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Implementation of IOT Device for Women Safety in Timely Help

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Abstract

Throughout today's scenes, women's security is seen as a major issue in both urban and rural areas. Changing the mentality of the whole community is quite complicated, but we can reduce the women from problems like sexual harassment, acid attacks, molestation, etc., with several security devices using Internet of things. Several smart devices and applications have been developed to provide protection. Now-a-days devices available on the market are many smart devices and applications; but it does not provide an effective solution. Experts from different fields have invented a safety device for women that operates both manually and automatically. This paper gives different solutions for the security of the women in timely help using an open access WIFI modem that will be an open access network. To that Wi-Fi module all the door bells of all houses will be connected. When the girl travels to a particular place she will wear the smart watch. In case of risk, she must automatically press the button and the request will be sent to the nearest WIFI tower from that the information is sent to the house door bells immediately, all the door bells will begin to ring and the women in danger can be saved quickly using embedded system and WIFI technology, this can be developed. This can also be used for children and other people in need of precautions for high security. The drawbacks and possibilities of women's safety products are discussed.

Keywords: *Security, Smart device, Internet of things, WIFI modem, smart watch.*

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1. Introduction

IoT is affected with human Life, both purposefully and unknowingly. Every PC is managed with the assistance of the web, making life simpler for individuals. Young ladies today were not permitted to move openly in the lanes where they were mishandled by outsiders. Guardians are stressed over their security, which has become the primary hindrance to convey their little girls. Bit by bit, the badgering of ladies has expanded. Wellbeing is the most required force in the present age for everybody in this day and age. While there is monetary advancement in our nation, there are still a great deal of wrongdoings against ladies. Generally, 86 percent of working women in India are confronting a test that is higher in Delhi, Mumbai, Hyderabad, Kolkata, Chennai, and Pune than somewhere else. Innovation is the most ideal approach to make sure about them. We can control and access the machines and things associated with the web with the assistance of IOT, even the separations are excessively long. We can send and get data without human-human and PC human contact. Be that as it may, there is still no decrease in the maltreatment, savagery, corrosive ambush[19].

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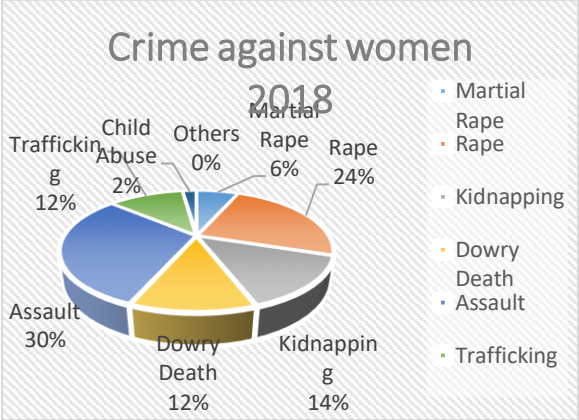

Figure 1: Survey of crimes against women

Moving close by the speedy pacing world may be to some degree hard anyway it gets altogether harder if you are a woman. Notwithstanding the way that women have achieved high accomplishments and have even served India on essential positions like The President and The Prime Minister yet they need prosperity surety and it doesn't sound commonsense in case they have to get a guardian 24*7 around them for confirmation, so what can these women look upward to? A security device that they can for the most part pass on with them which would make them free and sure. This paper familiarizes the customers with a shrewd shoe that women can use to alert their family members and even harm the assailant[1].Since the mental state of the women is affected in risk conditions and every so often it's unreasonable to work them truly. So an answer was required which could clear out the human effort to work the device. So we thought of using AI estimation to perceive the risk normally dependent on natural changes like temperature change and heartbeat rate change that occur in human body when it is in danger. So our device contains temperature and heartbeat sensors that endlessly assemble data and send that to cloud for figurings. Cloud contains AI estimation which is set up with the veritable data of danger and non-risk conditions and register the moving toward data dependent on the readiness given to computation. In view of desire done by estimations, in the occasion that danger is there, by then therefore an emergency prepared message and call is sent to emergency contacts close by the zone of the individual being referred to[2].

