

Women Safety Band

Kishor U¹, Dr.Harish bhat N², Bhaskar T³, Mahantesh S T⁴, Lakshmi keerthan B⁵

¹ Student, Electronics & Communication Engineering, Alva's institute of engineering and technology, Karnataka, India

² Professor, Electronics & Communication Engineering, Alva's institute of engineering and technology, Karnataka, India

³ Student, Electronics & Communication Engineering, Alva's institute of engineering and technology, Karnataka, India

⁴ Student, Electronics & Communication Engineering, Alva's institute of engineering and technology, Karnataka, India

⁵ Student, Electronics & Communication Engineering, Alva's institute of engineering and technology, Karnataka, India

ABSTRACT

Women are now facing issues like female harassment. The proposed system there is one device which is integrated with other devices. The hardware system consists of a wearable "smart band" that will always keep in touch with the mobile device with internet access. This project can offer the security for the women in some imperative that they will never escape. An advanced system can be constructed which can reveal the position and well-being status of the women that can keep us to respond appropriately. Multiple sensors can be used to find the status of women in social issues in real time for Developers. However, woman is the one who is the most suffering of the best creation of God.

Keyword: - female harassment, smart band, wearable device, women security, real-time monitoring, internet access, position tracking, well-being status, multiple sensors, social issues, advanced system, safety device, developers, real-time response.

1. INTRODUCTION

“Women harassed, murdered, protested, every other day | Delhi, NCR, October 28, 2023). Streetlamp needs to be installed and maintained. It would be much welcomed to provide legal, medical and police assistance to victims at one-stop destinations. Stepping up on curbs at night, cars with cabs, rickshaws, that can pick up, drop women on the spot have to be inducted. IoT, CC (Cloud computing), and sensors are physical devices connected to all electronic devices that help to overcome such problems. Data protection in IOT is very significant. It's definitely good for individuals to set up extra security. The sensors are meant to realize an instinctive reaction with no provocation. By constructing an articulate city, one can help individuals solve problems like women safety. The concerning rates of assault and harassment that have been documented worldwide in recent years have increased the significance of women's protection. A varied and proactive response is necessary because of the diverse nature of threats, which can range from domestic abuse and workplace exploitation to street harassment. Although organisations and governments have taken a number of actions, technology involvement is necessary due to the growing complexity of these issues. Technologies like GPS, GSM, and IoT provide a revolutionary way to address safety issues. IoT makes it possible for linked systems to exchange information and react to crises with intelligence. Real-time communication is made possible by GSM, which guarantees instant connectivity in emergency situations. GPS guarantees that users can be located and assisted effectively thanks to its accurate location-tracking capabilities. The purpose of this study is to suggest a clever safety gadget that combines various technologies into a unified whole.

2. LITERATURE SURVEY

The use of body sensors with a network-based mobile feedback tracking system was demonstrated by Orlando Pereira et al. (2010). The Bluetooth software and the SHIMMER firmware have been included. Bluetooth can always connect to the gadget even if your phone is not there, but it will be useless.[1].

The downsides of this operation. Mirjam Jutila et al. (2014) demonstrate the novel design of a children's portable sensor jacket. The web sensor components in this function, Gateway execution and security jacket design have been put into practice. The extensive scope of the system utilized is one of this work's drawbacks[2].

Samuel Tanga (2016) demonstrates the "Development of the Smart Home Prototype Intelligent Lighting Check Architecture Using On Board a Mobile Computing System." The installation of "the Arduino controlled luminaire" limits the application's operation to wifi or the Internet[3].

Threats to information security in particular endanger lives in the medical industry[4].

Longer runtime and worse software usability are the results of software with greater functionality and security. Users can use biometrics to secure the application. verification to prevent false positives and provide increased safety. [5].

