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Street-Light Emergency Buzzer System

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Abstract
Today, with women's safety being an increasing issue and needing to be tackled through a concerted effort that covers three main areas: protection, empowerment, and independence. In spite of gender equality improvement, women remain under threat in various forms of harassment, abuse, and discrimination both in private and public settings. This is unacceptable and necessitates immediate redress through self-protection technology, sound legal protections, and strict social awareness. Women are exposed to a higher risk of abuse and harassment in the majority of non-domestic and isolated settings due to lack of immediate access to help. Traditional emergency response systems via mobile apps or helpline numbers may not work at all points in time of high-pressure conditions when the victims may not find enough time to open their phones or make a call. In order to mitigate this, we propose a streetlight-mounted emergency buzzer system that allows women in distress to create an instant alert to moving law and order agencies. When triggered, the system will warn by alarm to intimidate the attackers and, simultaneously, send the location data to the nearest police station for prompt response. The solution aims to provide a quick, convenient, and reliable way for women to request help in emergency cases, thereby enhancing security in risky hotspots.
Keywords: *harassment,* streetlight-mounted*, Buzzer ,Threat detection …*

INTRODUCTION

Women's safety is a major concern, especially in empty or less crowded areas at night. Many women face dangers like harassment, stalking, or attacks, making it difficult for them to feel safe while traveling alone. In such situations, they need a quick and reliable way to call for help[1]. To address this problem, we are developing a Women's Safety Emergency Buzzer System, which will allow women to seek immediate assistance when they feel threatened.

This system consists of an emergency buzzer, a camera, and a GPS tracker. The buzzer will be installed in public places like streets, highways, bus stops, and metro stations. If a woman is in danger, she can ring the buzzer, which will immediately trigger an alarm to the closest police station or security personnel. Concurrently, a camera located next to the buzzer will begin recording the scene, offering live video of the crisis. Furthermore, a GPS device will forward the precise location of the crime to the authorities, enabling them to arrive quickly at the location[2].

The primary intention of this project is to deliver a quick and efficient safety measure so that authorities can take swift action. Through this system, crimes such as harassment and attacks can be averted or interrupted at the right moment[3]. Through enhanced security in public places, we are aiming to make the streets safer and empower women to travel without fear as given in below fig[1]. This system not only will facilitate decreasing the crime rate but also provide a feeling of security for women so that they can travel anywhere without any fear for themselves[4].

Moreover, workplace and public harassment creates an environment of fear and diminishes women's safety. The crimes not only harm direct victims, in that they create a culture of inequality and intimidation among women, but also have long-term effects[5]. Human trafficking, another foreboding concern, deals in vulnerable members of society who are often victims of forced labor or other forms of exploitation in the case of children and women. Combating these problems necessitates through consciousness, education programs, and vigorous legal actions to protect

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victims and deter crimes. Society needs to come together and form safe places where women can live without the fear of violence or discrimination[6].

Fig [1].Built-in Buzzer system

LITERATURE REVIEW

This is an overview of some safety measures designed to ensure the safety of women during emergencies. Emergency alert systems that include panic buttons, sirens, and distress signal telephones have been widely used, including in urban centers, transport hubs, and campuses. While panic buttons do an adequate job of alerting authorities, great care must be taken to ensure that they are placed strategically and easily accessible[7]. Moreover, several other wearable personal safety devices, mobile apps, and GPS tracking modes have been devised to provide emergency assistance. However, all of these methods are still problematic, as women often don't have their cell phones or other wearables available when danger strikes. The solution the emergency-enabled smartwatches and rings are attempting to provide is distress signals by the user through pressing. These devices can potentially help were it not for the accidental nature of the circumstances preventing the victim from activating it in time[8].

