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An Appraisal on Women Safety Measures

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Abstract: In today's world women are less secure. They face lot of problems like sexual harassments, molestation, acid attack etc. Even though our government had implemented many laws for women safety, they are not much effective during a dangerous situation. There are many safety devices for women that automatically detect the dangerous situation and send the alert message to the concerned authority with current location. Different systems use different type of sensors such as temperature sensor, flex sensor, accelerometer to detect the abnormal condition. Some devices include mechanisms such as pepper spray, electric shock for self-defense. Some device contains cameras which capture images and videos and voice recorder which record sound which can be used as a proof for legal actions. GPS module is used to track the location and GSM module is used to send the alert message. In this paper we discussed about various women security devices which uses different technologies.

Keywords: Accelerometer, Flex sensor, GPS, GSM, Temperature sensor

I. INTRODUCTION

Safety of women is the major challenge in today's world. Harassments against women are increasing day by day. Even though women enjoy equal right as compared to men, still they face many problems. Women are not even safe inside the four wall of their house. Both working and non-working women face different attacks. The attack faced by the women include molestation, acid attack, kidnapping, rape etc. At times they may find it difficult to protect them self from these attack.

Government laws are not enough to protect women. A study shows that around 25000 cases are registered against women in India. Due to the lack of sufficient evidence many cases are still pending in the court. The use of camera and voice recorder helps to overcome this problem.

In past years the safety devices were only manually operated. These system is not much effective as the victim may find it difficult to manually operate the device while facing dangerous situation. With the development in technology these devices are automatically activated. Latest technologies such as machine learning, IOT are used. Different devices are use different modes of communication such as Wi-Fi, ZigBee, Bluetooth, RFID Technology, GSM etc. Pepper spray or electric shock are used to self-defence mechanism. In most devices GPS module is used to track the victim's location. Other than these, some devices uses buzzers to alert the surroundings.

II. METHODOLOGY

A. Different Types of Communication

Wi-Fi: It is a wireless technology that provide network connections. It gives high internet speed using radio waves. As the sender and receiver use radio frequency technology, this network does not have any physical wired connection. An electromagnetic field which can propagate through space is created when RF current is supplied to the antenna. The access point is used to broadcast wireless signals. The computers can detect these signals and tune into it. The device should have a wireless network adapter to connect to an AP and thus join the wireless network.

It is based on the IEEE 802.11 standards. It is a worldwide technology used for the network connectivity. Wi-Fi can be used in devices such as personal computers, handheld devices, smart TVs, cameras etc. High absorption wave bands and best suitable for line of sight use are the important features of Wi-Fi technology. The obstacles may reduce its range but helps to reduce interference in a populated environment.

Wi-Fi technology is used to connect the safety devices with the smartphone to send data. The current location of the victim is detected using GPS module and send to the victims near ones and other authorities using Wi-Fi technology

ZigBee: It is a wireless ad-hoc network. It is simplest and affordable than Bluetooth or Wi-Fi. As it is a low power consumption technology, its transmission distance limits to 10 to 100 meters depending on the surrounding characteristics. We can use mesh network to send data to long distance. It has long battery life. It is used in embedded systems which consumes low power. It is suitable to transmit low data rates. It has many applications which includes home automation, embedded systems, wireless sensor networks etc. ZigBee chips contain radios and microcontrollers. Network layer, application layer, ZigBee Device Objects (ZDOs) and manufacturer defined application objects are the

four additional key components. Device discovery and security, managing request to join the network are handled by ZDOs. Star networks, Tree networks and Mesh networking are supported by its network layer. Routers are used to increase the communication area at the network layer. ZigBee network is used to provide connections where internet facility is not available. It overcomes the limitations caused by the Wi-Fi networks. The disadvantage of this network is that it allows unauthorized access.

GSM: It stands for global system for mobile communications. It was developed by European telecommunications standards institute. It is used for full duplex voice telephony. It uses time division multiple access. It has 4 parts, namely, the mobile device, the base station subsystem, the network switching subsystem and operation and support subsystem. A user connects to the network using a SIM.
A GSM module is used to send messages, make calls etc. It provides communication between the people.
In a safety device, GSM module is used to send alert message to the emergency contacts of the victim's modem is attached with the device, which will send message during the emergency situation.

