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LITERATURE SURVEY ON WOMEN SAFETY DEVICE

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Abstract: ln the present-day scenes women safety is considered to be the major problem in both urban and rural areas. Women's safety is a very important issue due to rising crimes against women these days. To help resolve this issue we propose a women's safety system that provides self-defence and also consist of a device with salient features. This device consists of a system that ensures alerts in case a woman is harassed or she thinks she is in trouble. Also, we have a watch which has a camera which captures the image for surveillance. We are also working on an Android application that will serve as a backup for the device and will make use of the mobile's built-in features.

Keywords: Women Safety, Self-defence, GPS, GSM, Watch, Application.

I. INTRODUCTION

India, which sees itself as a promising superpower and economic hub, can only achieve its goal if and only if a large number of women participate in the development process to reduce the possibility of physical violence (robbery, sexual assault, etc.) by keeping all aid tools ready to safely escape from violent situations. This reduces risk and brings help when it is needed. Specially designed security device for women in times of emergency and distress. It is simple to use and transport, and it has a variety of functionalities. It is a personal safety device that is designed to keep you and your friends safe at all times. The issue of women's safety has long been a concern in society. With the increasing instances of violence and harassment against women, it is imperative that effective measures be taken to ensure their safety. One such measure is the implementation of a woman safety system.

A woman safety system is a set of technologies and processes that aim to provide women with a sense of security and protection. These systems can range from simple emergency hotlines to more complex systems that use GPS tracking and other advanced technologies. In this paper, we will explore the various types of woman safety systems that are currently available, their features and benefits, and how they can be implemented in various settings. We will also discuss the challenges and limitations of these systems and suggest potential solutions to address them. Overall, the goal of this paper is to provide a comprehensive overview of woman safety systems and to highlight their importance in promoting the safety and well-being of women. Our goal is to provide you with the quickest and easiest way to contact your local assistance. The basic approach (single click) is to intimidate the instant location and a distress message to the cops and the pre-set numbers, thereby averting an unfortunate incident and providing real-time evidence for action against the perpetrators of crime against women.

II. LITERATURE REVIEW

GPS Based Women Safety Device [1] is women's safety gadget described in this paper is intended for usage in India. For ladies who might be in danger, this device serves as an emergency device. An SMS with the location's latitude and longitude will be sent to a list of pre-fed cell phone numbers when the woman clicks the panic button on the device. In this manner, anybody who receive the message will be able to utilise the coordinates to locate the woman in need and offer assistance. The purpose of this device was to reduce India's rising rate of crime against women. The use of hardware elements such an Arduino Uno microcontroller and a GSM module, as well as the usage of a money-saving gadget, are the key strategies covered in the article.

The GSM module is utilised for connectivity, and the Arduino Uno microcontroller is used to integrate hardware and software. The GSM module employs Global System for Mobile Communications (GSMTM) technology, which combines Time Division Multiple Access (TDMA) signalling over Frequency Division Duplex (FDD) carriers with Phase Shift Keying (PSK) modulation. The cost of production needs to be maintained low because the device is intended to be inexpensive for the typical Indian user. By offering the idea of a tool that can assist Indian women who find themselves in danger, this paper has made a contribution to the field of

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women's safety. In order to keep costs down and make this product cheap for the typical Indian consumer, it uses hardware components including a GSM module and an Arduino Uno microcontroller. Additionally, it has suggested a novel strategy to lessen crime against women, which entails sending an SMS with the location's coordinates to pre-filled mobile numbers in the event of an emergency. The recommended safety gadget, according to the paper's findings, is a practical means of assisting Indian women who may be in risk. In case of an emergency, the low-cost device can be used to send an SMS to pre-programmed cell phone numbers with the location's coordinates. This gadget might lessen crime against women in India.

Design and Implementation of Women Safety Band with Switch Over methodology using Arduino Uno [2] is a gadget that is meant to shield women from perilous circumstances, according to the abstract. This study examines the operation of the device, which primarily relies on Bluetooth, GPS, and a microcontroller. An app named ALERT, which is available for download from the Google Play Store, can be used to connect the gadget to a smartphone. The device features a 5 second delay time to prevent unwanted transmissions and can be worn on the wrist, belt, or brooch. Comparatively speaking, the device is more affordable, dependable, and user-friendly than other women's safety-related equipment. The primary methods covered in the abstract have to do with the Women Safety Band (WSB). Women will be safeguarded by this technology from perilous circumstances.