A similar approach is reflected in the panic buttons found on public transportation: these alert authorities when pressed. Yet their mode of placement is probably trying to confine them inside a vehicle rather than open spaces, which somehow makes these not so efficient to overcome these challenges, we worked out the design and proposed the Women's Safety Emergency Buzzer System with an aim to provide an easy, fixed, and reliable solution[9]. Unlike mobile or wearable devices, this system will have buzzer buttons placed at various public locations such as highways, streets, and bus stops. This buzzer shall send the police all the information instantly on pressing the button; whereas the camera records the live video, the GPS tracking device shares the location for expeditious action. GPS-based emergency systems are a great website for notifying where the availability of the emergency calls can take place in real time, and a really quick response time is provided[10]. There has also been an implementation of these kinds of applications in their own

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stand-alone devices that have worked exceedingly well in times of crisis. Such integration into smart street lamps makes such provisions even better for urban security. They usually come integrated with motion detection sensors that act upon detecting movements in real time, making them a sure case[11].

Fig [2]. Crime Rate Review

The above figure shows us the crime review on women's safety provides valuable insights into the different difficulties that women experience in a variety of settings. There is a variety of studies that show women's safety being undermined in public spaces as well as private places[12]. Contributing factors to this include societal expectations, cultural beliefs, and gender stereotypes. Most authors point out that urban areas tend to pose specific threats to women, especially with respect to harassment and violence. Studies indicate that these issues can hinder women, constraining their movement and involvement in other social activities. The review also highlights the need to tackle such problems through awareness campaigns and community outreach to promote safer spaces for women[13].

Also, literature indicates the contribution of technology to women's safety. Technologies like safety apps, emergency alert systems, and GPS have become popular among women who want to keep themselves safe. Research has shown that using these technologies can empower women by allowing them to send their location to their trusted contacts and easily report incidents of harm[14]. But researchers emphasize that technology cannot eradicate the causes of safety issues. Rather, there should be a collective effort of legislation, public support, and available public resources in order to form a comprehensive framework of women's safety. Overall, technology is valuable in that it provides tools, but the reality is that changes in society are needed to make lasting gains[15].

METHODOLOGY

The Women's Safety Emergency Buzzer System is developed with the sole intention of offering quick aid to women in situations of possible danger. This new system has a mix of vital features, such as a buzzer, camera, and GPS technology, to improve safety features. The device, installed once, will then be stationed in different public areas like roads, highways, bus stops, and metro

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stations to make it highly accessible in times of emergencies.

If a woman feels threatened or insecure, she simply has to press the emergency buzzer, triggering a sudden alarm signal that will be relayed to the local police or security monitoring room. This system of immediate response is especially helpful in cases like a woman home alone at night, providing her instant access to assistance and aid that she might require. At the same time, a camera connected to the system will automatically start capturing real-time images of the scene, allowing police officers to visually survey the scenario and respond accordingly. The live video capture could possibly record crucial identification information, including the face of the culprit, thereby helping investigators with priceless clues.

Also, the use of a GPS tracking system boosts the efficiency of the emergency buzzer system since it sends proper location coordinates in case of a trigger. It is particularly valuable in cases when an individual cannot provide his or her exact location, for example, a female who becomes disoriented in a park. With the use of GPS technology, there is swift response from authorities, and swift assistance is rendered, and sometimes precious time is saved. Extra features, such as alarm noise or flashing, can be implemented to warn close-by people and discourage potential harm. The voice alarm can adequately attract attention to the emergency situation, making assistance more likely and discouraging crime.

