IJITCE

ISSN 2347- 3657

International Journal of Information Technology & Computer Engineering

Email : ijitce.editor@gmail.com or editor@ijitce.com

International Journal of Information Technology & Computer Engineering
ISSN 2347–3657
Volume 15, Issue 3, 2024
https://doi.org/10.62646/ijitce.2024.v15.i3.pp881-890

SOS WOMEN SAFETY DEVICE

[1]Mr.G. Prabhakar,[2]K. Harshini,[3]M. Madhu Meghana,[4]R.V. Vyshnavi
[1]Assistant Professor,[234]Students
Department Of CSE
Malla Reddy Engineering College For Women

ABSTRACT

Would it be unjust to state that women still do not have the freedom to live in our society in 2023?Every day, a great deal of news is produced on physical abuse, violence against women, and their rising prevalence, especially in larger cities. Although the accused was not identified at the time of the incident, the CCTV presence proved to be quite helpful.The goal of this literature is to enable women to utilize generation to become self-sufficient, hence reducing violence against girls and women in India. Creating a solution that combines several technologies to enhance women's safety is necessary to create a smart protection device for girls using the A9G board and the Internet of Things. This is an abstract that lists the main parts and attributes of a gadget like that. In the modern world, ensuring women's protection has taken on paramount importance. The A9G board is especially used in this paper's design and implementation of a Smart Safety Device that makes use of Internet of Things (IoT) technologies. The goal of the suggested system is to provide women a smart and dependable safety companion so they may feel confident navigating public areas. A complete answer to women's safety worries is provided by the suggested Smart Safety Device. The system uses the IoT capabilities of the A9G board to deliver real-time tracking, rapid alarms, and multimedia recording to improve user security and peace of mind in a variety of settings. This invention is a big step in the right direction toward using technology to increase social safety. This activity provides women with portable, eco-friendly tools that may help them live safe, unbiased lives.SIM 800 GSM Modules, pressure-sensitive resistors, surprise sensors, Bluetooth modules, LCDs, resistors, transistors, diodes, LEDs, Arduino UNO, bee integration of buzzers, and other components that link everything we make and use are the driving forces behind the Internet of Things.

Keywords: Ladies Security, GPS module, GSM module, drive resistive sensor, beat sensor, A9G board, ladies safety device, and Internet of Things.

I. INTRODUCTION

The need to ensure women's safety in a variety of settings has grown, prompting the creation of creative solutions like the SOS Women Safety Device. The goal of this project is to develop a small, dependable, and easy-to-use gadget with real-time monitoring and alerting features to improve personal safety.

The NodeMCU, a flexible microcontroller in the center of the apparatus, enables communication between the device and other systems, such cellphones or emergency services. The gadget is battery-operated, making it portable and practical for everyday usage. It also has a voltage sensor to check power levels and guarantee continued functioning. An OLED display gives the user immediate feedback by displaying vital data like battery life and operating warnings.

The SOS Women Safety Device is designed to provide effective and rapid support during emergencies. This project seeks to give women a trustworthy tool for improving their safety and well-being by using contemporary technology and a user-centered design, therefore creating a new standard for personal security gadgets.

International Journal of Information Technology & Computer Engineering
ISSN 2347–3657
Volume 15, Issue 3, 2024
https://doi.org/10.62646/ijitce.2024.v15.i3.pp881-890

Fig.1 : SOS Women Safety

1.1 Problem Statement

The problem statement for the SOS Women Safety Device focuses on the critical need for reliable and accessible personal safety solutions for women in various environments. Despite advances in technology, women often face situations where their safety is compromised, and current safety measures may not be sufficient or readily available in emergencies. Traditional safety tools like alarms or mobile applications can be ineffective due to delays in response, lack of immediate access, or failure to alert the right authorities in time.

Additionally, existing safety devices may not provide real-time monitoring or seamless communication with emergency services, which are crucial for timely intervention. The absence of a compact, easy-to-use, and technologically advanced device that can provide instant alerts and location tracking exacerbates the problem, leaving women vulnerable in critical situations.