The Global Positioning System (GPS), Bluetooth, several working microcontrollers, and switch over methodology are the foundations of this system. It has unveiled a brand-new innovation dubbed Ladies Safety Band (WSB), which is made to shield women from perilous circumstances. The system's foundations include the Global Positioning System (GPS), Bluetooth, several microcontrollers that can function, and switch over methods.

Additionally, the gadget can be worn as a belt, brooch, or bracelet and is compatible with the "ALERT" smartphone app. The study compares WSB to other technologies in the area of women's safety and analyses its benefits. With the introduction of a less expensive, more dependable, and user-friendly technology, this study has made a contribution to the field of women's safety. The study also examines the various technologies employed for women's safety and describes the numerous benefits of the Women Safety Band (WSB). The paper comes to the conclusion that the WSB, with its 72-hour battery life and ability to offer quick, precise position details, is a beneficial tool for shielding women from risky circumstances.

A Hidden Markov Model and Internet of Things Hybrid Based Smart Women Safety Device [3] is creation of a multivariate security paradigm to shield women from potentially offensive threats is covered in the research paper's abstract. The Internet of Things (IOT) and the Hidden Markov Model are the two fundamental building blocks of this security solution (HMM). In order to secure the safety of women, the IOT component offers flexibility and dynamicity in connecting a range of sensors and actuators, while the HMM component's dynamic probabilistic nature enables predictive analysis.

A situation-based analysis for relative modelling is also available, and it is based on facial recognition and fuzzy categorization of language exchanges. A GSM/GPS module will transmit an emergency signal if a scenario warrants it; otherwise, it will alert the female device bearer. The accuracy of the experiments' outcomes is 94.7%, which is promising. The Internet of Things (IOT) and the Hidden Markov Model are the key strategies covered in this research study (HMM). A GSM/GPS module is employed to deliver emergency signals or warnings in the event of an emergency. The establishment of a multivariate security paradigm to shield women from potentially offensive threats has been made possible by this paper.

SMARISA: A Raspberry Pi based Smart Ring for Women Safety Using IoT [4] is to create a wearable gadget that will enable women to defend themselves against sexual assault and harassment. The gadget, known as SMARISA, is a smart ring with a buzzer and a button that is attached to a Raspberry Pi Zero. When the gadget is turned on, it will send a distress signal to emergency personnel or the police, along with the victim's current location and a picture of the assailant taken by the Raspberry Pi camera. With the help of this very portable and simple-to-use tool, women may effectively and affordably defend themselves from offenders. The development of a wearable gadget for women's safety using Internet of Things (IoT) and Raspberry Pi technology are the major strategies covered in this paper. With the help of this very portable and simple-to-use tool, women may effectively and affordably defend themselves from offenders.

The article also covers the use of GPS monitoring of the smart phone to obtain the device's coordinates, an alarm message to notify the family and law enforcement, GSM and GPRS elements, and methods for photographing the assailants to help with criminal identification. The portable device has a button that the victim can press to communicate their current position and a photo of their attacker to predetermined emergency contacts or the authorities.

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This tool could provide more effective protection for women in these circumstances at a lower cost and with greater accessibility. The article also reviewed current strategies for protecting women from crime, including Suraksha, Child Safety Wearable Device, Hear Me, Femme, and the Abhay app. When the gadget is turned on, it will send a distress signal to emergency personnel or the police, along with the victim's current location and a picture of the assailant taken by the Raspberry Pi camera. With the help of this very portable and simple-to-use tool, women may effectively and affordably defend themselves from offenders. The report also covers current strategies for protecting women from crime, such the Suraksha, Hear Me, Femme, and Abhay apps.