The DCS (Dynamic Cognitive System) discussed the measure to protect and provide safety for the apps from social network cyberthreats [7]. In his work 'Safe sole distress alarm device for women protection by IoT' Parth Sethi et al (2018) illustrated the idea behind the use of alarm systems. Primary controller, GSM module, GPS module management system, smartphone connection." This job's limitations are the smartphone click that doesn't automatically detect[6] .

Phooshkar Rajiv et al. (2016) provide the concept of utilizing "Remto-Email-based access and monitoring systems for smart home infrastructure." "The advent of email throughout this effort, from user and response processing to an integrated framework." These work limits don't use GPS or GMS and are quite costly to use[7] .

Enji Sun et al (2011) presented the IoT and cloud computing concept of the "IoT and cloud computing dam monitoring and warning system in mines." It's not automatic the limitations. External activity should be activated [8].

The hypothesis of Internet of Things is evidenced by Zhen yan et al (2014). His job has introduced a framework paradigm for the internet of things. It takes a long time to restrict this function and set-up [9].

Alexio Botta et al. (2015) conducted an investigation that demonstrated the convergence of cloud computing with the Internet of Things. In that work, cloud computing was used. Wireless and RFID sensors. The machine's poor performance is a drawback. It is quite costly to afford rich people .

In his paper, Luigi Atzori et al. The modern definition of the social Internet of things is presented in (2012). He thinks that the internet and cloud should be integrated. The method's operation is one of this work's flaws [4].

S.Sicari et al. (2014) provide a new definition of "safety and confidence in the internet of matters" in their work. According to him, the work has been completed on protection, trust, confidentiality, and legitimacy. Although sensor connectivity is not demonstrated, this study is constrained by internet security and authentication .

In their 2017 study, Andre Gloria et al. illustrate the revised concept of IoT gateways. The idea of IoT gateways has been used in this dissertation, along with a number of protocols for dialogue. This work involves many challenges, and the application's operational costs are very high[10] .

In his notion (2009), Carolyn Weitzman et al. illustrate the innovative idea of women's safety. He argues that women ought to take these precautions in community. The gadget was not deployed, although the safety of women is the only issue mentioned.

According to Minchen et al. (2016), "Connecting the Human Report with clouds and big data for sustainable health tracking" is a smart clothing principle. Long-term fitness The intelligent clothing program for Inter smart clothing has implemented screening for chronic illnesses [11].

The embedded wireless platform "AN IoT Security Model Architecture and validation of the integrated Android health surveillance device" is demonstrated by Mandeep Singh (2015). A To optimize telemedical capabilities, a cell phone was used to measure bodily parameters and a computer with pre-configured algorithms. The disadvantages of this definition are that the survivor does not hit the "request for assistance" button on the phone in this Android program [12].

His research examined "Integration of wearable systems with mobility assistance in AAL environments," Susana P. Costa (2015) illustrates the wearable concept. AAL, the universe of mobile Wearable technology "It was executed. There are restrictions because, being a wearable, it only takes a touch to unlock the device [13].

John Ayoade (2007) demonstrates the RFID principle in his paper "Roadmap to solve safety and pure problems in the RFID method." The supply chain's effectiveness was used, disposal of trash [14]

Rolf H. Weber demonstrates the concept of secrecy and confidentiality (2010). IoT, RFID, and data security have all been included in this thesis. This thesis's shortcomings are that IoT is secure, but it hasn't been adopted [15].

3. OBJECTIVE OF THE PROJECT

In recent years, there has been an increase in sexual crime. Women are mistreated not only at night but also during the day at home, at work, when shopping, etc. There are several Women who don't like outsiders except for protection. Approximately 80% of our women worry about their safety in our nation. Over the past ten years, when there has been greater anonymity, women typically do not leave their homes for work.

Numerous programs were created to protect the health of women. Every computer employs a different method to determine a woman's vulnerability. Women's state can be tracked with panic monitors, which can be utilized to change heart behavior and temperature. In order to capture female speech modulations in emergency circumstances, sound monitoring is also utilized.

