International Journal of Scientific Research & Engineering Trends
Volume 7, Issue 5, Sept-Oct-2021, ISSN (Online): 2395-566X

Desing and Implement of IOT Based Four Way Womens Safety Device

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***Abstract*- As we know the present era is with equal rights, where in both men and women are taking equal responsibility in their respective works. Hence women are giving equal competition next to men in all fields, they are assigned works in both the even and odd shift. Every single day women and young girls from all walks of life are being assaulted, molested, and raped. The streets, public transport, public spaces in particular have become the territory of the hunters'. Because of these reasons women can't step out of their house. We propose to have a device which is the integration of multiple devices, hardware comprises of a wearable "Smart gadget" which continuously communicates with Smart phone that has access to the internet. The complete gadget also ensures to provide self-defense application which helps her to escape critical situations. This system can be used at places like bus stops, railway stations, offices, footpaths, shopping malls, markets, etc. The implementation of the smart gadget is basically split into two sections the first part ensures to capture the image of the Culprit the device get automatically triggered when there is a suspected motion in front of the camera, the device captures the image of the culprit and send it as an attachment to the concerned E-mail Id along with the location of the Victim. The captured image serves as the valid proof against the one who has committed the crime. By making self- defence as the first priority we make sure that occurrence of the critical situations are eliminated. The self-defence feature is capable of working in any of the circumstances either it may be with Internet as a Smart Pendant with LED flash that makes an alert call to the family, relatives via the cloud and also glows the led flash on the eyes of the culprit to make the vision blur when the attacker is at the shorter distance. Whereas Self- defence without Internet consists of Electric shock gloves, that is used to provide the electric shocks that diverts the mind of the culprit and reduce his excited state to commit the crime on women. These two factors form the combined self-defence application and help the victim to escape from the danger.**

***Keywords*- railway stations, offices, footpaths, shopping malls, markets.**

I. INTRODUCTION

Women are the backbone of any economy primarily shaping future of the country. She who earlier stayed at home to attend her domestic duties is now maintaining work and home simultaneously, participating in the process of economic development on an equal footing with men. The Government of India, meeting a longstanding demand for gender parity in the workforce, has approved an amendment in The Factories Act 1948 to allow women employees to work in nightshifts.

The amendment suggests that nightshift for women shall be allowed only if the employer ensures safety, adequate safeguards in the factory as regards occupational safety and health, equal opportunity for women workers, adequate protection of their dignity, honour and transportation from the factory premises to the nearest point of their residence are met.

Nightshifts have been in existence for a long time, however for India it was only recently through an amendment to the Factories Act 1948 that it was allowed under the law for women to work nightshifts. Women are participating in almost all the spheres of economic activity. From village to city, we can see number of women workers and entrepreneurs contributing towards the national income of the country. Garment units already employ 60% of women workforce; and with growth in this industry the number this will go up tremendously. So far, the IT sector were employing women for late-night work hours but had no legal

obligation to provide the above safety measures. There is no denying the fact that women in India have made a considerable progress in almost seven decades of Independence, but they still have to struggle against many handicaps and social evils in the male Dominated society. Many evil and masculine forces still prevail in the modern

Indian society that resists the forward march of its women folk. With the onset of IT&BT industry, women work in night shifts. It is the responsibility of the firm to provide office transportation to such employees. Now a day's even though the companies provide the facilities for transportation, but the security of the women is not fully ensured as one of the incident occurred in the year 2007 at Pune where a girl working in the call centre was brutally raped by two of her cab drivers assigned by the company, not only this we have come across many of the same incidents in the recent times where the safety of the women cannot be fully ensured with the cab facilities provided by the companies.

The only solution to the problem can be taken in such a way that, women should be assigned with a safety gadget that is portable and ensures her safety. Our project focuses on providing a Smart gadget based on IoT solutions that not only helps to woman escape the critical situations but also ensures to provide justice to the women by capturing the image of the culprit if in case any harassment occurs.