Women Self Protecting System Using Internet of Things [5] is to provide safety for women and to reduce the crime rate. Nowadays, an individual's safety is jeopardized, whether due to illness or rising crime rates such as sexual assaults, molestation, and abuse. So, to prevent these to a certain extent, this paper proposes an automated wearable smart device to prevent the above-mentioned cause that has access to the internet (IoT). In real time, this device may not be as useful because it can only be implemented with a smartphone, but many people do not own smartphones, and school students are not permitted to use mobile phones, so this cannot be an effective solution. Keeping all of this in mind, we propose a better model in this paper that can be very effective for anyone and anywhere with and conditions. This system is a smart band, which consists of a microcontroller embedded with a few biosensors such as a motion sensor, a temperature sensor, a pulse rate sensor, a BLE module, and a power supply.

This smart band is connected to the mobile device through the Bluetooth module. The sensors frequently monitor the body condition of the user, and when an abnormality occurs within the body, which is pre-programmed in the band, it is compared, and when the abnormality is confirmed, the collected data is acquired and activates the preinstalled app, which in turn sends the messages to alert the family, police, and the people who use the designed app. When women are in trouble, she presses the Panic switch. The GSM will enable GPS and it tends to track the longitude and latitude of that particular location. This location is continuously tracked and displayed on the LCD. An alert message signal is also sent to the pre-registered mobile numbers. This system is divided into two parts: biosensors that must come into contact with the human body and a control unit that does not have to come into contact with the body but can be carried in handbags or other ways. This does not require any app installation and is compatible with any mobile device. When we begin to value humans, human values, and morals over materialistic things, the world becomes a safer place to live, filled with peace and humanity, and capable of reaching greater heights. When the mindset of the person using this instrument changes, complete safety can be obtained.

A Survey on Women Safety Device Using IoT [6] is a survey about women safety devices using IoT, Women safety devices are specifically designed for women in dangerous or emergency situations. It should be very simple, easy to transport, and integrate several functionalities. The government and individuals have created a number of mobile applications and smart devices to assist women. It is completely impossible to use a mobile phone in an emergency. There are various techniques used in women's safety devices, tracking your location, Notification, Sensors, Capturing images Although the literature shows that there are auto detection women safety devices based on parameters such as voice recognition, temperature, and heart rate, these systems may fail due to women's abnormal health conditions. The location is determined using GPS and GSM technology. As a result, the identified location is communicated to people via SMS, email, phone calls, and so on. A buzzer is used to generate an alarm sound; through this sound, people within a short distance can assist them. A sensor is a device that calculates or discovers a physical property that indicates, or responds to, other devices. There are various types of sensors that are used to measure various conditions; some of the sensors are detected by using various physiological sensors, such as MEM Sensor, Flex Sensor, Pulse Rate Sensor, and Temperature Sensor. MEMS is an abbreviation for Micro-Electro-Mechanical Systems.

The acceleration is measured by this sensor. A variable resistor is a flex sensor. When there is movement in a component due to high pressure, the sensor's resistance increases. Temperature Sensors calculate the amount of heat energy or coldness produced by an object or system in order to sense or detect it. The beats per minute are calculated using pulse rate sensors. The mobile application is created in an object-oriented fashion. When a woman travels from one location to another, she must activate the GPS (continuous global positioning system). The GPS continuously monitors their location. In the event of a danger, if she does not mark herself safe within a certain time frame, an SMS alert is sent to the registered contact. Despite the fact that the location is shared with distant people, it takes time to reach the location. The occurrence of threats to women leads to an increase in the number of security devices and applications. This study demonstrates the various factors that have been used in applications and smart devices designed for women's safety. The various techniques used so far for the sake of women's safety against fraudulent people.

Lifecraft: An Android Based application system for women safety [7] is to be very useful in an emergency situation while also being distinct from other applications. The use of smartphones has increased rapidly in recent years, making it

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possible to use a smartphone effectively for security or other protective purposes. All of the recent atrocities have prompted us to consider safety concerns. With the help of our application "LifeCraft,". It is an Android app designed for women's safety, though men can also use it in an emergency. It can be triggered by voice command or the SOS button. Every five minutes, until the system is turned off, an alert message with the location is sent to the user-defined numbers. Many cases remain unsolved due to a lack of evidence. As a result, we kept the audio recording option to preserve evidence. Some of the most useful features of this system include continuous location tracking, displaying the victim's safe zone, and offline mode. In a crisis situation, a user may run out of money and be unable to use all of the features. Keeping this in mind, we have planned for Offline mode, in which the application can send alert messages but not locate them, call the helpline number, and record audio. This feature was added to minimise danger in any case, so that the user can get help in any situation. Though the application cannot send location with this feature, the user's family may be aware of her route and can reach out for assistance or at the very least be aware that she is in danger.