RFID: It stands for radio frequency identification. It is used to read tags embedded with the objects. It uses electromagnetic fields to track the tags. It overcomes the disadvantage of barcode as it is not concerned about the line of sight. If has 2 components, tag and a reader. Tags stores information electronically. There are 2 types of tags, active tag or passive tag. The difference between active and passive tag is that active tags will have a local power supply such as battery but passive tag gets energy from RFID reader. In case of active tag, it can operate even though the reader is hundreds of meters away. But the passive tag needs a nearby RFID reader.
RFID systems can be classified as Passive Reader Active Tag (PRAT), Active Reader Passive Tag (ARPT), Active Reader Active Tag (ARAT). As RFID can be embedded with any object such as cloth, cash, lockets, watches etc., its importance is increasing day by day. It can be used over manual systems and bar code. Unlike barcodes RFID tags can be read hundreds of time. It can be used to track the object, person, bill processing.
In a safety device, RFID tag is embedded with the locket or watch and when the emergency button is pressed this RFID tag will pass the information to the RFID reader embedded in the mobile phone.
Bluetooth: It is a short range wireless communication network. It is an earlier way that used for the connectivity. It uses UHF radio waves to connect mobile devices over short distance. It uses frequency hopping spread spectrum. The bandwidth of the each channel of a Bluetooth network is 1 Mhz. 1600 hopes are performed per second when adaptive frequency hopping is enabled. The only modulation scheme available in Bluetooth was Gaussian frequency shift keying modulation.
It works in basic rate mode where bit rate of 1 Mbit/s is possible. A Bluetooth network contains a master device and a maximum of seven devices known as piconet. At a time data can be send from the master ta any one of the other device. The Bluetooth technology is used to establish wireless connection between portable devices. For example, it can be used to make. Connection between two mobile phones, hands-free head set and mobile phone, wireless speakers and mobile phone etc. Bluetooth is similar to Wi-Fi in some applications like creating networks or transferring files.

B. *Types of sensors*

Temperature sensor: Temperature sensor measures the subject body parameters. It collects data about the temperature from a body and convert the data's for which a device or a person can understand. Thermometer is the frequently used temperature sensor. It is not used for scientific purpose, because the sensor was not too precise. It can also integrated with in the watch, mobile phones etc

Pulse sensor: It gives live heartbeat rate data .Pulse sensor is wrapped into the human skin. When the sensor comes in contact with the skin it will start collect the pulse rate. Sensor was connected using an Arduino and sealed with breadboard. An accurate heart rate data can be measured using these sensor. There is an IR LED light that passes through the organs. By changing the intensity of the light we can calculate the volume of the blood.

Flex sensor: It measures the amount of twisting and turning. The sensor will be placed on the surface and it calculate the amount of twisting. There are many types of flex sensors are used.

C. *GPS*

Global positioning system is a satellite navigation technique owned by us. Using GPS we can discover anyone anywhere on the earth. It gives the latitudinal and longitude information. It is helpful in military purposes and it also provides help ti the common people. Both public encoding and encrypted encoding is used by the GPS. It encodes signal using Code Division Multiple Access (CDMA). In a security device, GPS is used to find position of the help seeker so that the helper will be able to provide help as soon as possible. It can also be used to know the route in case anyone got lost.

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III. LITERATURE SURVEY

In this design [1], there is an Arm band that can be worked by both manually and automatically. This device will help the victim to notify others and also collect the evident of the incident. It contain GPS /GSM to track the location and send the message to the corresponding authorities.

Mainly the device has three options to operate. In first case we can switch ON the safety switch in the Arm band when we feels someone follow us. At that time the device will activated and track the location and send it by GSM. The second operation is that the system can operated by twisting of wrist, because in some cases the victim couldn't ON the device manually. So at that time we can twist our wrist and the flex sensor will detect it. Finally it have another option that is when we get sudden attack from the culprit we may fall down, so in that case the victim may not be able to twist the wrist or switched ON the switch. When we fall the fall detection sensor detect the fall and it compare the force of falling with a threshold value. The value is high then the device get activated. Also this Arm band has a wireless camera that activates automatically when the device gets activated. The camera will captures the images and send to the police control room. We can also reset the switch even if there is no emergency.