Given these challenges, there is a clear need for a dedicated safety device that integrates modern technology to offer real-time monitoring, immediate alerts, and reliable communication with emergency contacts. Such a device would empower women to feel safer and more secure, providing a dependable solution to enhance personal safety in potentially dangerous situations.

1.2: Problem Scope:

The scope of implementing the SOS Women Safety Device focuses on providing a reliable and efficient personal safety solution that empowers women in potentially dangerous situations. The project aims to address several critical areas to ensure the effectiveness, usability, and accessibility of the device, offering a comprehensive approach to enhancing personal safety.

- **Immediate Alert and Communication:** The primary focus of the SOS Women Safety Device is to provide immediate alerts and communication in emergency situations. The device will be equipped with a mechanism to instantly notify pre-selected contacts and emergency services with real-time location data, ensuring that help can be dispatched quickly and efficiently. This feature aims to significantly reduce response times and provide timely assistance when it is needed the most.
- **Real-time Monitoring:** The device will offer continuous real-time monitoring of the user's location, allowing for proactive safety measures. By leveraging GPS and other tracking technologies, the device ensures that the user's whereabouts are consistently monitored, providing an additional layer of security and peace of mind.
- **Ease of Use:** Usability is a central aspect of the device's design. The SOS Women Safety Device will be compact, portable, and easy to activate, ensuring that it can be used quickly in an emergency without requiring complex operations. The design will focus on intuitive functionality, making it accessible to users of all ages and technological proficiency.
- **Reliability and Durability:** The scope includes ensuring that the device is reliable and durable, capable of functioning in various environments

International Journal of Information Technology & Computer Engineering
ISSN 2347–3657
Volume 15, Issue 3, 2024
https://doi.org/10.62646/ijitce.2024.v15.i3.pp881-890

and conditions. The use of robust materials and a long-lasting battery will be prioritized to ensure that the device remains operational during critical moments. Additionally, the device will undergo rigorous testing to ensure it meets safety and performance standards.

- **Scalability and Customization:** The SOS Women Safety Device is designed with scalability and customization in mind, allowing for future upgrades and modifications based on user feedback and evolving safety needs. This adaptability ensures that the device can continue to meet the needs of its users and remain effective as new threats or challenges arise.
- **Integration with Existing Systems:** The device will be designed to integrate seamlessly with existing communication and emergency response systems. This integration ensures that alerts and information provided by the device can be quickly acted upon by emergency services, improving the overall efficiency and effectiveness of the response.
- **Cost and Accessibility:** Affordability and accessibility are key considerations in the project's scope. The SOS Women Safety Device will be developed with cost-effectiveness in mind, ensuring that it is affordable for a broad audience. Additionally, efforts will be made to make the device accessible through various distribution channels, ensuring that as many women as possible can benefit from this safety solution.
- **Stakeholder Engagement:** The project will involve collaboration with various stakeholders, including law enforcement agencies, technology providers, and women's safety organizations. Engaging these stakeholders throughout the development and deployment phases is crucial to ensuring that the device meets the needs of its users, complies with legal and safety standards, and is effectively integrated into broader safety initiatives.

1.3: Advantages of SOS Women safety device

The SOS Women Safety Device offers several advantages that make it a valuable tool for enhancing personal safety, particularly for women in vulnerable situations. These advantages include:

1. Immediate Emergency Response: The device provides a quick and reliable means of alerting emergency contacts and services in the event of a threat. By sending real-time location data and alerts, it ensures that help can be dispatched rapidly, significantly reducing response times in critical situations.

2. Enhanced Personal Security: With continuous real-time monitoring and tracking capabilities, the device offers a heightened sense of security. Users can feel confident knowing that their location is being tracked, and they have a direct line to help if needed, which can deter potential threats.

3. Ease of Use: The SOS Women Safety Device is designed for simplicity and ease of use. Its intuitive design allows users to activate the device quickly, even in high-stress situations. This user-friendly approach ensures that the device can be effectively used by individuals of all ages and technological skill levels.

4. Compact and Portable Design: The device is compact and lightweight, making it easy to carry or wear discreetly. Its portability ensures that it can be with the user at all times, whether they're at home, work, or on the move, providing continuous protection without being intrusive.