To create our app "LifeCraft," we used Android Studio 3.3.2 and Java JDK 11.0. To make use of all of the features, the app requires no additional hardware. It can also be used with any GPS-enabled Android phone. The user must register in order to use the application. The user can log in using their registered email address and password. The user must manually enter three contact numbers. They will be added to the Firebase Database. Every time the user uses this application, she must start it by pressing the on/Off button. The app will then begin to function until the user turns it off. When the user presses the SOS button or screams with the voice command, the app activates its emergency service and sends an alert message to the user's registered contacts with the user's name and location. The location will be sent every 5 minutes to the contacts so that if the person changes his/her location, the contacts will be notified and can seek assistance. There is also a live streaming system. When the user moves from one location to another, the registered contacts can track his/her movements using Geofire. There is an audio recording system. After receiving the SOS command, the system will begin recording the surroundings for the first 5 minutes so that the user can use it as evidence later. In a crisis, a user may run out of money and be unable to use data to access all of the features. Keeping this in mind, we have planned for an offline mode in which the application can send alert messages but not location, call the helpline number, and do audio.

Internet of Things (IOT) based smart band to ensure the security for women [8] is a model that will improve security and safety, particularly for girl children in India. In this connection, a smart band with multiple sensors and programmable hardware is used. A smart band that communicates with a smartphone via wireless communication. A smart band application has been developed and installed on a smart phone in the required quantities, and the smart band generates a signal that is sent to the smartphone. Track the exact location with GPS and the automatic SMS service is done by GSM and screaming alarm which are already pre-programmed, whenever we receive an emergency signal, smart phone will automatically send "help me & save me, I am in danger situation" message along with location send to nearest police station/patrol/control room and also send the message to prime contacts which you saved and also send alert SMS to who are all using this application. When the screaming alarm goes off, a siren calls for help. And the smart band will generate electric shocks of up to 12 V before screaming. Because our smart band (IoT) must send out error free locations and be 100% resistant to water proof in our system that ensures women's security. This smart system includes Bluetooth 5.0 and location identification via independent wireless communication. Bluetooth security for IoT becomes critical in this context. Bluetooth 5.0 enhanced BLE features must be expanded, such as security intelligence: data rate up to 2 Mbps and communication up to 400 metres & 800% in connection bandwidth & privacy protection. The smart band (gadgets) system is to ensure security by automatically detecting (sensors) threats and sending alerts to save circumstances using IOT. The above application has limitations in terms of performance, network communication, and cost. The SHE app, in particular, is not supported for all types of garments, and the product cost will be high. And VithU, the app may be destroyed if an emergency alert SMS is sent using your main balance (smart phone). If you are in an emergency situation and do not have enough balance, the alert SMS will not be delivered and the entire system will be destroyed. So, let us introduce an IOT-based smart band system that will help to reduce crime against women. Implementation of this system will reduce and control crime over abuse/molestation. This system protects women while they travel at night and anywhere, they wear it. The smart band technique has significant social implications.

ProTecht – Implementation of an IoT based 3 –Way Women Safety Device [9] is used to protect women in dangerous situations. The aim of this project is to provide self-defence, an evidence recorder, and tracking of the women. The project uses Raspberry Pi, a Nerve stimulator, Switch, Buzzer, voice activation, GPS, GSM, a camera, and a Mic module. The device is always on self-alert to protect the woman. When the woman is in danger and presses the switch, the Raspberry Pi will activate the Nerve Stimulator which will act in self-defence for the woman by knocking down the person who is assaulting the woman by producing a shock that is active for 2sec. the camera module will capture the image of the person who is assaulting the woman and through raspberry pi, the image will be stored in the server which acts as evidence against the person who is assaulting the woman. The woman can activate GPS and GSM modules through a mic and

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using voice recognition the Raspberry Pi will recognize the woman and it will retrieve the location of the woman using GPS and using GSM a message is sent to the emergency contacts. The device also has a microphone and speaker which is connected to the GSM module which allows the woman to communicate with the contact person.