The Advantages of this paper is that it can be used for medical emergency and Reset provision is provided. The Disadvantages is Size of the armband is undetermined because it occupy large size Leeds to high Cost.

It [2] is a women security device that is based on internet of things.it is a smart ring that contains a wireless camera, Raspberry pi, button and a buzzer. It is a manual device that activated by clicking the button by the user. When the victim press the button that activates the raspberry pi Nano board, this board will activates the camera for capturing. The captured evidence are stored in a server. It also have a special app in the phone that is developed for the ring. If the victim open the app and she get a provision to select a contact that she want to communicate from a list of predefined contacts. After select the contact the captured images and the current location will send to that contact by using GPS and GSM via smart phone.

Also in the Raspberry pi board comprises a buzzer, by pressing the buzzer it will produce a high pitch sound to notify the neighboring people. The main Advantages of this system is it is portable, compact and Economical because it Prevent the use of additional hardware. The Disadvantage is that it always required a smartphone. This device does not provide any self-defense mechanism. It is not an automatic device.

It [3] is an innovative design that mainly used for the purpose of women security. We all know now a days women harassments are increases by day by day. So this 'watch me' is very helpful to avoid and protect women from such incidents. When women who are wear this watch me is exposed to external challenges, then the sensor inside the watch get activated. It detect the heartbeat of the victim and if it is more than the normal rate it sends the location to the authorized persons through GPS and GSM. It also provide an alarm sound to get the attention of neighboring people. Mainly this has 3 sensors Pulse rate sensor used to detect the pulse. Temperature sensor used to detect the current temperature of the victim. Motion sensor detect the type of motion. Advantages of this system is that by using GPS and GSM police that can easily track the location. Also it provide high pitch alarm that helpful to get the attention of neighboring people. It use lithium battery so we can easily rechargeable and also take less space and Cost efficient. Disadvantage is that when watch is missing we can't track the location .It doesn't have a reset option and It always requires internet facility.

This paper [4] uses RFID and GPS technology. A person has to press a button, when they are facing a dangerous situation. When the emergency button is pressed, an emergency message is send to the contacts in the microcontroller along with the location. An RFID tag is attached with any wearable devices, like locket or watch, and a passive reader is embedded in our smart phone. When the user get panic she can press the button on the RFID tag.

The main advantages of the system is that as we are using RFID, then it is not concerned about line of sight. As the RFID is embedded in any wearable device it won't be an issue if the culprit throws away her bag which contain her phone. The disadvantage of this paper is that it only works manually. The person may not be always able to press the emergency button when facing a dangerous situation. Signal interference and information access to invalid and unauthenticated users are the limitations of this device.

It [5] is an advanced design, include some extra features than the existing system. In this smart guard the main components are the watch and a smart phone. Mainly the watch include a safety switch. The switch can be switched off at home and we can use it as a normal watch. When the women will go outside we can switch on the watch and it automatically activates the pulse sensor and the mobile data of the phone.

The pulse sensor will continuously monitors the pulse level and at the time of pulse rate exceeds the threshold value it activates camera and start recording. Also it sends the location of the incident to the authorized persons through GPS/GSM. The camera captures audio, video and images and store it in Google drive.

The important thing is that this Smart guard provides a pepper spray for self-defense. It is a manually activating system. Also provide a siren to notify the nearby peoples.

This paper [6] provide a simpler safety solution which can be activated by pressing a switch. The pressing of switch will instantly send an alert message to the near ones of the user. The device is made of 2 parts. The upper part is designed as a wearable on the body and the lower part is portable hand held unit. When the lady face any attack then she has to press the button and this will activate the electric shock circuit and the camera. The captured picture / video

will be send to a storage module in the device. The captured images or video can be used as a proof for legal action. This device also provide GSM module to send location of the woman and the captured image to the predefined contact number.

Pros of the device is that it provide electric shock as a self-defense mechanism. Also the captured images are stored in the SD card that can be used for legal purpose.

