVES

- When building the system, keep scalability in mind so that it can be enhanced and upgraded in the future to fit changing safety standards and technological advancements.
- Include strong security measures to protect user information and privacy, as well as concerns with data processing and archiving.

- To design and build a smart device with an emergency button, a camera that collects footage, and a means for women to press the button to report someone to the police station.In addition to location tracking, it provides women with other safety and security measures, such as using GPS to pinpoint the location of women in peril and shocking their attacker with electricity.

INTRODUCTION

Scalability should be considered when designing the system to allow for future enhancements and upgrades to accommodate evolving safety requirements and technology breakthroughs. Incorporate concerns about data processing and archiving along with robust security measures to safeguard user information and privacy. To create a smart device that has an emergency button, a camera that records video, and a button that allows women to report someone to the police station. It gives women additional safety and security features in addition to location tracking, like employing GPS to locate women who are in danger and shocking their assailant with electricity. In pressing need to protect women, the installation of this sophisticated safety system furthers a more general environmental objective. By utilizing cutting-edge technology for security measures, the system fosters inclusivity and safety in public areas and motivates women to actively engage in a wide range of societal activities. A more diverse and strong community is developed when a safe space is provided for women. In addition, the ATmega328 microprocessor is intended to be sustainable and energy-efficient, which contributes to the system's overall objective of reducing its impact on the environment. This method provides a thorough understanding of the relationship between technological innovation, environmental sustainability, and societal well-being. The deployment of the intelligent safety system requires the integration of crucial parts in order to fully address numerous areas of women's safety. The ATmega328 microcontroller serves as the central hub, coordinating the actions of a camera for recording live footage, an emergency switch for instant alerts, a nerve simulator for self-defense, GPS tracking for exact location, Internet of Things connectivity for remote monitoring, an LCD for displaying important data, and a buzzer for audible alerts. In addition to offering a multitude of safety measures, this integrated method makes sure that all of these parts interact and work together. The

system's installation is a step toward building a more secure and welcoming culture where women can move freely and confidently in public areas.

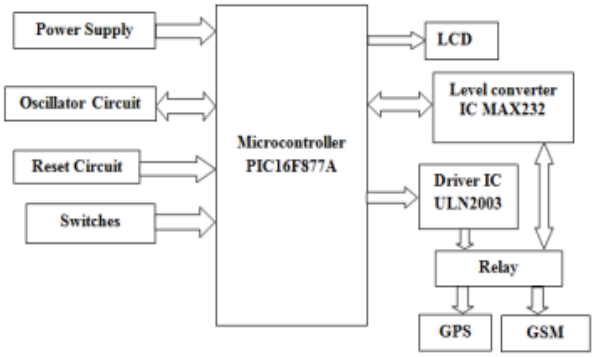
PROBLEM STATEMENT

In today's world, women still frequently struggle with issues related to their safety and wellbeing. Women continue to experience abuse, harassment, and assault in public spaces, which makes it impossible for them to go about their daily lives fearlessly. The continuation of such cases underscores the urgent need for innovative solutions that may effectively address the multifaceted nature of women's safety concerns, even in the face of advancements toward gender equality. Women's complete participation in social activities is fundamentally hampered by the absence of extensive and widely accessible safety measures, which also restricts their freedom of movement in public areas and perpetuates a cycle of inequity.Moreover, current safety protocols often fail to offer immediate assistance and do not incorporate emerging technologies that may significantly enhance women's protection. Due to the scope and effectiveness limitations of traditional self-defense techniques, women are particularly vulnerable to unexpected threats. Women face additional challenges in expressing their rights to equal participation and access to public spaces due to the absence of a comprehensive and sophisticated safety system. This problem statement highlights the critical need for a forward-thinking solution that makes use of technology to create a thorough and multidimensional strategy for women's safety that takes into account the increasingly complex and evolving issues they encounter.Moreover, the issue goes beyond specific instances to encompass a wider societal influence. Women who live in fear and insecurity are less likely to participate in the workforce, pursue education, or engage in other activities. This is because ongoing worries about safety contribute to this climate. This suppresses the potential contributions of half the population in addition to maintaining gender inequality. An environment where everyone may grow without fear or limitation requires creative, scalable, and sustainable solutions, which are necessary to address women's safety holistically. This is not simply an issue of individual well-being but also a societal obligation.

EXISTING SYSTEM

The existing system, She can click the device's button to report harassment, and a few pre-designated emergency numbers will receive an SMS alert with her location's latitude and longitude. The PIC 16F877A microcontroller, which powers the device, is connected to a GPS module, a GSM modem, and a push button. Children and women will receive equipment that is hidden from view and has a GPS module that gives us position information. Both the location values and the geographic location are shown on the LCD.In an emergency, she can press a button, and the microcontroller will send latitude and longitude information to authorized persons via GSM, and the location information will be tracked and sent to police and family members so that she can be rescued as soon as possible, and we can easily trace out the kidnapped a woman or children using the GPS location, and this system will give a voice alert to those nearby.