IoT Based Smart Security Gadget for Women's Safety [10] is worn on the hand and has a number of features and functions. It is light in weight and thus easy to transport. When a woman feels unsafe, the device sends an alert message and a ring to predefined numbers such as parents, friends, media, and police. To accomplish this, the device includes a pulse rate sensor, GPS (Global Positioning System), GSM (Global System for Mobile Communication), ADXL Motion Sensor, ADC, and alarm buzzer. All of the sensors are linked to a Raspberry Pi, which serves as the central controller. When the woman feels unsafe, she can press the emergency button on the band. When the button is pressed, if the pre-set threshold values are met, the alarm buzzer activates and emits a loud sound to alert people nearby. An emergency alert message containing the location will also be sent to the predefined numbers. This project also operates automatically when the pre-set threshold values for the ADXL motion sensor and pulse rate sensor are met. The Python programming language is used to program all of these sensors. This project employs a sophisticated automatic technique to detect a dangerous or unsafe situation based on female emotions such as fear or anger. To identify the violence situation, the system follows the outlined steps for determining the chaotic situation under the surveillance region. Step 1 sets the GPS sensor to a 9600 baud rate. Step 2 configures the serial buffer to operate at a baud rate of 9600 and a bit rate of 4800. When the smart band's button is pressed, the readings are continuously sent to the Raspberry Pi, which compares the values to the threshold values given to it. Step 4 states that when the compared values meet the threshold values, the following actions are triggered. Step 5 reads the SIM card contact number, and Step 6 receives data from the GPS system and converts the GPS longitude and latitude into a Google URL, which is attached to an alert message. Finally, the message and ring are sent to the GSM's pre-programmed numbers.

Safety Solution for Women using Smart Band and CWS App [11] is using various techniques, several researchers have put a lot of effort into improving women's safety. The authors of the paper created a gadget for women's safety utilizing a Raspberry Pi and a raspberry camera module. Here, the emphasis is on assisting the victim by informing the police or particular people of the victim's current position and the identity of the assailant. This apparatus is performed manually. The smartphone software can carry out the aforementioned functions if the victim is in distress by pressing the emergency switch on the device she is holding. Although this gadget is designed to protect women, because the access numbers are fixed, it will be challenging for a victim to contact help if they are not close to the access number. The creators of this study focused on two main points. The first is self-defence, and the second is to communicate the victim's position to the specific access numbers. This project makes use of Raspberry Pi, Arduino Uno, GPS, GSM, and other components. Raspberry Pi has been used to stream photos and videos in real-time. In addition, GPS, GSM, and an electric teaser are connected to the Arduino Uno, enabling Victim with real-time location and self-defence.

This gadget, like the last one, provides information about the Victim's whereabouts to the fixation number. Furthermore, even if the self-defence taught here is useful, the victim's life is likely to be jeopardized if there is more than one assailant. "Reach360" is an android application built for women's safety by the authors of the article. This program allows a victim to communicate her location and a warning letter to the police station, family members, compatriots, and admin. The administrator will then send the victim's notification to all users within 100 meters of the victim. The unique code created by the App allows one App user to monitor another App user. This technique can help to safeguard a woman's mobility, but its benefits are restricted due to two factors. For starters, this system would be more useful if it was entirely automated and did not rely on the administrator to discover users within 100 meters of the victim. Furthermore, if the victim is not at the police station, her safety would be jeopardized if she had family members and app users. This issue may be avoided by creating a system that controls a set number of volunteers for each area The authors of the article created a gadget that ensures the protection of women in three ways. They have created a smartphone application that uses voice commands. This device sends an alarm message to a pre-set number, sounds the bell, records video, and assists in communicating with an emergency number. The authors of the article created a security device using GPS, GSM, Raspberry Pi, and several sensors. The smart band may provide location information and the physical state of the victim to the victim's guardian and authorities. We constructed the system in such a way that. The aforementioned issues will be resolved.