In this paper [7] it introduce a smart wearable device like a band to provide security. It is a manually operated system, that will activated when the users touches on the screen twice. When we feels someone going to attack us, then we can simply touch on the screen by ourselves. After activates the band, the GPS module will track the current location and send it with the alert message to predefined contacts and police control room through GSM. Also there will be a buzzer that attached to the device. It gets activated after the band will activated. And it produce high range of sound to notify the surrounding people. In some cases there is a chance to throw the band away by the offender, so at that time the force sensor get activated and it activates the buzzer and send the location to the authorities. There will be two metal plates are attached on the top of the band, which will produce some electric shock when it comes contact with any other surface or body. So it act as a self-defense mechanism for the victim. The whole device is controlled by an Arduino and Bluetooth is used to connect with the smartphone for sharing data and to get the connection.

The advantage is that it provide a high pitch siron that have a range up to 50 meters. Also it track the current location even if the band will throws away. It have a self-defense system such as electric shock that will help to the user to compete against the culprit. It is sometimes comes to a disadvantage because in some case there was a chance to effect the shock to the user.

In this paper [8], a security device which uses 5 sensors is proposed. Pulse rate sensor, temperature sensor, flex sensors, sound sensors, and MEMS accelerometer are the 5 sensors used in this system. This system also contains an Arduino UNO, GSM module, GPS module, Buzzer and LCD. A threshold value is set for 5 sensors. The sensors continuously monitors the body parameters, such as temperature and heartbeat, and its output is displayed on the LCD. Whenever the reading of any 4 of 5 sensors exceeds the threshold value, then the buzzer buzzes and an alert message "I am in danger "is send to the registered contacts along with the location detected by the GPS through the GSM modem.

This system [9] is a device that is created for the women who is in trouble. It is a simple device which can be operate very easily. The system provide the service that it send the location and trouble message to the guardian and the authority. This will avoid the miserable event. This device can be built inside any ornaments mobile phone etc. The device will remain lock state. The device can be unlock through three ways. The women can unlock the device using her own voice. And the system will unlock when it thrown forcibly. Also the system will unlock via a bare press. The current location and the trouble message will send to the contact when the device become unlock. This device used AT89s52 microcontroller to interfaces the senses. The voice is Sensed using voice sensor and the force sensor is used to know the thrown off the device. When the voice sensed by the sensor matches the device will change to unlock state from lock state. Unlocked device will do the functions.

This security system is implemented to reduce crime against women. The design of this security device is simple and it can be carried easily. In case of emergency, the instant location and distress SMS is to the police officials and relatives/parents of the victim. It consist of microcontroller, force sensors, transmitter receiver, voice speech recognition system, GSM module and lock system. This system can be initiated in three ways.

It can be initiated by pressing a switch. Then the location is instantly send to the required contacts. A voice command is used to unlock the system. A voice/speech recognition system is used to recognize the command. It is easy to program a voice/speech recognition system to identify the voice command. The trained command can easily be changed if necessary. In some situations, the attacker may forcedly throw away the device. In such a situation the force sensors attached to the device will detect it and initiate the device. A lock system is present. It works only on voice recognition system. The user need to say the keyword to unlock it shock module is also used in this system

It can provide help in the upcoming big projects such as CCTNS.It also have a self-defense system. The main disadvantage is that it doesn't measure any biological conditions of the user like heartbeat, temperature, pulse etc.

This paper [10] came with an idea of an electronic system that ensure the safety of traveling women hence they are being attacked by the drivers. The device can put up in the vehicle. The system will consist of GPS GSM display keyboard and the controlling unit. The women can enter her guardian s name and phone number to the device then the guardian will get the notification of the passenger journey and the entire details of the vehicle and the driver. The journey can start and end using secure pin number.

Microcontroller is used as the controlling unit and it interface the whole components. The details are entering to the device via a 4×4 keyboard. Passenger can view the details through the display of the system. PS system is used to get the correct location of the vehicle and GSM module is used to broadcast the message. The system will also use in the public transportation for the security of ladies.

This [11] is a device that ensure the user safety from unfortunate conditions. It is an all in one safe and secure device which can be used with one click. It uses ARM controller, Android application and Bluetooth technology. It also contains an audio recorder. Other than sending a message it also gives a call to the emergency contact, which is more effective than sending an SMS.A single click send SOS message with instant location to the contacts in each two

minutes. A double click will record audio and it send to the contacts and a long press will make the call to the emergency room contact. It uses a GSM module to send SOS SMS and call.