Numerous systems use phones, such as cameras, to record women in unsafe situations, open their cries, capture their images, and push them. The many methods for women's protection when traveling overseas are also examined in this research. To ensure safety, women in risky situations need to put up an automated detection system that alerts staff and the authorities.

4. METHODOLOGY

In the proposed method, the ARDUINO processor—which has four inputs, an IVR, two sensors, and a switch—is used to construct the privacy and protection system for women.

The victim's location may be found using the mobile GPS coordinates with a single switch press, and text messages will be sent to the designated phone number utilizing the module for IOT. The vibrating sensor is known as a panic interrupter, and it has been programmed to turn on automatically and notify women when they feel nervous. It does this by sending messages via IOT to their default numbers through an alarming system. A temperature management system that assists in monitoring body temperature and notifies users if it falls below 20 degrees Celsius is another example of the alarm system.

If the person is unable to hit the switch on their own, another feature, like a speech recognition module, is used in emergency situations. A voice code has already been gathered. with an alarm message identified and sent to the control rooms and data telephones as planned. Machines, like drones, frequently utilize telephones to record, press, and scream in women's hazardous areas. This study also demonstrates the many methods that are needed.

for the protection of women abroad. Women must install an automatic monitoring equipment in hazardous situations to notify workers and law enforcement and guarantee safety.

This project uses the following modules:

1. Organization
2. Location data
3. The status of the analyst
4. Individual tracking
5. Emergency push button

Requirements for the system:**Hardware specifications:**

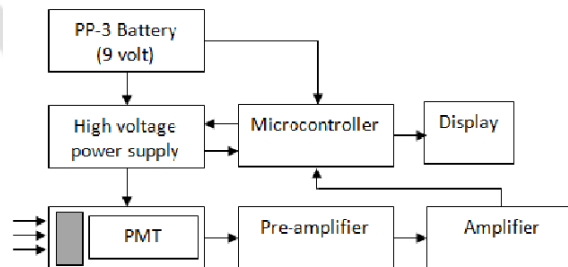
The Arduino NANO system
 Memory: 6 GB.
 Device: Android smartphone
 RAM: 2 GB
 Keyboard: Conventional Keyboard

Software specifications:

System software: Android App.
 Coding Language: Development of Apps
 Database: 2005 SQL Serve

5. PROPOSED SYSTEM**A. Overview**

The concept suggested addresses and helps to answer many important questions about women. It does not only provide protection and security by an independent defensive system. The merit of this work. With the aid of actual framework implementation of the proposed model, crime against women will now be ended. This is a method of reliability intended to provide women with security in sensitive circumstances. You should develop an up-to-date device to detect the position of the GPS and the health status of the individual that can help us respond appropriately. Several sensors can be used to monitor the real-time condition of critical women precisely[16]

B. Block Diagram:**Figure 1: Overview****SECTION NS FOR IMPO RTANT:**

1. Sensors Section
2. Section for Processing
3. Section IoT
4. Ivr Section &
5. Output Section

1. Sensor Section

- **Temperature Sensor:**

For the maintenance of wellbeing, human body temperature is important and should therefore be constantly monitored. Different temperature sensors are used to determine body temperature. The LM35 series, for example, consists of precise integrated circuit sensors with output voltage that is linear to Celsius temperature [17].



Figure 2 : Temperature Sensor

- **Pulse Rate Sensor:**

Sensor provides a digital heartbeat output. The Lead blows with each pulse while the heartbeat detector is running. In order to directly quantify BPM rates, this digital output will be wired to a microcontroller. It operates on the concept of networked satellites light modulation and is monitored for synchronization with uplinks [18]



Figure 3: Pulse Rate Sensor

2. Processing Section Arduino Controller

The Pic microcontroller includes EEPROM, CCP, device support processor, programme section prefix, carriage segment added, serial programming processor in-circuit, and LC [19]



Figure 4: Arduino Controller

3. Iot Section

An IoT chip is an electrical component integrated into objects, computers and digital devices. It connects to cellular networks and sends and receives data. The Internet of Things chip includes the same data circuits and technology found in cell phones; it's often referred to as a "radio chip" (but without a display or keypad) [20].