International Journal of Information Technology & Computer Engineering
ISSN 2347–3657
Volume 15, Issue 3, 2024
https://doi.org/10.62646/ijitce.2024.v15.i3.pp881-890

5. Reliable and Durable: Built with robust materials and a long-lasting battery, the device is designed to operate reliably in various environments and conditions. Its durability ensures that it remains functional when needed most, providing dependable protection.

6. Customizable and Scalable: The device is designed to be customizable and scalable, allowing for future enhancements and updates based on user feedback and changing safety needs. This flexibility ensures that the device can evolve to meet new challenges and continue providing effective protection.

7. Seamless Integration with Emergency Services: The SOS Women Safety Device is designed to integrate smoothly with existing communication and emergency response systems. This integration ensures that alerts and location data can be efficiently relayed to emergency services, improving the coordination and effectiveness of the response.

8. Cost-Effective Solution: The device is developed with affordability in mind, making it accessible to a wide range of users. Its cost-effectiveness ensures that more individuals can benefit from enhanced personal safety, without significant financial barriers.

9. Increased Peace of Mind: By providing a reliable and easy-to-use safety tool, the device gives users greater peace of mind in their daily lives. Knowing that they have a direct means of seeking help in an emergency situation can reduce anxiety and improve overall well-being.

10. Support for Broader Safety Initiatives: The device complements and supports broader women's safety initiatives by providing an additional layer of protection. Its integration with law enforcement and community safety programs enhances its impact, contributing to safer environments for all.

These advantages make the SOS Women Safety Device a crucial tool in personal safety, offering practical, reliable, and effective protection for women in various situations.

1.4 Proposed Solution:

The proposed solution for the SOS Women Safety Device leverages a combination of advanced components to provide a reliable and effective personal safety tool. At the heart of this system is the NodeMCU microcontroller, which acts as the central processing unit, coordinating all the device's functions. The device is equipped with a voltage sensor that monitors the power supply, ensuring continuous operation and alerting the user if the battery level drops below a critical threshold. An OLED display is integrated into the device to provide real-time information to the user, such as battery status, connectivity indicators, and emergency contact details. The OLED's clear and bright display ensures that the information is easily readable even in low-light conditions, enhancing user interaction and confidence. In the event of an emergency, the device can be activated to send out an SOS alert. Upon activation, the NodeMCU processes the emergency signal and initiates the transmission of location data to predefined contacts via Wi-Fi or cellular networks. This rapid communication ensures that help can be dispatched quickly. Additionally, the device's compact design makes it highly portable, allowing it to be easily carried in a pocket, purse, or worn on a wristband. This portability ensures that users can have the device with them at all times, providing continuous protection. The proposed solution prioritises user safety by combining real-time monitoring, efficient power management, and seamless communication, making the SOS Women Safety Device an essential tool for personal security in various situations.

1.5 Aim and Objectives:

Aim:

The aim of the SOS Women Safety Device project is to develop a compact, reliable, and user-friendly personal safety tool designed to enhance the security of women in emergency situations. This device seeks to provide a

International Journal of Information Technology & Computer Engineering
ISSN 2347–3657
Volume 15, Issue 3, 2024
https://doi.org/10.62646/ijitce.2024.v15.i3.pp881-890

quick and effective means of alerting emergency contacts and authorities in the event of danger, ensuring rapid response and assistance. By integrating advanced components such as a NodeMCU microcontroller, voltage sensor, OLED display, and efficient communication systems, the project aims to deliver a solution that is not only easy to carry and operate but also highly dependable. The primary objective is to empower women with a device that offers real-time monitoring and immediate communication, thereby improving personal safety and reducing the risk of harm.