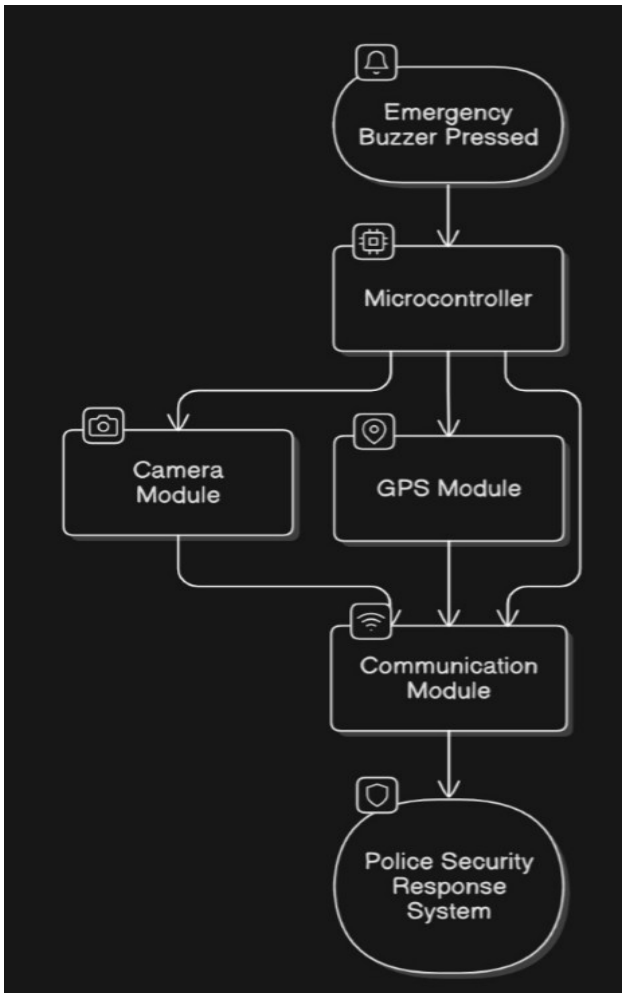

Fig [3]. Flowchart of the working of the Buzzer

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EXPECTED RESULTS AND DISCUSSION

Expected Results

The buzzer system shall provide a timely and easy means of applying for help by any distressed citizen, particularly in lonely, dark areas. Once triggered, the system will set off a loud alarm and/or signal the authorities for preferential intervention. This can be crucial in any harassment, assault, or further emergencies where the victim has no immediate access to a telephone or other means of communication to ask for help. If the system has any flashing light or trigger of the camera, further assessment is done. However, it would be the attention on the scene that would put off wrongdoers.

Such system knowledge possessed by people might turn around the sensory quotient, making them secure enough that their distress alarm can easily reach the authorities in lonely areas. If tied into a real- time notification system (such as through SMS alerts or connection to law enforcement), then they would be able to evaluate the situation with regards to the position of bystanders and be in a position to help. The GPS or location-based monitoring would help the authorities keep an eye on frequent emergency activations from specific neighborhoods to identify potential surveillance focus areas. This could shorten emergency response time enormously and increase the ability to prevent crime or rescue victims.

The proposal would enhance public confidence in law enforcement and local governance in presenting an active approach to safety, encouraging local communities to disseminate knowledge about the buzzer system will increase interest and trust. If achieving success, the project may lead to additional safety projects such as smart surveillance systems and AI emergency Response systems. The published bids are anticipated to be economically feasible as well as scalable due to their current installation on existing streetlight poles with no requirement for a new structure.

Discussion

Ensuring the safety of women in isolated areas is a matter of utmost concern, and the use of emergency buzzers is a tangible and feasible solution. The gadget acts as an immediate distress call, calling for assistance or individuals who are nearby in case of emergencies. With increasing instances of harassment and violence, particularly in isolated areas, an emergency buzzer enables women to feel safe and secure.

The effectiveness of these devices lies in the fact that they are easy to use and able to trigger instant alerts to emergency numbers or the police. Also, GPS and mobile connectivity enhance their use, allowing swift response. Strategically located at risk-prone places such as parking lots, outlying roads, and bus and train stations, these buzzers can be great deterrents to possible attacks.

Aside from technology, the presence of emergency buzzers also fosters a safety and alertness culture. Governments, communities, and nongovernmental organizations need to join hands in order to encourage their use and provide maintenance. Education campaigns can also empower women with information on how to use these devices optimally.

Although emergency buzzers are not a complete solution in themselves, they are an important step towards the creation of a safer space. Coupled with other security provisions, including increased vigilance and tougher law enforcement, they move towards an integrated solution for women's protection. Finally, making an investment in such protective features is evidence of a commitment to social responsibility and a strengthening of the universal right of women to freely move without terror.

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