2. Literature Survey

The world needs to stress over the individuals around them and treat them the manner in which they have the right to be dealt with. Notwithstanding having such huge numbers of ladies' guidelines, it doesn't discourage manhandling ladies by criminals, assaulters or molesters. This paper recommends a savvy shoe that helps ladies deal with themselves, yet additionally permits them to be daring. GPS, GSM modules, stun circuit and camera are utilized in this task, they interface with the leading body of Raspberry Pi and Arduino. Confronted with any trouble or risk, ladies can utilize this instrument in a flash, installed in their shoe to stay away from the risky circumstance and even hurt the assailant [1]. Ladies keep on confronting appalling episodes, for example, attack, murder, corrosive ambush, etc. There are now numerous applications and apparatuses available, however they are wasteful on the grounds that they should be worked physically. Since ladies' psychological state is undermined in perilous conditions and it is now and again unrealistic to physically run them. Hence, an answer that could expel the human exertion to work the framework was required. What's more, we thought of utilizing the AI calculation to consequently recognize the risk dependent on natural changes, for example, changes in temperature and heartbeat rate that happen in the human body when it is in harm's way. Our gadget along these lines incorporates temperature and heartbeat sensors that gather information constantly and send it for calculations to the cloud [2]. An ongoing report shows that a footwear chip is joined to the footwear that gets actuated when the individual taps one leg behind the other multiple times. We focus on making a model that is a brilliant band that is activated twice by tapping on the gadget. When the framework is activated, sending the GPS area to the contacts of the ICE and police control rooms will start. The unit incorporates a heartbeat rate sensor that recognizes the individual's heartbeat rate and a temperature sensor that detects the individual's internal heat level. The band will be activated when the power sensor is tossed with power and will present the casualty's present area. Following 1-2 minutes of the genuine gadget is turned on, a Piezo bell alarm will be enacted. The bell recurrence is 80-110 dB, which can be gotten notification from 50 feet significant distance. A circuit of electrical stun is intended to produce electrical flow. There are two metal focuses at the highest point of the band board that produce the stun when the two metal focuses come into contact with any surface or another person. The gadget underpins the charging of a smaller scale usb [3]. An individual's prosperity is in danger nowadays, it might be because of sick wellbeing or that wrongdoings, for example, rapes, attack, assault, and so forth. This paper proposes a computerized wearable shrewd gadget to forestall the previously mentioned source, which approaches the Internet (IOT), so as to forestall them somewhat. There are not many bio sensors to detect the adjustments in the client's body and caution the assistance required when any abnormalities are identified according to the gadget's pre-program. When out of luck, the GSM and GPS are utilized to distinguish the area of the person in question. The Arduino's IP address is associated with the web server. Police headquarters imparts the casualty's area to the encompassing and the pre-enrolled cell phone [4]. This paper overviews the ladies and kids' security framework that empowers quick reactions to any provocation openly