A Novel Approach of Women Safety Assistant Device with Biometric Verification in Real Scenario [12] is divided into two parts: hardware and software, with the hardware consisting of the main device and the software consisting of an android application. The Atmega 328p, an 8bit Microcontroller, is the main component used here, and the other components of the device include a fingerprint sensor that is used to recognise the user and is capable of storing 1000 fingerprints. Then there's the taser gun, which uses the tesla coil principle to generate 1000KV of AC voltage from a 3.7-volt DC input. This device also has an IR sensor and a Pulse sensor to measure the user's heart rate. They communicated

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using GPS, GSM, and Bluetooth, which are all controlled. They use batteries to power all of these modules. They used two Li-ion batteries with capacities of 3.7V and 3650mAh, and because some of the modules require 5v, they used a DC-to-DC buck converter to convert the 3.7v to 5v. The TP4056 module, which provides constant current and voltage and also has a USB port for voltage input, is used to charge these batteries. When it comes to the software, which is an Android application, it is a password-protected application in which the user's security code must match the password entered. This app allows you to add multiple fingerprints as well as your phone number. If we move on to the working part, the user must place her finger in the fingerprint sensor in a specific time. If she fails to do so, the system will consider her to be in danger, and the buzzer will sound to attract the attention of the public. Additionally, using GSM and GPS, the system will retrieve the user's location and send an alert message to the pre-set number. To deactivate the alarm, the user must enter the password. There is a taser gun for self-defence that protects the user from physical attacks.

Raspberry Pi Based Smart Wearable Device for Women Safety using GPS and GSM Technology [13] is system of smart wearable devices. It includes a Raspberry Pi 3 Model B+ board, a GPS module, a GSM module for SMS alerts, a USB camera, a buzzer, and a push button switch that serves as a panic button. The Raspberry Pi 3 Model B+ board is a small single-board computer designed for education. It is used to run programmes and control other system components. The GPS module is used to locate the user, and the GSM module is used to send an SMS alert to an emergency contact and the police about the user's location. After pressing the panic button, the USB camera captures an image of the user and his surroundings and sends it as an E-mail alert to the emergency contact. The buzzer is used to alert people who are close to the user. Finally, the push button switch functions as a panic button, which the user presses to activate the system and send an alert. The Raspberry Pi, GPS, and GSM modules are all initialised when the system is turned on. This indicates that the system is ready for use. When the user gets into trouble, they press the panic button. This causes the system to respond. The GPS module reads the user's location, and the GSM module sends the user's location to the emergency contact and the police. Furthermore, the USB web camera captures images of the victim, the assault, and the surroundings and sends them to the appropriate authorities via email. The location link can also be used to access Google Maps. The buzzer will alert people nearby to the user's presence.

Smart Wearable Device for Women Safety Using IoT [14] is a system that has three sensors which are used to automatically detect any atrocity. These sensors include pressure, temperature, and pulse rate. The pressure sensor detects whether or not excessive pressure is being applied to the woman. The temperature sensor is used to detect temperature variations. The pulse-rate sensor is used to detect any abnormalities in the woman's pulse-rate. These three sensors' readings are combined to detect any critical situation. The device also has a push button that the woman can use if she feels unsafe. When either of the two aforementioned events occurs, a buzzer sounds. When either of the two aforementioned events occurs, a buzzer is activated to alert those around her that the woman is in a dangerous situation, and the woman's location is determined using the GPS module, and GSM (Global System for Mobile Communications) is used to send the message to her relative. GPS (Global Positioning System) is a satellite-based system that determines a person's or object's exact location on Earth. GSM is a digital cellular technology that is used to deliver mobile voice and data services. The manual mechanism is the method by which the system is turned on. This mechanism consists of a button that the woman can press if she feels unsafe. When the woman presses the button, a buzzer activates, making a loud noise to alert those nearby who can assist her. The alert mechanism is triggered when the buzzer is activated. This alert mechanism is intended to send an emergency message with the woman's location coordinates to the woman's relatives and a nearby police station. The alert mechanism is intended to be automated, so the woman does not need to interact with it to activate the alert. One of three mechanisms triggers the system: a pressure sensor, a temperature sensor, or a pulse-rate sensor. When the system is activated, GPS and GSM (Global System for Mobile Communications) are used to send a message to the victim's relatives and officials containing the victim's location. For convenience, the location is sent as a Google Maps link. When the alert mechanism is triggered, the GPS module sends the location coordinates. GPS is an abbreviation for Global Positioning System, and it is used to obtain location coordinates from a satellite. Because these coordinates are difficult to decipher, they have been converted into a Google Maps link for easy access. After receiving the coordinates, a Google Maps link with the victim's location is created. This link is sent to the registered phone numbers via GSM. Figure 13 depicts the model's components and modules, which include pressure, temperature, and pulse-rate sensors, GPS, GSM, buzzer, and Arduino. When the victim is in danger and presses the button, an alert message is displayed.