Objectives:

The objectives of the SOS Women Safety Device project are as follows:

1. **Rapid Emergency Alert**: Develop a mechanism to instantly send distress signals to predefined contacts and emergency services when the user activates the device.
2. **Real-time Monitoring**: Implement continuous monitoring of the device's status and environment, ensuring timely detection of any potential threats or unusual activities.
3. **User-Friendly Design**: Ensure the device is compact, lightweight, and easy to use, allowing for quick activation in emergency situations without requiring complex operations.
4. **Reliable Communication**: Integrate robust communication technology to guarantee that emergency alerts are transmitted effectively, even in areas with weak signal coverage.
5. **Battery Efficiency**: Design the device to operate with minimal power consumption, ensuring long battery life and reliability when needed most.
6. **Clear Feedback**: Utilize an OLED display to provide users with clear visual feedback on the device's status, battery life, and confirmation of sent alerts.
7. **Durability**: Ensure the device is durable and capable of withstanding various environmental conditions, making it reliable in diverse situations.
8. **Scalability and Integration**: Design the system to be easily scalable, allowing for future enhancements, such as integration with additional sensors or connectivity features, to improve functionality and user experience.

II. LITERATURE SURVEY

The literature on SOS Women Safety Devices explores a range of studies, research papers, and technological developments aimed at enhancing personal safety for women through portable, wearable, and easily accessible devices. Researchers and developers have focused on various aspects, including emergency alert mechanisms, real-time monitoring, low-power design, and communication reliability.

One major area of focus in the literature is the development of rapid emergency alert systems. Research has examined different methods of instantly notifying emergency contacts and authorities during distress situations. Studies highlight the effectiveness of using technologies such as GSM modules and internet-connected devices to ensure that alerts are transmitted quickly and reliably, even in areas with limited network coverage.

Another significant topic in the literature is the integration of real-time monitoring features. Researchers have explored the use of sensors and data processing techniques to continuously monitor the user's environment and detect potential threats. Studies emphasize the importance of combining sensor data with

International Journal of Information Technology & Computer Engineering
ISSN 2347–3657
Volume 15, Issue 3, 2024
https://doi.org/10.62646/ijitce.2024.v15.i3.pp881-890

algorithms that can accurately identify unusual activities and trigger alerts automatically.

The literature also delves into the importance of user-friendly design in safety devices. Research shows that devices must be compact, discreet, and easy to activate, ensuring that they can be used effectively in emergency situations. Studies have investigated various form factors, including wearable devices like bracelets and pendants, as well as handheld gadgets, to determine the most practical designs for users.

Power efficiency is another key area of study, with researchers focusing on the development of low-power consumption devices that can remain operational for extended periods. Studies discuss the use of energy-efficient components and optimized power management strategies to maximize battery life, ensuring the device is reliable when needed most.

Communication reliability is also a prominent subject in the literature, with a focus on ensuring that the device can send alerts without fail. Research explores different communication technologies, such as GSM, GPS, and Bluetooth, to identify the most reliable methods for transmitting distress signals. Studies also discuss the challenges of maintaining communication in areas with poor signal reception and propose solutions to overcome these issues.

Case studies and practical implementations provide valuable insights into the effectiveness of various SOS Women Safety Devices. Documented examples from real-world applications demonstrate the impact of these devices in improving personal safety, offering evidence of reduced response times and increased user confidence in emergency situations.

Overall, the literature on SOS Women Safety Devices underscores the critical role of technology in enhancing personal security. By combining rapid alert systems, real-time monitoring, user-friendly designs, power efficiency, and reliable communication, these devices offer a comprehensive solution to the safety concerns faced by women in diverse environments.

III. BLOCK DIAGRAM

The methodology for implementing the SOS Women Safety Device involves several key steps to ensure its effective operation and reliability. Initially, the project focuses on selecting and integrating essential components, including a voltage sensor, NodeMCU, battery, and OLED display. The voltage sensor is utilized to monitor battery levels, ensuring the device remains operational when needed, while the NodeMCU acts as the central processing unit, managing the device's functions and communication. The OLED display provides real-time information to the user, such as battery status and operation mode, with the battery powering the entire system for portability and long-term use.

Following component selection, the system design and circuit development are carried out, including the creation of the circuit layout that connects all components. The NodeMCU is programmed to handle inputs from the voltage sensor and control the OLED display, with the system design defining the device's behavior during emergencies, such as sending alerts and displaying relevant information.