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puts, social orders, and so on. Ladies around the globe face untrustworthy physical maltreatment and it is beyond the realm of imagination to expect to leave youngsters unattended at a get-together or outside the house. The two issues are illuminated by our task. A compact PC with a weight discharge. When an aggressor is going to assault a lady/kid or faculties any uncertainty from a more unusual, he/she would then be able to crush or pack the gadget. The weight sensor promptly faculties this weight and a traditional SMS, which will send the casualty's area to their folks/watchman's mobile phone numbers put away in the gadget when they buy it, According to a call. On the off chance that the call is unanswered for a drawn out timeframe, it will highway a call to the police and convey a similar message. The principle highlight of our program is that it will require some investment to help the casualty [5]. This paper portrays the protected and secure ladies' electronic framework that incorporates an Arduino controller and sensors, for example, LM35 temperature, flex sensor, MEMS accelerometer, beat rate sensor, sound sensor. This venture utilizes a ringer, Led, GSM and GPS. The unit detects the body parameters, for example, beat rate, temperature change, and casualty's development through flex sensor, MEMS accelerometer, and casualty's voice is detected by sound sensor when the ladies are in harm's way. The application is activated when the sensor arrives at as far as possible and tracks the casualty's area utilizing the GPS module. The area of the casualty is sent to the enrolled contact number by utilizing the GSM module [6]. Because of higher crime percentages against ladies, ladies' age security is a significant concern today. The device makes the aggressor be stunned by a nerve trigger for self-protection and rings a bell while squeezing a catch. It likewise permits confirmation to be caught through a camcorder that is activated by the catch and stores the Raspberry Pi film. The model likewise comprises of a GSM and GPS module that is empowered through an Android Application through voice order. At the point when the client in his portable application says the words "crisis," the framework will send SMS cautioning containing the client's area and auto dial the pre-set crisis contact number [7]. In the course of recent decades, brilliant ladies' wellbeing developments have picked up prevalence. Numerous vile ladies' techniques that stunned the whole country have stirred researchers worldwide to create smart womens' security gadgets. This paper proposes an idea of a multivariate ladies' security worldview under potential hostile dangers through profound detecting draws near. The system dependent on the Internet of Things (IOT) offers adaptability and dynamicity in the mix of a huge number of sensors and actuators to guarantee the security of ladies [8]. In the present situation, ladies are exposed to a wearable brilliant security gadget for ladies dependent on the Internet of Things. It is executed as a brilliant ring and incorporates Raspberry Pi Zero, Raspberry Pi camera, bell, and gadget actuation click [9]. Proposed to have a gadget which is the combination of various gadgets, equipment involve a wearable "Brilliant band" which constantly speaks with Smart telephone that approaches the web. The application is customized and stacked with all the necessary information which incorporates Human conduct and responses to various circumstances like outrage, dread and uneasiness [10]. Women are facing various security gives nowadays. In such cases, she feels disabled and need help to guarantee herself. Hereafter there must be a sharp device which can make sure about her in such problematic conditions. Here we present a splendid contraption which ensures the security of women. This sharp device will be sliced to the footwear of a woman and can be enacted wisely on tapping her feet in any event multiple times inside 5 seconds or with one touch switch system. Close by this unnatural rising or fall of her heartbeat will in like manner be distinguished and the estimations of a comparative will be appeared on the 'Women Security' versatile application which is made by us and presented in her clever phone. Simultaneously solid narrative remember for the application will record the event that can be used later as a proof at whatever point required. At the same time, a sign gets sounded which would make the earth ready what's more, she can get fast help. For her self-security, there is a sharp edge associated with the device [11]. Before long compact application progress acknowledge a significant part with working structures like Windows, Android, additionally, IOS etc. This helpful application is from a general perspective utilized for women's thriving. It might be utilized to discover and bolster women's in crisis circumstance. It shows the correct locale where the individual is found and send the point of convergence through Short Message Service (SMS) to her relatives, guardian and colleagues. In this paper, review has been done on flexible application and also talked about different burdens [12]. Security for women has become a noteworthy issue in the greater part of the countries. Review results shows that reliably around 25000 bad behavior against women were saved across over India. From the latest ten years, the bits of knowledge among women abusement, sexual incitement have been reliably extending. It has gotten mandatory to think about a response for shield the women from being a harmed individual and to decrease the attacks. The essential objective of this paper is to structure and execute a significantly strong system for protecting women from being bothered. In this paper, we have developed an astute women security system using Radio Recurrence Identification (RFID) and Global arranging structure (GPS).The essential idea here is using a working RFID tag with dormant RFID follower to check the information and this information is moved to the AT89C52 microcontroller where in the contacts of around 4 to 5 people is taken care of in the data base. When the information is gotten by the controller, it sends the message to the contacts through GSM module and the zone is finished the GPS. The entertainment is done in ISIS proteus [13]. Due to the extension in understudy