A Smart Women protection system using Internet of Things and Open-Source Technology [15] is a system that can protect women using the Internet of things and open-source Technology. The aim of this project is to provide safeguards for women in all conditions of aspects of tracking, and recording, and to provide self-defence for women. The project uses Accelerometer, flex sensor, Fingerprint module, buzzer, ESP8266 nerve simulator, camera, GPS, GSM, Mic, and speaker, and Raspberry pi module. When the woman is in danger and holds her finger on the fingerprint module for a particular amount of time the device will be activated otherwise the device will be disabled. The Raspberry pi is activating

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the GPS, GSM, Mic, camera, and sensors. The GPS will locate the women and send a message to the emergency contacts through the GSM module. The camera module captures the image of a person who is assaulting the woman. The info from GPS will be sent to the web page and android application. The accelerometer and flex sensor is used to record any abnormal changes in the sensor. The status of what's happening with the women will be recorded on the server. The nerve simulator is used to provide a shock to the attacker its acts as self-defence for the women. This device ensures safety and protection for women in any circumstance.

A smart wearable device based on internet of things for the safety of children in online transportation [16] is used to protect both women and children. The aim of this project is to build a device that can protect both women and children from violence. This project uses Push Button, Raspberry Pi, camera, GPS, and GSM module. Whenever the woman or the child is in danger, they can activate the device by using a push button. When the push button is pressed the IoT will activate the device. The raspberry pi will activate the camera module which captures the image of the person who is assaulting the woman. This image can be used as a piece of evidence against the person in court or police station. The captured image is stored in the server which can be accessed in the mobile app by the family members and the people who have access to the server. When the device is activated, the Raspberry Pi will immediately retrieve the location of the user using the GPS module and Through the GSM module, a message is sent to the family members telling them that they are in danger and they need immediate help. For emergency purposes, the device will send both image and location. Which can be received through telegram and it can be accessed by family members.

Iot Based Night Patrolling Robot for Women Safety [17] is intended to aid in safeguarding and ensuring the safety of women everywhere. The gadget uses an Arduino-based GSM module with GPS and is intended to send location-specific emergency messages and sound an alert. By pressing a push button, the device can be activated when the sufferer is in danger. This gadget notifies relatives and family as well as the police control centre. Furthermore, it has the advantage of being adaptive, allowing the alarm mechanism to be activated using a straightforward button in circumstances where it is physically possible for a human to access the computer and detecting the threat using a sensor in circumstances where a human response is not possible. As long as the sim card can receive mobile signals in the area, the gadget is also inexpensive, lightweight, and portable and does not require access to the internet. The use of embedded systems like Arduino and GSM modules with GPS, the incorporation of wireless technologies like Bluetooth, and the usage of sensors like temperature and heart rate sensors are the primary strategies covered in the study paper. To send an emergency message with a location and sound an alarm, the Arduino and GSM module with GPS are used. The wireless technologies enable the gadget to be connected to other devices, such as cell phones, and the sensors assist in identifying the likelihood of a potential issue and alerting loved ones. The gadget is also inexpensive, lightweight, and cost-effective and does not require internet access. The use of a GSM module and GPS, their integration, and the usage of a push button to activate the alarm system are the primary strategies covered in this paper.