This device can be installed on the smart phone which is come up with a fastest communication during the unfair condition. The device will transmit the live location to the Cops and the parents. The device is operated using switch. When it pressed the device get activated then the location will send with the trouble message to the guardian. If the switch is pressed two time instantly then the audio of the event will also record by the device. When the key is long pressed the system will call the police and send the live location.

The system use an Android application to find the location .the system can also make active by clicking on the voice button of the smart phone. When the volume button click barely it will send the trouble message and location to the guardian. If volume button pressed two time the recorder start to record the event. And the long lasting press Leeds to calling the police and sending the live location to the police force. The battery level is continuously checked by the device and it will alert the user when the battery about to die.

This [12] is a safety device which can be used to seek help when she is being kidnapped or went missing. It consist of a pushbutton, GPS module and GSM module. Both, the one who needs help and the one who provides the help should have the internet connection. When a user feel that he need a help then he can press the push button. When the push button is pressed the GPS module will become active. It collects the longitude and latitudinal details from the satellite. GPS module pass this information to the microcontroller. The microcontroller pass this information to the GSM module. GSM module will send a message along with the location to the registered numbers.

The one who will provide the help should have a mobile with internet connection in order to provide the help. The location will be send to the helper in every 5 mints. Thus the helper will be able to know the location even if the help seeker has been moved from one place to another in case of kidnapping.

This system can only be activated by pressing the push button. It does not have any sensors to measure the body parameters. The main disadvantage of this system is that it is not useful without an internet connection.

This device [13] is designed mainly for the children and women is danger. Parents can use this device to know what their child is doing outside the home and to track them when lost. This system consists of a panic button, microphone, GPS module, GSM module and sensors such as heart beat sensor and temperature sensor. This device can be activate in 2 ways, either by thrusting the panic button or by uttering a keyword. The heartbeat sensor and temperature sensor continuously monitor the heartbeat and temperature patterns.

Whenever the panic button is pressed or the microphone detects the utter of the keyword, then the device will search for the location using the GPS module and sends the details to the police or parents using GSM module. The readings of the sensors is displayed on the LCD screen. A USB camera is also attached with the microphone. The system will wait for 1 minute to check whether the system has been reset before sending the message seeking help. The system is embedded using raspberry pi. Programming language python is used for programming the device. This system can be embedded in any wearable device like watches.

This device [14] is concentrated on child safety. It makes use of IOT along with GPS and GSM. Using this device parents or caretakers can monitor their child. Other than heartbeat sensor and temperature sensor, it also uses touch sensor. The readings of each sensor is stored in the cloud. Threshold values are set for each sensors. This device make use of camera also.

At every 30 minutes the value of each sensor is passed to the cloud. Then the counter is reset and again it reads the new value. Then the reading of sensors exceeds the threshold value then a message is sent to the parents along with the images captured. Embedded c is used to program the device. This device can be of great use for the parents since crime against children are increasing day by day.

This device [15] is similar to a jacket. It contains GPS module GSM module, sensors, Buzzer and shock circuit mechanism. Crime against women is increasing day by day thus a safety device with a self-defense mechanism like shock circuit is of very much important. It can be activated in both automatic way and manually. It can be activated in 3 ways.

This device can be activated manually by pressing a button. The pressing of button indicates the dangerous situation and it will in turn activates the buzzer and shock. It also activates the camera. An alert SMS is send to the contact list along with the present location.

It can also be activated automatically using the sensors. Threshold values are set for each sensors. When the output of sensor becomes greater than the threshold readings then the device gets activated. The 3rd way of activating the device is by using the fall detector. The detector detects the falling of the victim and checks whether it is a dangerous situation. If so it will send SMS to the registered numbers and take pictures, buzzer starts buzzing and electric shock is also produced.

It is low cost equipment with high performance. It is portable. It is of small size and is easy to install. These factors increase the advantages of the device.

This device [16] is developed for the safety and protection of women and children .The device analyses the physiological signals such as Galvanic skin resistance and body temperature with body position. Triple axis accelerometer determines the position of the body and collects the raw data from the subject's body. An open source cloud platform is used to store the collected data and that collected on MATLAB simultaneously. The parameters of the

subject body are continuously monitored all the time and take action whenever a dangerous situation is felt. This device works automatically when a dangerous situation is sensed by subject.