EXISTING BLOCK DIAGRAM

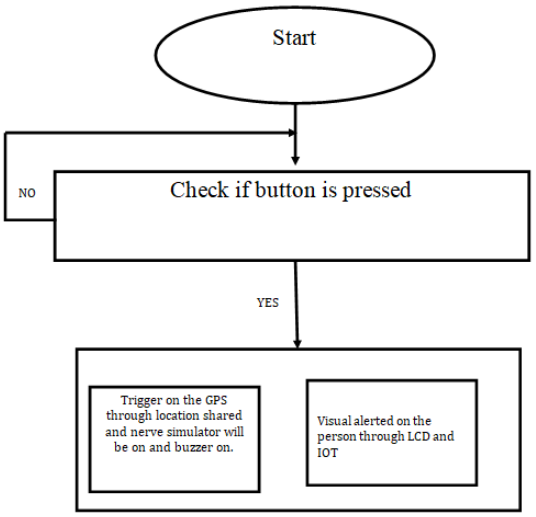


PROPOSED SYSTEM

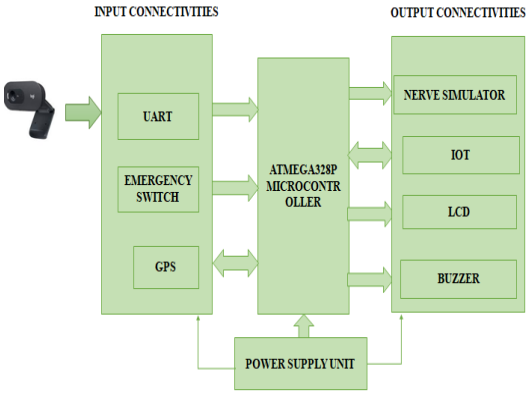
The proposed method is a sophisticated safety strategy that aims to better and totally address women's security in public places. Using the capabilities of the ATmega328 microcontroller, the system incorporates a number of cutting-edge features to provide a comprehensive and multifaceted answer to women's safety challenges. The main components of the proposed system are a real-time video recording camera, an emergency switch for instant alerts, a nerve simulator for self-defense, GPS for precise location tracking, Internet of Things connectivity for remote monitoring, an LCD for vital information display, and a buzzer for audible alerts.The central processing unit (CPU) of the system, the ATmega328 microcontroller, facilitates smooth coordination and

communication between the interconnected parts. In the event of an incident, the real-time video recording camera records and preserves evidence, which aids in the investigative process afterwards and deters potential offenders. In an emergency, the emergency switch sends out instant alerts to designated contacts or emergency services, guaranteeing prompt action. The real-time position tracking provided by the GPS feature improves the precision and effectiveness of emergency responses.The invention gives women a proactive weapon to ward off potential attackers by including a nerve simulator for self-defense. IoT connectivity also makes it feasible for authorities or trusted contacts to monitor remotely, obtaining real-time data and responding to potential dangers even in situations when the user is unable to manually trigger an alarm. For the purpose of communicating vital information like location, battery life, and system status, the LCD display offers a straightforward user interface. In an emergency, a buzzer's loud alerts serve as a deterrent and call attention to the user.The goal of the suggested approach is to give women a comprehensive and proactive safety net so they can go around public places with assurance. By seamlessly integrating new technologies and resolving a multitude of women's safety concerns, the system aims to minimize the ubiquitous challenges women face in their daily lives and contribute to a safer, more inclusive environment.

FLOW CHART



BLOCK DIAGRAM



ADVANTAGE

- In order to address women's safety concerns in a thorough and all-encompassing manner, the system integrates a variety of safety features, such as remote monitoring, self-defense mechanisms, GPS tracking, and real-time video recording.
- With the use of GPS technology, users can track their exact location in real-time, which enhances the accuracy of emergency responses and guarantees that assistance is sent to the person who is in danger.
- By addressing women's safety holistically, the method empowers women to move confidently through public spaces, establishing a sense of security and enabling them to participate more fully in a variety of societal activities.

FUTURE ENHANCEMENT

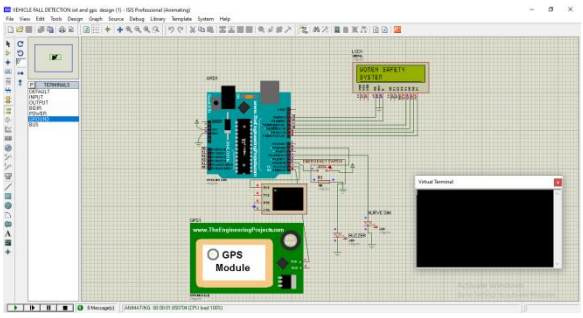
- The systems recognize patterns of behavior and discriminate between legitimate activity and potential threats by applying machine learning techniques. This could reduce false warnings and improve threat detection accuracy.
- Add voice activation for hands-free operation and voice recognition technology to identify instructions or distress calls, providing users another way to set alarms off.
- In an emergency, include camera-equipped autonomous drones to provide consumers with real-time aerial views

of their surroundings. This can help emergency responders assess circumstances more accurately.