Design and Development of an Advanced Affordable Wearable Safety Device for Women: Freedom Against Fearsome [18]is a locating device called BOHNNI, which is an imitator of a locket that includes a voice recognizer, Bluetooth, Arduino, GPS, and GSM module. BADHON, which resembles a bracelet, serves as a rescue device for the victim whenever she imagines herself in a highly deliberate situation. Both devices are activated by voice commands as well as a manual switch. The devices are aesthetically pleasing, which will entice users to wear them. The device will send messages with the victim's location and relevant surrounding information to the predefined relative's phone numbers. The device can also be used as a self-defence weapon, as it can deliver a shock of up to 10 mA at two-second intervals. This can temporarily paralyse or freeze a person. We calculated the lowest response time of BOHNNI and BADHON, which is 1.95s, and the highest accuracy level of 91.67% in various situations, ensuring the superior performance level of our devices. Proteus software is used to design the circuit. The microcontroller is the processing unit that handles all sensor and voice recognition data. It also transmits the required command to GPS and GSM units. 'BADHON' is made up of a shock module, an Arduino, a Bluetooth device, a video camera, and a buzzer.

Initially, the prototype did not include a video camera. The video camera will be included during mass production or when creating a real-time product. 'BOHNNI' and 'BADHON' are built on a breadboard at first, with all parts connected, including an Arduino, an LED, a voice recognition module, a Bluetooth module, a GSM module, and a GPS module. When activated, the video camera will record video of the victim's surroundings for future use as evidence. The shocking system will be activated, which will deliver a shock to the harasser at a rate of up to 10mA (10 mA) every 2 seconds, paralysing or freezing his muscles for a few minutes and allowing the victim to flee the scene. The shock will not affect the user because the device is made of polymer plastic. It also has a buzzer that sounds when touched. The buzzer will then make a 120-decibel sound to attract people from further away. This device can also be used for children if it is attractively designed, making the children eager to wear it. In this manner, the guardian is always aware of their child even when they are not present. This paper may be competent enough to reduce the rate of crime against women and children.

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Ultra-protection for future generation women safety [19] is to keep women safe and secure by showing safe places and alerting authorities. It implies a substitute perspective of applying technology to safeguard women. In this concept, a note that notifies and delivers point-based information is connected to an android-based smart phone. When a woman is in danger, it offers both SMS notifications and nature protection. Due to insufficient validation, numerous instances are still open. Therefore, offline mode is one of the system's most useful features because it constantly displays the safe zone and provides victim safety advice. The proposed system makes use of two items: eyeglasses and a wrist band. The wrist band has a switch that may be used to activate a streaming alarm and tear gas mechanism for self-defence while also transmitting alert messages and the user's location to emergency contacts.

The device also has a feature that allows you to identify the attackers by watching live streaming footage. On the basis of the IOT idea, the authors developed a smart security gadget. A device dubbed "watch me" has been proposed to highlight the difficulties that women encounter in society. It features a sensor that can identify a person's pulse rate, which increases when a woman is in danger, and it can produce an alarm sound to alert people nearby, calls a pre-registered number and enables GPS tracking to pinpoint the victim's location. The usage of the internet of things in the physical world has been discussed by the author in a number of different businesses. In addition to various case studies in which it can be used, the article describes a novel method for gathering data from sensors-equipped devices. It also provides a prototype demonstration of a smart home based on the method. The system uses blood pressure sensors and uses registered phone numbers to send a help message and track the child's whereabouts. Using this device's wi-fi and Bluetooth services, parents can keep tabs on their kids' everyday activities and find them. Here is an app with lock screen access, immediate access, and quick hardware button access on the receiving device.

III. CONCLUSION

It can be concluded that the device helps to supports the gender equality by providing safe environment to women in the society, and allows them to work till late nights. The importance of women's safety cannot be overstated. On a daily basis, women face a variety of safety risks and threats, and it is critical that they have access to the tools and resources they need to protect themselves. A variety of safety systems and devices, such as personal safety alarms, pepper spray, and self-defence classes, have been developed to assist women in remaining safe. While these systems and devices can be useful in certain situations, it is important to remember that they are not a substitute for addressing the root causes of violence and harassment. As a result, we are developing a system that provides self-defence, records evidence, and tracks the woman. Individuals must take precautions to protect themselves and society by remaining aware of their surroundings. Anyone before doing any crime against the women will be deterred and it help reducing the crime rate against the women. In some of the cases the system can provide useful evidences. Since the system can do audio recording of incidences which can act as the evidences. Women’s security is a critical and social issue in today’s world. The crime (molestations, robbery, sexual assault, rape, domestic violence) against the women can be now brought to an end with the help of real system implementation of propose model.

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