Custom firmware is then developed for the NodeMCU, incorporating features like emergency alert activation, voltage monitoring, and OLED display control, while ensuring energy efficiency. Once assembled, the device undergoes rigorous testing to verify the functionality of all components, including accuracy of the voltage sensor, responsiveness of the NodeMCU, and clarity of the OLED display. Testing includes evaluating the device under various conditions to ensure reliability.

The user interface is designed to be simple and intuitive, with the OLED display providing continuous feedback on battery level and alert

International Journal of Information Technology & Computer Engineering
ISSN 2347–3657
Volume 15, Issue 3, 2024
https://doi.org/10.62646/ijitce.2024.v15.i3.pp881-890

status. Feedback from initial users is used to refine the interface and ensure ease of operation. Field trials are conducted to assess real-world performance, identify any issues, and make necessary adjustments for optimization.

Finally, regular maintenance is scheduled to keep the device in optimal working condition, including monitoring battery health, updating firmware, and ensuring component functionality. The methodology ensures that the SOS Women Safety Device delivers reliable safety features, enhancing user security and satisfaction through a comprehensive approach from design to deployment.

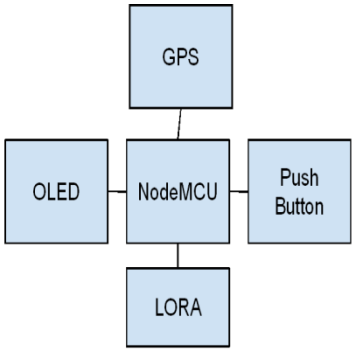

Figure.2 : Block Diagram of SOS Women Safety Device

IV. HARDWARE COMPONENTS

4.1 NodeMCU (ESP8266)

The NodeMCU ESP8266 is a powerful and versatile platform designed for Internet of Things (IoT) development. The ESP8266 is a cost-effective Wi-Fi microchip known for its capability to enable wireless communication in IoT applications. NodeMCU, on the other hand, is an open-source firmware and development kit that simplifies the process of prototyping and programming the ESP8266. With built-in Wi-Fi connectivity, the NodeMCU ESP8266 allows devices to connect to the internet wirelessly, making it suitable for a wide range of IoT projects. One notable feature is its support for the Lua scripting language, providing a high-level programming environment for developers. Additionally, it is compatible with the Arduino IDE, allowing those familiar with Arduino to use the NodeMCU platform. Equipped with General Purpose Input/Output (GPIO) pins, the ESP8266 facilitates interfacing with various electronic components, making it ideal for applications such as home automation and sensor networks. The NodeMCU ESP8266 has garnered significant community support, resulting in an extensive collection of libraries and documentation, making it a popular choice for rapid IoT prototyping and development.

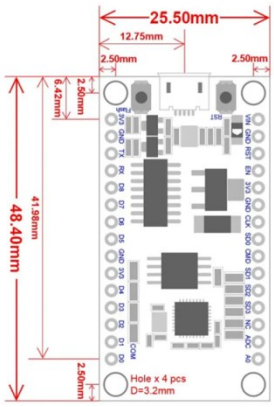

Figure.3: NodeMCU 2D View

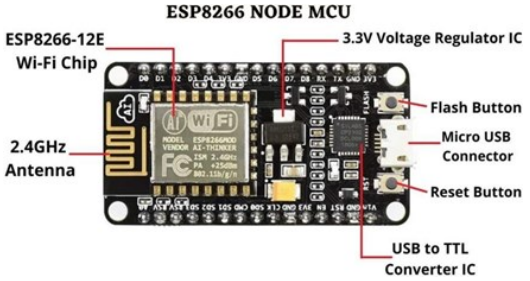

Figure.4 : NodeMCU Parts

The NodeMCU ESP8266 development board typically has GPIO (General Purpose Input/Output) pins that can be used for various purposes, including interfacing with sensors, actuators, and other electronic components. Below is a common pinout configuration for the NodeMCU development board

International Journal of Information Technology & Computer Engineering
ISSN 2347–3657
Volume 15, Issue 3, 2024
https://doi.org/10.62646/ijitce.2024.v15.i3.pp881-890

