

IoT Enabled Solutions for Women Safety and Health Monitoring

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Abstract- Women and children today deal with a number of problems, including sexual attacks. The victims' life will undoubtedly be greatly impacted by such atrocities. It also has an impact on their psychological equilibrium and general wellbeing. The frequency of these acts of violence keeps rising daily. Even schoolchildren are victims of sexual abuse and abduction. In our society, a nine-month-old girl child is not protected; she was abducted, sexually assaulted, and ultimately killed. Seeing the abuses of women makes us want to take action to ensure the protection of women and children. Therefore, we intend to present a device in this project that will serve as a tool for security and guarantee the safety of women and children. GSM microcontroller

Index Terms- Women Safety, Location, Body Temperature

I. INTRODUCTION

Women's safety is a crucial concern because they are subjected to many hazards on a global scale, such as harassment, molestation, and violence. Nine out of ten women worldwide and one in three women worldwide are victims of violence, according to organizations like ActionAid UK and the WHO. According to groups like ActionAid UK and the WHO, one in three women globally and nine out of ten women globally are victims of abuse. Since there are more crimes committed against women, security has become a major social issue. Technology has the power to shield women from potential dangers to their safety and to stop violence. One possible way to overcome these problems is through the Internet of Things (IoT), which empowers women to live proudly and carry out their duties well. One area that shows promise for promoting women's safety and security is the Internet of Things (IoT). IoT-based gadgets have been introduced to convey specific notifications via mobile phones or record safety concerns using voice recognition technology. With the use of capabilities like voice recording, GPS, GSM, fingerprint sensors, and shock generators, these devices can track locations and alert women's guardians to potential threats. Wireless Internet of Things (IoT) devices are increasingly being integrated into women's wearables, such as smart tattoos, clothing, accessories, and gadgets. These gadgets have sensors attached to them that turn on modules. The intended device determines which sensors to use. Wearable technology is incorporated into smart gadgets, smart foot devices, and smart coats with built-in sensors for women's safety. The growing problem of women's unsafety is the subject of this review of the literature, which also

emphasizes the dearth of thorough studies and the need for more research to maximize community efforts and provide better answers. The assessment identifies gaps in current apps and devices, suggests a taxonomy for IoT-based women's safety devices, and suggests an architecture for women safety systems based on problems and solutions found. The research methodology, objectives, search strategy, selection process, abstract key wording, and quality assessment criteria are all outlined in this paper. Section IV, Taxonomy, presents the analysis and results.

II. LITERATURE REVIEW

The review of the literature on IoT integrated women's safety devices emphasizes the increasing demand for technologically advanced approaches to safety issues. Distress signalling and real time location tracking improve personal security, particularly for women living in cities. Wearables and other IoT devices build a linked safety environment, and features like speech recognition, live video streaming, and geofencing increase the usefulness of apps. Research emphasize the value of a proactive strategy for women's safety that uses technology to give people more authority. Algorithms that use machine learning can identify trends and offer tailored safety advice. We investigate the use of wearable Internet of things devices for health and location tracking. Campaigns for user education and awareness are crucial, as are privacy and security issues. With cameras, GSM modules, shock circuits, and GPS built in, a smart shoe can protect women from damage and assist them flee danger. SMARISA is an Internet of Things based smart security wearable gadget that Deepinder Kaur and Ravita Chahar have proposed for women. The Raspberry Pi Zero, a camera, a buzzer, a button, and other

components are used by the smart ring to activate services. It is button activated, portable, and provides emergency contacts with location and picture links. RFID and GPS are used to create an intelligent women's safety system, as described in the paper "Smart Security Solution for Women Using IoT" by Harikiran, Menasinkai, and Shirol. The system uses GPS to track location after reading data from an active RFID tag and sending it to a microcontroller. The study suggests a self-defense device with a buzzer and microcontroller that uses GPS and SMS alerting to keep women safe. Women can use the device, which can be worn as a watch or band, to send alert SMS messages when they feel uneasy. The study also addresses a GPS mapper that uses image metadata to determine the positions of people, but it is unable to create photos of people who have not uploaded their images. Additionally covered is the data driven approach to trip end identification. The article addresses a number of clever security options for females, such as an intelligent system that makes use of GPS and RFID. Information is scanned by the system using an active RFID tag and a passive RFID reader, and is subsequently sent to a microcontroller. After then, the controller uses a GSM module to transmit messages to contacts, and GPS is used to track the location. For the safety of women, a different smart device has been devised. It is quietly triggered when women feel unsafe and is attached to their footwear. Through Bluetooth Low Energy transmission, the device alerts a victim's phone application. The article also addresses a GPS- and SMS based self-defense system for women's safety, however it necessitates human engagement in emergency scenarios. The women's safety mobile app records sound from their surroundings and, in the event that network coverage is lost, uses SOS service to transmit the recording to recipient numbers when it is touched. Users send messages and store email addresses.