When a dangerous situation is felt the subject body will react to that situation by increase in the blood pressure, increase in the heart rate etc. So this device will analyses these parameters and calculate the subject is in a stressed or relaxed state. The hardware mainly consist 3 types of sensors such as temperature sensors, triple axis accelerometer, skin resistance sensors. These sensors pick up raw signals from the subject body and send the data to an open source cloud platform. The ATMega 328P chip has been programmed to send sensor data to cloud platform via Wi-Fi module and this is done using Arduino IDE. The sensor data are then analyzed by using MATLAB.

The MATLAB have a machine learning toolkit called weka. It consist a large set of training data and this classify the collected data into two classes called stressed and relaxed state. So with the help of the existing training data MATLAB test the data and reveal the subject is stressed or not. When the subject is in a stressed state the device will automatically send the notification to the designated person that the subject is in a struggled position

When a individual is faced with a dangerous situation the manual pressing of button is not ideal. This system [17] is initiated with a automatic cum manual device. A GPS/GSM kit is interfaced with this device. So it is easy to send the exact location of the subject at every 10 seconds. The device is also interfaced with a camera for recording videos and images. The device can be turned on by three ways such as by manually pressing the button, by twisting the wrist, and by fall detection of subject. When the system is turned on it automatically trigger on the camera and live streamed to the control room. An alert message message with the subject location is sent to the authorized person.

This device help the victim to alert others during any emergency situation and also collect information in the form of video. There are mainly 2 types of sensors are used in this device they are flex sensors and fall detection sensors. There are 3 option to initiate the device first one by manually pressing the button, secondly by the action of human hand. By twisting of hand the device can be automatically operated. The flex sensor detects the twisting of hand, this is because it is not necessary that a victim have freedom to turn on the system manually. The third one is by detecting a fall, the fall detection sensor detects the fall and turn on the device automatically. When the device is turned on it initiate the camera and start recording the video and also initiate the GPS/GSM kit for sending the location of the subject. At every 10 seconds the location co-ordinates are send, it helps the person to be tracked easily. The person at other end has a phone with Google map app can access the victims location.

Now a day's children and women are facing many security related problems. In such situation, they are helpless and don't have any way to protect them or inform it to their family members. This device will automatically sense the danger and rescue the victim. The device is a smart band which continuously communicate with the smart phone. The smart phone and the smart band are connected through Bluetooth low energy (BLE).

BLE is designed in this device is to connect with smart phone with a low power consumption. There is a specially designed application that will be installed in the phone. The app will act as an interface between the smart band and the phone.

There are three main sensors are used in this device they are motion sensor, temperature sensor, and pulse rate sensors. They collect the data such as pulse rate, temperature from the subject's body and monitor it by the help of an application which is pre-installed in the smart phone. When the application senses the dangerous situation it send the location of the victims' location to the authorized person. And also send these location co-ordinate to the nearest police station requesting for a immediate action. The help message is send to the family or police station through GSM facility which is inbuilt in the smart phone

It [18] describes about a system that can be attached to the clothes. It consist of two modules. One module issued when the user feels that she is in a threatened situation. The second module is used when the attacker makes any movement towards the victim. If the first module is operated, the location is send to the concerned authority to alert them on the situation. So that the near ones can provide help as soon as possible. In case if the second module is operated it just records video of the incident. It also

Contains a buzzer which is used to get the attention from the surrounding. A SD card module is also present along with the camera module to show the captured images and video recordings. These recordings can be used for legal actions.

In order to seek help the lady has to turn on the switch which will in turn triggers the microcontroller. The microcontroller will give signals to activate the alarm, camera and GPS module. Python is used for programming. Arduino integrated development environment is used to program the microcontroller. It doesn't contain any sensors. It does not contain any self-defense mechanism.

The system [19] is embedded with GSM, GPS and an alarm system. The user can activate the system by pressing a switch. It can only be initiated manually. The one who needs help should activate it. When the user press the switch the GPS modem will track the location information from the satellite and pass it to the Arduino board. This information is processed by Arduino board and passed to the GSM modem. From though the information is pass to the contacts in the emergency contact list. An alarm is also attached with the Arduino. It can be activated by the user if she feels threatened.