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similarly as institutional staff people in enlightening grounds and the extension in introduction with the outside world on the people from the informative grounds, there is a creating stress towards a vital factor of any educational grounds, that is, security for all of the people, to be explicit understudies and the staff. Keeping up security and prosperity, moreover, understanding a sentiment of comfort to every substance present in besides, around the grounds is the obligation of the association body of the grounds. This paper hopes to research the various vulnerabilities that challenge the current security system at grounds and to structure a fitting structure embedded with small working units that helpers in disentangling issues related to security at grounds using the establishment of Internet of Things. The previously mentioned referenced targets and objectives are proposed with the help of a relevant examination of a Women's University. It in like manner intends to explain developments like RFID system for enlisted vehicle number plate (RVNP) ID, IP cameras likewise, prepared structure using short illuminating organization (SMS) [14].As recently, shows of assault and brutality against women are climbing at a compromising rate. With increasing of female specialists in organizations and various portions of the business publicize, it is as of now transforming into a requirement for females to go at late hours and visit far away and bound zones as a bit of their work framework. In any case, the exponential augmentation in assault, violence and ambushes against women in the past scarcely any years, is speaking to a risk to the turn of events and improvement of women. Security isn't the fundamental measure that can take care of business against this growing abuse. A security game plan that makes a sentiment of prosperity among women ought to be imagined. In instances of ambush, it is, all things considered, uncovered that women are immobilized. There is along these lines, a need of progressively direct prosperity course of action that can be instituted as essentially as by pressing a switch and can in a brief moment pass on cautions to the nearby ones of the individual being referred to. In this paper we intend to structure and realize such a system as a mostly wearable and mostly minimized structure [15]. The purpose of this work is to develop a wearable contraption for the security and protection of women and youngsters. This objective is cultivated by the examination of physiological signs related with body position. The physiological signs that are poor down are galvanic skin obstacle and inner warmth level. Body position is directed by getting unrefined accelerometer data from a triple center accelerometer. Obtainment of rough data is then trailed by activity affirmation which is a technique of using a particular AI computation. Consistent seeing of data is cultivated by remotely sending sensor data to an open source Cloud Platform. Assessment of the data is done on MATLAB simultaneously. This device is changed to steadily screen the subject's parameters and make a move when any risky situation introduces itself. It does as such by perceiving the adjustment in the checked signs, following which legitimate move is made by strategies for sending sees/cautions to alloted individuals [16]. Another system is given towards the security of women as a contraption. The objective of the contraption is to outfit women with an instrument that can give them security and assurance their security if there ought to emerge an event of any episode. The paper proposes a superior strategy which uses a high voltage current making circuit which will be used to incapacitate the opposition for few seconds. The novel finger impression module for incitation of device, electric shock making circuit, GSM/GPS module for forewarning what's more, zone following all interfaced with a microcontroller to design a little bludgeon framed contraption which will be advantageous and viably flexible [17].

Detriment of existing model: SMS or CALL through GPS and GSM who will be exceptionally far and can't help us in right time. Likewise the structure size is too substantial that ladies can't ready to convey for each time she goes out.

3. Methodology

In proposed system a WIFI tower is built in all the street corners. This WIFI will be connected to all the door bells of the houses.When the girl travels to a particular place she will wear the smart watch. In case of danger she will press the button immediately the request will be given to the nearest WIFI tower from that information's will be sent to the house door bells immediately all the door bells will start ringing and the women who are in danger can be saved quickly.

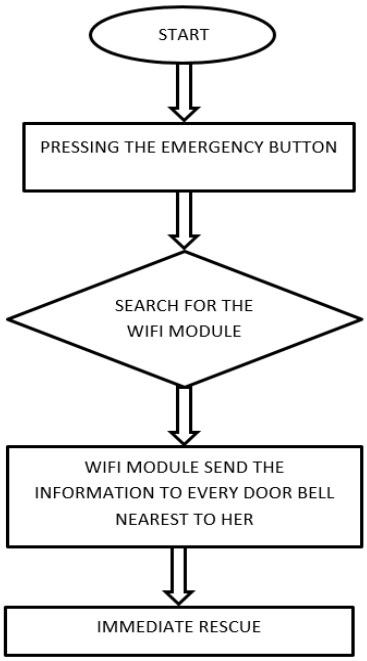

Figure 2: Flow chart representing implementation

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4. Analysis and Comparison Table

s.no.	Special features	A survey on women security device using Iot	Smart IoT device for women safety in timely help
1.	Working principle	GPS and GSM tracking using the IoT device.	Door bell system using WIFI module.
2.	procedure	Location tracking with required IoT devices also the emergency alert to the pre-defined numbers.	Sending alert information to the individual door bells connected to the WIFI modules.
3.	Transmitter	GSM is used to send the information of the victim's location with the message.	WIFI module is used to send the alert to ring the door bells in the fraction of seconds.
4.	Receiver	GPS is inbuilt in any mobiles which can be used to receive the victim's location with required parameters.	Doorbell plays major role to alert the nearby people in the houses connected with WIFI modules and can help victim in fraction of seconds.

5. Conclusion

The probability of threats to women prompts increase in number of security contraptions and applications. This investigation shows the various parts which have been used in applications and sharp devices made for women prosperity. In this paper, the various techniques used so far for ladies protection from the peril circumstances have been analyzed. Also a compact explanation about the devices and sections used in these techniques are in like manner given.