III. PROPOSED SYSTEM

GPS and GSM track the victim's whereabouts and send alert messages, a touch sensor recognizes the movements of the woman and notifies them. The GSM module receives activation from the sensor and provides latitude and longitude data. Location messages are generated by the device and sent to recipients. It is helpful for women who work irregular hours because it contains numerous 5V supplies and one ground supply for a breadboard. It informs receivers in unsafe situations and is portable and simple to use. GPS systems are adaptable and may be installed anywhere, including in cars, to provide users with voice commands and preloaded digital maps to help them get to their destinations. They offer exact position data, such as latitude and longitude. Following transmission, the GPS data is received by a receiver that uses an Arduino microcontroller to interpret and display the data as an SMS alert. Based on the ATmega328P microprocessor, the Arduino UNO is an open source microcontroller board having digital and analog

input/output pins that may be connected to a variety of circuits. Touch sensors detect when a human makes physical contact with an object and record that contact. To detect touch from a human user or operator, a touch sensor is a device that records physical contact with an object or gadget. It reacts differently to different kinds of touch and is more sensitive than buttons or switches. In applications, the touch sensor serves as the primary device.

IV. METHODOLOGY

This study proposes a women's safety system that uses a Node MCU GPS module to broadcast the position details of a victim who is in danger to Telegram. The device notifies those in the vicinity, employs an LCD display to show the attacker's temperature and heart rate, and emits a buzzer sound to shock or spray eject the perpetrator. The process entails turning on the power supply, hitting the emergency button, sending the message, and booting up the machine. Using a three-stage technique, this systematic literature review (SLR) methodically searches, categorizes, and synthesizes literature to inform future study in a given subject.

V. CONCLUSION

The article describes a low-cost gadget that uses cutting-edge IoT hardware and technologies, such as Raspberry Pi and Node mcu, to protect women in dangerous situations. In addition to protecting women from rape and molestation, the system photographs the offender for possible use in Indian judicial proceedings. Women can move freely with this innovative solution, which also has the potential to become a consumer portable product. Through the use of tracking, the VI browser, messaging services, and emergency buttons on smart gadgets, the project seeks to give women security in perilous circumstances. It covers methods for safeguarding women against dishonest individuals, as well as methods for the safety of children, banks, and the general public. The technology can be used to notify authorities of crimes, accidents, and emergencies by regular individuals, bank managers, and important institutions like railways.

REFERENCES

1. G C Harikiran, Karthik Menasinkai, Suhas Shirol, Smart Security Solution for Women based on Internet Of Things(IOT), International Conference on Electrical, Electronics, and Optimization Techniques (ICEEOT), vol 09, Issue-01, mar -2016.
2. Saroja Malarabhavi, "Smart Security Solution for Women Using IoT", International Journal of Pure and Applied Mathematics, Volume 119 No. 12 2018.
3. B.SindhuBala, M.Swetha, M.Tamilarasi and D.Vinodha, "Survey on Women Safety Using IoT", International

- Journal of Computer Engineering in Research Trends, Vol- 5, Issue 2, 2018. Engineering and Technology,, Volume 7, Special Issue 1, March 2018.
4. Kavya.K, Pavithra.M, Pavithra.N, Preethi.G and Martin Joel Ratnam, "IOT Based Women's Safety Gadget", International Journal of Innovative Research in Science,
 5. R.A. Jain Aditya, Patil, Prasenjeet Nikam, Shubham More, Saurabh Totewar, "Women's safety using IOT", International Research Journal of Engineering and Technology 05, 2017.
 6. A.Jesudoss, Y. Nikhila, T. Sahithi Reddy, "Smart Solution for Women Safety Using IoT", International Journal of Pure and Applied Mathematics, Volume 119 No. 12, 2018,
 7. Krishna Priyanka, Tatavarthi Tarun, Venkata Vamsi Krishna, "IoT for Women Safety", International journal of advance Research Engineering, Science and S., Vol 6, Issue-01, Sep 2017.
 8. B.Vijaylakshmi, Renuka.S, Pooja Chennur, Sharangowda.Patil, "Self defence system for women safety with location tracking and SMS alerting through GSM network. IJRET: International Journal of Research in Engineering and Technology.
 9. Mr. Amar Saraswat Assistant Professor Department of Computer Science and Engineering, "Sensing Heart beat and Body Temperature Digitally using Arduino", 2016.