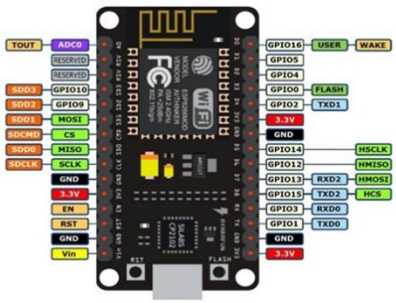

Figure.5 : NodeMCU ESP8266 Pinout

4.2 LORA

LoRa (Long Range) is a wireless communication technology designed for long-distance data transmission with low power consumption, ideal for Internet of Things (IoT) applications. Operating in sub-gigahertz frequency bands, LoRa uses Chirp Spread Spectrum (CSS) modulation to ensure robust communication over several kilometers, even in challenging environments. Its low power requirements make it perfect for battery-operated devices, enabling extended operation without frequent recharging. LoRa supports scalable network topologies, offering secure and reliable communication for applications like smart agriculture, remote monitoring, and smart cities, making it a key enabler in the IoT ecosystem.

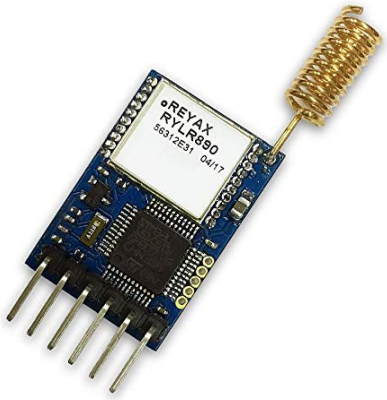

Figure.6 : LORA

4.3 GPS Module:

A GPS (Global Positioning System) module is a compact electronic device that enables precise location tracking and navigation by receiving signals from satellites in the GPS network. These modules are capable of determining a device's exact latitude, longitude, altitude, and velocity by triangulating signals from multiple satellites orbiting the Earth. GPS modules are widely used in various applications, including navigation systems, vehicle tracking, geolocation services, and mobile devices, providing real-time positioning data with high accuracy. Equipped with features like fast satellite acquisition, low power consumption, and reliable performance in diverse environments, GPS modules have become essential components in modern technology, facilitating everything from personal navigation to complex industrial logistics.

Figure.5 : GPS Module

4.4: OLED

Organic Light Emitting Diodes (OLEDs) are a display technology that utilizes organic compounds to emit light in response to an electric current. OLEDs consist of several layers, including a layer of organic material placed between two electrodes. When an electric current is applied across these electrodes, the organic layer emits light through electroluminescence, a process where electrical energy is converted directly into light. The emitted light can be controlled to produce various colors and brightness levels, depending on the type of organic material used. Unlike traditional displays, OLEDs do not require a backlight as each pixel generates its own light, which allows for higher contrast

International Journal of Information Technology & Computer Engineering
ISSN 2347–3657
Volume 15, Issue 3, 2024
https://doi.org/10.62646/ijitce.2024.v15.i3.pp881-890

ratios, deeper blacks, and more vibrant colors. OLEDs are also known for their flexibility, thin profile, and wide viewing angles, making them ideal for applications in smartphones, TVs, and other display devices. Their efficiency and ability to produce bright, clear images while consuming less power contribute to their growing popularity in modern display technology.

Figure.6 : OLED

4.5: Push Button

A push button is a simple, widely used electrical switch that controls a circuit by allowing current to flow when pressed. It consists of a small, durable button that, when pressed, connects two contacts inside the switch, completing the circuit and allowing electricity to pass through. Push buttons are commonly found in devices such as calculators, remote controls, and industrial machinery, where they serve various functions like turning devices on or off, triggering actions, or resetting systems.