References

[1] Vishesh Sharma[1], Yati Tomar[2],'SMART SHOE FOR WOMEN SAFETY', IEEE 10th International Conference on Awareness Science and Technology (iCAST), IEEE, 2019

[2] Muskan[1] , Teena Khandelwal[2],'Women Safety Device Designed using IoT and Machine Learning', IEEE SmartWorld, Ubiquitous Intelligence & Computing, Advanced & Trusted Computing, Scalable Computing & Communications, Cloud & Big Data Computing, Internet of People and Smart City Innovations, 2018.

[3] Shivani Ahir[1], Smit Kapadia[2], 'The Personal Stun- A Smart Device For Women's Safety', International Conference on Smart City and Emerging Technology (ICSCET),IEEE, 2018.

[4] Kavitha.M[1], V. Sivachidambaranathan[2],'Women Self-defense System Using Internet of Things', IEEE International Conference on Computational Intelligence and Computing Research, 2018.

[5] Prof. Sunil K Punjabi[1], Prof. Suvarna Chaure[2], 'Smart Intelligent System for Women and Child Security', IEEE 9th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON), 2018.

[6] Kalpana seelam[1], K.Prasanti[2], 'A Novel Approach to Provide Protection for Women by using Smart Security Device', 2nd International Conference on Inventive Systems and Control (ICISC), 2018.

[7] Trisha Sen[1], Arpita Dutta[2], 'ProTecht – Implementation of an IoT based 3 –Way Women Safety Device', International Conference on Electronics Communication and Aerospace Technology [ICECA 2019],IEEE.

[8] Debojyoti Seth[1], Member, IEEE, Ahana Chowdhury[2], 'A Hidden Markov Model and Internet of Things Hybrid Based Smart Women Safety Device', 2nd International Conference on Power, Energy and Environment: Towards Smart Technology (ICEPE), 2018.

[9] Navya R Sogi[1], Priya Chatterjee[2], A Raspberry Pi based Smart Ring for Women security Using IoT, International Conference on Inventive Research in Computing Applications (ICIRCA 2018) IEEE Xplore.

[10] G C Harikiran[1], Karthik Menasinkai[2], Smart device for Women security based on Internet Of Things(IOT), International Conference on Electrical, Electronics, and Optimization Techniques (ICEEOT) – 2016 IEEE.

[11] Prof. S. A. Bankar[1], Kedar Basatwar[2], Foot Device for Women Security, International Conference on Intelligent Computing and Control Systems (ICICCS 2018) IEEE Xplore.

[12] R.Pavitra[1], S.Karthikeyan[2], 'SURVEY ON WOMENS SAFETY MOBILE APP DEVELOPMENT', IEEE CONFERENCE, 2019.

[13] Shaik Mazhar Hussain[1] , Shaikh Azeemuddin Nizamuddin[2] , Rolito Asuncion[3] , 'Prototype of an Intelligent System based on RFID and GPS Technologies for Women Safety', 5th International Conference on Reliability, Infocom Technologies and Optimization (ICRITO), 2017.

[14] Ms.Varsha Singh[1], Student, Mr.Vilas Kharat[2], Assistant Professor, 'A Proposed System for Security in Campuses using IoT Platform': International Conference on Current Trends in Computer, Electrical, Electronics and Communication (ICCTCEEC-2017).

[15] Madhura Mahajan[1],KTV Reddy[2],Manita Rajput[3], 'Design and Implementation of a Rescue System for Safety of Women', IEEE 2017 conference.

May - June 2020
ISSN: 0193-4120 Page No. 4124-4129

[16] AnandJatti[1], MadhviKannan[2], '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.

[17] Shaista Khanam[1], Trupti Shah[1], 'Self Defence Device with GSM alert and GPS tracking with fingerprint verification for women safety', International Conference on Electronics Communication and Aerospace Technology IEEE Conference Record, [ICECA 2019].

[18] A. Helen[+1] , M. Fathima Fathila[2], R. Rijwana[3], 'A SMART WATCH FOR WOMEN SECURITY BASED ON IOT CONCEPT 'WATCH ME', 2017 IEEE CONFERENCE.

[19] Ramachandiran R[1], Dhanya .L[2], and 'A Survey on Women Safety Device Using IoT', International Conference on Systems Computation Automation and Networking 2019.

[20] Chandra I, sivakumarN, Chandra babu gokulnath and p parthasaradhi, "IoT based fall detection and ambient assisted system for the elderly" cluster computing, springer, DOI: 10.1007/s10586-018-2329-2,2018.(ANNEXURE-I).