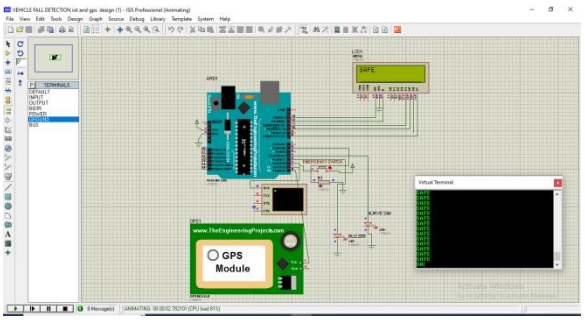
RESULT AND DISCUSSION

The use of the ATmega328 microcontroller-based intelligent safety system yielded promising results, exhibiting a comprehensive and proactive method for addressing women's safety concerns in a range of scenarios. The incorporation of critical aspects such as self-defense mechanisms, GPS tracking, real-time video recording, and remote monitoring enabled the creation of a solid safety net for users.In real-world situations, the emergency switch on the system has shown to be an essential component, triggering prompt messages and facilitating prompt emergency reactions. The nerve simulator's potential as a proactive deterrent that empowers women to take charge of their own safety was made clear by its inclusion for self-defense. Authorities or authorized contacts were able to review real-time data through the use of IoT connectivity for remote monitoring, enabling a cooperative approach to women's protection.User feedback during the testing period highlighted how easy it was to utilize the LCD display's user-friendly interface, which provided concise and clear information about the system's position, battery life, and condition. The buzzer's audible alerts were effective in drawing the user's attention during an emergency. In addition, the system's energy-efficient architecture, which utilized the ATmega328 CPU, resulted in a longer battery life, guaranteeing that the system continues to operate when it is most required.

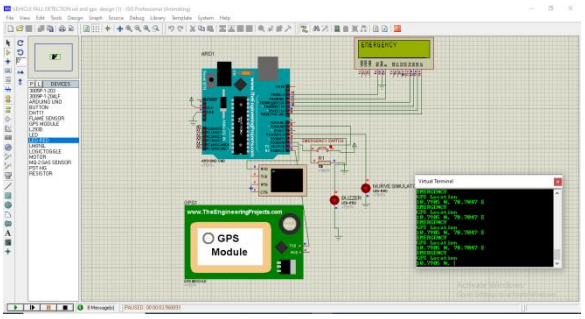
SIMULATION RESULT



The code written by the Arduino ide software and though run the simulation. We are using the digital pins, such us, emergency switch are D2, The nerve simulator connected on the D4 and buzzer connected to the D3.And the virtual terminal D1 (Transmitter pin) connected on the terminal receiver pin and gps transmitter pin connected on the Arduino receiver pin.



The emergency switch are not pressed the women are safe condition. The information update on the LCD and IOT.



The switch are pressed, the women are not safe condition, the information shared on the LCD and IOT. The location will be shared. And the nerve simulator will be on and the buzzer will be on condition

CONCLUSION

In conclusion, the intelligent safety system designed to enhance women's security represents a significant advancement in addressing the various issues women face in public spaces. By utilizing the ATmega328 microcontroller's capabilities and incorporating cutting-edge features like real-time video recording, GPS tracking, self-defense mechanisms, and remote monitoring through Internet of Things connectivity, the system offers a thorough and proactive approach to women's protection.This suggested strategy shows a commitment to supporting diversity, empowering women, and creating circumstances where they can enter public spaces free from fear or restraint. Modern technology is being used to not only collect evidence in real-time but also to help with quick emergency responses, pinpoint locations, and provide women with a useful self-defense tool. Furthermore, even in the event that the user is unable to manually trigger an alarm, a

network of reliable contacts or authorities may be able to react promptly thanks to the advent of remote monitoring capabilities via IoT connectivity.By addressing the many aspects of women's safety concerns, this strategy contributes to the larger social goal of gender equality and enables women to actively participate in a variety of activities without fearing for their safety. The proposed system is a step toward a safer, more inclusive society that supports the empowerment and well-being of all individuals, regardless of gender; it is more than just a technological advancement. The road to ensuring women's safety is still one of continuous investigation and application of innovative solutions, which calls for cooperation, awareness, and a dedication to promoting positive social change.

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