It has a LCD screen which display the current location. The advantages of the system is that the phone number can be changed at any instant and It monitors all the threat

A customized idea is implemented in this paper [20]. Here the safety device is designed for each individual based on each individuals. Two sensors are used for detecting the dangerous situation. Temperature sensor sense the body temperature and the pulse rate sensor sense the pulse. The paper took the machine learning algorithm for analyze the sensed inputs. The algorithm is applied on the sensed data and it determine whether the women is in danger or not. If she is in danger then the GPS will take the live location and it will be transfer to the concerned contacts. The utilization of machine learning algorithm made the system more accurate than other systems. Main advantage of this system is that it use ZigBee network for the communication purpose. The main draw backs of all the system was the unavailability of the internet. This paper provided a solution for this through ZigBee.

IV. CONCLUSION

Women's safety is the prime issue in present days. Women are respected in words not in action. In our society so many women abuse cases are registered. But some cases are still pending due insufficient evidence. As many of the safety devices are embedded with cameras and audio recorders, we can overcome this type of issues. In this paper we have conducted study on different type of different safety measure for women.With the advancement in technology it is possible to develop a safety device to protect women from attacks. We can add some self-defense mechanism which will help the women from any terrible conditions.

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REFERENCES

[1]. Sanjeevi1*, A. Shanthoshini Selvapriya21School of Mechanical Engineering, 2School of Computing, SASTRA University, Thanjavur, Tamil Nadu, India "conceptual design of woman safety device - the smart guard" International Journal of Engineering Science Invention Research & Development; Vol. IV, Issue II, AUGUST 2017

[2]. www.ijesird.com, E-ISSN: 2349-6185 spvcsanjeevi@gmail.com AnandJatti, MadhviKannan , Alisha RM, Vijayalakshmi P, ShresthaSinha " Design and Development of an IOT based wearable device for the Safety and Security of women and girl children"IEEE International Conference On Recent Trends In Electronics Information Communication Technology, May 20-21, 2016, India

[3]. Glenson Toney PG Scholar Dept. of Electronics and Communication KSSEM, Bangalore.glensherton@gmail.com Dr. Fathima Jabeen Professor & Head Dept. of Electronics and Communication KSSEM, Bangalore. Rawoof_500@yahoo.co.in Puneeth S Asst. Professor Dept. of Electronics and Communication KSSEM, Bangalore. s.kiranpuneeth@gmail.com " Design and Implementation of Safety Armband for Women and Children using ARM7" 2015 International Conference on Power and Advanced Control Engineering (ICPACE)

[4]. 1.Kalpana seelam Asst.Prof. Department of EIE V. R.Siddhartha Engineering College kalpanaseelam@gmail.com 2. K.Prasanti Asst.Prof. department of EIE V.R. Siddhartha Engineering College Prasntki7@gmail.com "A Novel Approach to Provide Protection for Women by using Smart Security Device" International Journal of Engineering Science Invention Research & Development; Vol. IV, Issue II, AUGUST 2017www.ijesird.com, E-ISSN: 2349-6185

[5]. #1 A. Helen , #2 M. Fathima Fathila, #3 R Rijwana, #4 Kalaiselvi .V.K.G #1 Student, Department of Information Technology #2 Student, Department of Information Technology" a smart watch for women security based on iot concept 'watch me" 2017 Second International Conference On Computing and Communications Technologies(ICCCT'17)

[6]. #3 Student, Department of Information Technology #4 Asst.Prof, Department of Information Technology "#MeToo: An App to Enhancing Women Safety" Javed Anjum Sheikh1(&) and Zonia Fayyaz2 Capital University of Science and Technology, Islamabad, PakistanJaved.Anjum@cust.edu.pk2 The University of Lahore, Gujrat Campus, Gujrat, Pakistanzoniafayyaz@gmail.com

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[8]. Shaik Mazhar Hussain1, Shaikh Azeemuddin Nizamuddin2, Rolito Asuncion3, Chandrashekar Ramaiah4, Ajay Vikram Singh5 1,2,3,4,5Middle East College, Muscat, Sultanate of Oman "Prototype of an Intelligent System based on RFID and GPS Technologies for Women Safety"