Swami Vivekananda, one of the greatest sons of India, quoted that, "There is no chance for the welfare of the world unless the condition of women is improved, It is not possible for a bird to fly on only one wing " Therefore, the inclusion of "Women Empowerment' as one of the prime goals in the eight Millennium Development Goals underscores the relevance of this fact. Thus, in order to achieve the status of a developed country, India needs to transform its women force into an effective human resource and this is possible only through the empowerment of women.

II. HARDWARE DESCRIPTION

1. Arduino:
It is a board based microcontroller on ATmega328P. It has a 16 MHz quartz crystal, 14 digital input/output pins, a USB connection, a power jack. It has a reset button. Simply connect it to a computer with a USB cable get started with AC to DC connection. A typical ARDUINO UNO board can be used for many applications based on the coded program. "UNO" was opted to record the release of ARDUINO software. Theversion1.0 of the Arduino is the reference and now updated to later versions. The first in a series of USB ARDUINO boards was the UNO board and the reference model for the Arduino platform

2. GSM:
Whenever victim senses unsafe, GSM (Global System for Mobile communication module) immediately sends the message to chosen contacts, and also the police room

3. GPS:
Global Positioning System GPS module acts as the satellite and receives the data frequently and transmits similarly to the RS32.It is developed by the US department of defense (DOD).The antenna input of the module receives the GPS signals, and a complete sequential data message with the area, acceleration, and time information is pressed at the serial line.The module provides the current date, time, longitude, latitude, altitude, speed, and travel direction among other data and can be used in many applications including navigation, fleet management, tracking

4. Panic Button:
This is a standard 12mm square momentary button. It is used as emergency Switch. This button is great for user input, it contains 4 pins. If the victim is in danger, by pressing the switch the gets activated along with buzzer.

5. Accelerometer sensor:
(ADXL345) The ADXL345 is a thin, low power, triple axis MEMS measuring device with high-resolution activity. The ADXL345 is well matched to measures the static acceleration of gravity in tilt sensing applications, also as dynamic acceleration ensuring from motion or shock. It additionally detects the presence or lack of motion and if the acceleration on any axis exceeds a user-set level.

6. ESP8266 (WiFi module):
The ESP8266 LAN Module is to boot a self contained SOC with an integrated TCP/IP protocol stack which can offer any microcontroller access to our LAN network.
This module includes a durable enough on board methodology and storage capacity that allows it to be integrated with the sensors and various application specific devices through its GPIOs with borderline development.

III. OPERATION

First, we have to give the power supply to the Arduino board. GSM also needs an external supply. Then we have to dump the code into the controller through USB cable. Here code is embedded c, Arduino board support c language also. After dumping the code, if the switch is pressed, then the message will send with latitude and longitude to the predefined numbers by using GSM and GPS.

If the switch is not pressed, then the sensor will check the positions(x,y, z-axis) of the person, if the positions cross the predefined limit, at that time also the message will also send to predefined numbers. The buzzer also would ring at both conditions. By using the internet of things the position of the person will be updated every 15 seconds. By using LCD we can visualize the output.

The wifi module is also used for the IoT. This project, "women's safety system using IOT" is successful in providing safety to women when she is in danger, and this proposed system would work in two ways. By pressing the

switch and by using a sensor when she suddenly falls due to health conditions like fainting the sensor will work and alert the surrounding people in these conditions

IV. CONCLUTION

The proposed women safety device aims at proving complete security to women in current scenarios. The address of the IoT Module is used as unique identifier for the user so that no one can generate a false alarm and also to ensure that alert is raised only in stress situations. To provide comprehensive security, buzzer is included in the design, so that any nearby person gets alerted about the mis-happening. Sending text messages with images ensure that close relatives and police gets alerted with the recognition of victim.

In case women feels need of self-defence she can make use of panic switches to temporarily incapacitate the perpetrator. Besides, the hardware based design; an android application is developed to provide additional safety features like sending group messages. MEMS based accelerometer is used in the project to detect women stability. The project presents the prototype of a smart device for women safety, performance metrics have to be considered for further analysis to prove its efficiency.

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