Figure 5: Iot Section

4. Ivr Section

Interactive Voice Response, or IVR, is an automated telephone system technology allowing incoming callers to access information through a pre-recorded messages voice answer system without talking to agents and using menu options by choosing the touch-tone keyboard or by speaking to specialists [21].



Figure 6: Ivr Section

5. Out Put Section Cloud

A broad network-supporting IoT device and application is called an IoT cloud. This comprises the necessary operating components, such as the architecture, routers, and storage and work in real time. The infrastructure and standards required to link, control, and safeguard different IoT devices and applications are also provided by an IoT cloud [22].



Figure 7: Out Put Section Cloud

Speaker

There is no official definition for a micro-speaker, sometimes known as a mini-speaker. Any minispeaker with at least one dimension of 20 mm or smaller is considered a micro-speaker at Be Star. In cellular networks and every manual gadget that Micro speakers are frequently utilised when high-quality spoken sound is required. The smallest Bluetooth speaker has a small form factor and produces rich, full-bodied audio. It is slightly taller than one inch and pairs effortlessly with your iPhone, iPad, Galaxy, or any Android smartphone to provide hands-free calls and wireless music [23].



Figure 8: Specker

Buzzer:

A buzzer is an auditory signaling device that can be mechanical, electromechanical, or piezoelectric. Utilize timers, alerts, and user input confirmation via mouse clicks or keystroke for common buzzer applications [24].



Figure 9: Buzzer

6. IMPLEMENTATION

These sensors are linked to an Arduino Uno board, which functions as a microprocessor. The S1 pin is an entry that is linked to the heartbeat sensor. A panel's S2 pin is its output. linked to a heartbeat sensor. After placing the hand on the sensor and connecting the board to the computer via connections, the Arduino C software defines the reading, which is then logged every 20 milliseconds Like the heartbeat sensor, the temperature sensor is connected. Body temperature is provided in all directions using a temperature sensor.

6. COMPARISION

With today's systems, numerous apps like "HELP ME ON MOBILE" have been created. Additionally, the *91# codes have been developed. When an emergency arises, women call or leave a code-related note.

The current architecture uses sensors including temperature, heartbeat, and panic sensors to assess women's health. In the event of an emergency, the position and text are automatically communicated to the police station and family members. In the existing structure, obtaining assistance in an emergency only requires a single click. Sometimes a woman's block out stage prevents her from doing even a single click. At that moment, body sensors assist her in immediately recognising when she is in danger.

7. CONCLUSION

The purpose of this study is to automatically guarantee women's safety in pandemic situations. This essay tackles social issues and helps to find solutions. Encountered by women in the past. With more investigation and creativity, this system can be expanded into other safety and monitoring domains. The device has the ability to precisely identify cruelty and keep an eye on the fitting area in real time.

REFERENCES

1. "Body Sensor Network Mobile Solutions for Biofeedback Monitoring," by Orlando Pereira, Joao M. L. P. Caldeira, and Joel J.P.C. Rodrigues: Springer Science + Business Media, LLC, 2010.
2. Mirjami Jutila, Helen Rivas, Pekka Karhula, and Susanna Pantar, "Implementation of a Wearable Sensor Vest for the Safety and Well-Being of Children," The Second International Workshop on Body Area Sensor Networks (BASNet-2014), Elsevier B.V., 2014.