[9]. Monisha M Department of Electronics and Communication Sree Buddha College of Engineering, PattoorAlappuzha, Indiamonishaece93@gmail.com Pooja S Mohan Department of Electronics and CommunicationSree Buddha College of Engineering, Pattoor Alappuzha, India pooja.sandhya12@gmail.com "A Novel IOT Based Approach to Establish an UltralowPower Self Security System" 2017 International Conference on Innovations in Information, Embedded and Communication Systems (ICIIECS)

[10]. G C Harikiran Karthik Menasinkai Suhas Shirol ECE Department, ECE Department, ECE Department BVBCET, BVBCET, BVBCET,Hubballi-31, India Hubballi-31, India Hubballi-31, India (ICEEOT) – 2016 978-1-4673-9939-5/16/$31.00 ©2016 IEEE Smart Security Solution for Women based on Internet Of Things(IOT) "International Conference on Electrical, Electronics, and Optimization Techniques"

[11]. ISSN 0974-2239 Volume 4, Number 8 (2014), pp. 787-792 © International Research Publications House http://www. irphouse.com Design and Development of "Suraksha"-A Women Safety Device Nishant Bhardwaj1 and Nitish Aggarwal2

[12]. Madhura Mahajan1,KTV Reddy2,Manita Rajput3 This full-text paper was peer-reviewed and accepted to be presented at the IEEE WiSPNET 2016 conference. "Design and Implementation of a Rescue System for Safety of Women"
[13]. Shivani Ahir Smit Kapadia Prof. Jigar Chauhan Prof. Nidhi Sanghavi "The Personal Stun- a Smart Device for Women's Safety"
[14]. Navya R Sogi, Priya Chatterjee, Nethra U Suma V " SMARISA: A Raspberry Pi based Smart Ring for Women Safety Using IoT" Proceedings of the International Conference on Inventive Research in Computing Applications (ICIRCA 2018) IEEE Xplore Compliant Part Number:CFP18N67-ART; ISBN:978-1-5386-2456-2
[15]. Trupti Shah , Shaista Khanam IEEE Conference Record # 45616; IEEE Xplore ISBN: 978-1-7281-0167-5 "Self Defence Device with GSM alert and GPStracking with fingerprint verification for women safety"
[16]. Rachana B. Pawar1, Manali H. Kulabkar2, Kirti S. Pawar3 Akshata R. Tambe4 Prof. Smita Khairnar "Smart Shield for Women Safety" International Research Journal of Engineering and Technology (IRJET) Volume: 05 Issue: 04
[17]. TechnologyB. Sathyasri, U. Jaishree Vidhya, G. V. K. Jothi Sree, T. Pratheeba, K. Ragapriya "Design and Implementation of Women Safety System Based On Iot " International Journal of Recent Technology and Engineering (IJRTE)
[18]. Manasa K.C1 , SubbaLakshmi SV2 Sneha G3 Sowmya SM4International Journal of Latest Technology in Engineering, Management & Applied Science (IJLTEMAS) Volume VII, Issue IV, April 2018 "Smart Security Device for Women Safety"
[19]. Jismi Thomas, Maneesha K J Nambissan Shruthi Vijayan Prof. Divya "Touch me not – A Women Safety Device"RInternational Research Journal of Engineering and Technology (IRJET) Volume: 05 Issue: 03
[20]. Panagiotis Kasnesis Christos Chatzigeorgiou Lazaros Toumanidis Charalampos Z. Patrikakis "Gesture-based incident reporting through smart Watches"978-1-5386-9151-9/19/$31.00 ©2019 IEEE
[21]. S Shabbavi, M Nagaraja, M Z Kurian "Smart Electronic System For Women Safety" International Journal Of Innovative Research In Electrical, Electronics, Instrumentation And Control Engineering
[22]. Padhye, V. Firoiu, and D. Towsley, "A stochastic model of TCP Reno congestion avoidance and control," Univ. of Massachusetts, Amherst, MA, CMPSCI Tech. Rep. 99-02, 1999.
[23]. Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specification, IEEE Std. 802.11, 1997.

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