Figure.7 : Push Button

V. CONCLUSION

The safety gear that is advised for women is made to guarantee them total safety under the existing circumstances. The button serves as the user's only unique identification, ensuring that no one may fabricate information and that indications are only sent out when there is pressure. A buzzer has been added to the layout to notify all acquaintances of the problem that has occurred in order to guarantee total security. Messages are being sent to make sure the victim's current location is shared with the police and next of kin. The lady may briefly render the attacker helpless with an electric shock if she feels the need to protect herself. Additionally, an Android application has been developed that will provide other security capabilities contingent on the hardware, such as the ability to send group messages, record audio, and locate nearby secure locations on a map. The smart equipment concept for women's safety presented in this article needs to be further assessed using performance metrics to demonstrate its efficacy.

REFERENCES

1. Empowering Women’s Safety with smart IoT Technology: A Robust Protection System N.V.K. Ramesh Akhila Alaparthi,G Sai Charan,Rishitha Settipalli,Pranathi Velga, B. VeenaVani.(2023) .
2. G. Gulati, T. K. Anand, T. S. Anand, and S. Singh, ‘‘Modern era and security of women An intellectual device,’’ Int. Res. J. Eng. Technol. (IRJET), vol. 7, no. 4, pp. 212–218, 2020.
3. K. M. Opika and C. M. S. Rao, ‘‘An evolution of women safety system: A literature review,’’ Int. Bilingual Peer Reviewed Peered Res. J., vol. 10, no. 40, pp. 61–64, 2020.
4. Touchless Heart Rate Prediction With The Help Of Facial Expression Using Image Processing Trupti Ghegade1*,

International Journal of Information Technology & Computer Engineering
ISSN 2347–3657
Volume 15, Issue 3, 2024
https://doi.org/10.62646/ijitce.2024.v15.i3.pp881-890

Dr. m. d. Rokade2 ,Dr. Sunil S. Khatal.

5. W. Akram, M. Jain, and C. S. Hemalatha, ‘‘Design of a smart safety device for women using IoT,’’ Proc. Comput. Sci., vol. 165, pp. 656–662, Jan. 2019.
6. B. R. Reddy, T. Sowjanya, N. B. Subrahmanayam, G. Mahantesh, and S. Prudhvi, ‘‘IOT based smart protective equipment for women,’’ Mater. Today, Proc., vol. 80, pp. 2895–2900, 2023 .
7. S. Mohapatra, C. Ramya, N. G. Sahana, V. Savithri, and S. Yashaswini, ‘‘A smart wome protection system using IoT,’’ in Data Intelligence and Cognitive Informatics. Singapore: Springer, 2022.
8. A. Bhate and S. H. Parveen, ‘‘Smart wrist band for women security using logistic regression technique,’’ Int. J. Recent Technol. Eng., vol. 8, no. 1, pp. 2215–2218, 2019.
9. D. K. M. AnandKumar, ‘‘Smart garb—A wearable safety device for women,’’ Int. J. Res. Appl. Sci., Eng. Technol., vol. 8, no. 5, pp. 513–519, May 2020
10. Ahir, S., Kapadia, S., Chauhan, J., &Sanghavi, N. (2018, January). The Personal Stun-A Smart Device For Women's Safety. In 2018 International Conference on Smart City and Emerging Technology (ICSCET) (pp. 1-3). IEEE.
11. "Global positioning systems," [Online]. Available:https://en.wikipedia.org/wiki/GPS_navig ation_device.
12. C. Ouyang, "Design And Implementation of a Wireless Zigbee Mesh Network," International Journal of Science, Technology & Management, vol. 7, 2014
13. J.K.Thavil, V.P.Durdhawale, P.S.Elake,” Study on Smart Security Technology for Women based on IOT”, International Research Journal of Engineering and Technology (IRJET) Volume: 04 Issue: 02 | Feb - 2017.
14. Vaibhav A. Alone, Ashish Manusmare,” A Study Based On Women Security System”, International Journal of Science, Engineering and Technology Research (IJSETR) Volume 6, Issue 8, August 2017, ISSN: 2278 -7798
15. Shreyas R.S, Varun.B.C, Shiva Kumar.H.K, Punith Kumar B.E, Kalpavi.C.Y,” Design And Development Of Women Self Defence Smart watch Prototype”, International Journal of Advanced Research in Electronics and Communication Engineering (IJARECE) Volume 5, Issue 4, April 2016