3. Mobile Device Sensors (69, 2016, Enb 7248) Samuel Tanga, Ng Kok Yew, Jussi Parkkinen, and Vineetha Kalavally "Development Of A Smart Homse Intelligent Lighting Control Architecture Prototype" Using Computing System, <http://dx.doi.org/10.106/j.enbuild.2016.12.0>.
4. "EPBAS: Securing Cloud-Based Healthcare Information Systems using Enhanced Password-Based Authentication Scheme," written by Jesu doss A. and Subramaniam N.P., Asian Journal of Vol. 15, Issue 14, 2016, pp. 2457–2463, Information Technology.
5. "Enhanced Kerberos Authentication for Distributed Environment," by Jesudoss A Applied and Theoretical Journal of Information Technology, Vol. 69, No. 2, pages 368–374 (indexed by Scopus)
6. "Security Improvement for Web-Based Banking Authentication by Utilising Fingerprint," by Lakshmanan, L. and D. Suganthi Sharmila, A. Pure and Applied Mathematics RIP India, Vol. Global Journal of India, 2017, ISSN: 0073-1768. 13, No.9, pp. 4397-4404
7. "A dynamic cognitive system for recovering from vulnerable attacks in a social network," from RIP India, International Journal of Applied Engineering Research, Vol. 10, No. 4, pp. 10365, Lakshmanan, L. and Sankar, 2015.
8. Kaushlendra Kumar Pandey, Punit Gupta, Lakshey Juneja, and Parth Sethi worked together on "Safe Sole Distress Alarm System for Female Security Using IOT," published by Springer Nature Singapore PtcLtd in 2018.
9. Pooshkar Rajiv, Rohit Raj, and Mahesh Chandra 104, 2016; "The Smart Home Infrastructure Email-Based Remote Access and Surveillance System," Perspectives in Science. 10.1016/j.pisc.2016.04 (<http://dx.doi.org/doi:10.10>).
10. Xing Zhang, Zhongxue Li, and Enji Sun, "IoT and cloud computing (CC) based tailings dammonitoring and pre-alarm system in mines," International Symposium on Mine Safety, First Elsevier, 2011Science and Engineering.
11. Zheng Yan, Peng Zhang, and Athanasios V . put up "A Survey on Trust and Management for Internet of Things (IoT)" .
12. Walter De Donato, Antonio Pescape, Valerio Persico, and Alessio Botta Future Generation, "Integration of Cloud Computing and Internet of Things (IoT): A Survey" Systems for Computers, 2015.
13. Luigi Atzori, Antonio Lera, Giacomo Morabito, and Michele Nitti, "The Social Internet Of Things (SIOT)" Computer Networks, Elsevier, 2012.
14. S.Sicari's book "Internet of Things (IoT) Security, Privacy, and Trust". Rizzardi, L.A. Grieco, and A. Coen-Porisini, Computer Networks, Elsevier, 2014.
15. "Design and Implementation of an Internet of Things (IoT) Gateway to Create Smart Environments," by Andre Gloria, Fencisco Cercas, and Nuno Souto, The 8th International
16. Proposed system :https://www.researchgate.net/figure/Block-diagram-of-the-proposed-system_fig1_268000467
17. Temperature Sensor: <https://einstronic.com/product/lm35-analog-temperature-sensor/>
18. Pulse Rate Sensor: <https://www.amazon.in/Robodo-Electronics-PLSNSR1-Arduino-Raspberry/dp/B07B8KHYC8>
19. Arduino Controller: <https://arduino.stackexchange.com/questions/75238/put-arduino-in-dfu-mode-no-rst-pin>
20. Iot Section: <https://phytools.com/products/sysworxx-ctr-100-iot-chip>

21. Ivr_Section: : <https://www.infineon.com/cms/en/aboutinfineon/press/market-news/2006/173137.html>
22. Out Put Section Cloud : <https://medium.com/@josueparra2892/the-power-of-the-cloud-exploring-its-benefits-and-impact-on-the-modern-world-323a038b6e8c>
23. Specker : <https://www.flyrobo.in/0.5w-8ohm-40mm-mini-speaker>
24. Buzzer : <https://www.indiamart.com/proddetail/electronic-buzzer-tmb12a12-12v-25674233397.html>

