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TECHNIQUES FOR WOMEN SAFETY BASED ON INTERNET OF THINGS (IOT)

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ABSTRACT

In today's world the women's are lacking security in many situations in our society. The women harassment is a prime issue of our society. Now the trend is of '**Digital India**' were we are moving towards its goal with quick stride. Now a day's every person is connected with each other in many ways through internet. This paper refers to some of the technologies and devices which can be used for women security issues, to secure women from the harassing people around us. Some technology which talks about new technique to make IOT based safety devices for a women safety in sectional way.

KEYWORDS : GPS, GSM, Microcontroller, Raspberry Pi.

I. INTRODUCTION

In our day to day life the women safety has become a common issue day by day the women safety is becoming the common issue, such apps do exist, and they are equally smart to confiscate the victim's phone. Hence the strategy to switch to an independent hardware is focused in our project. Here we introduce a device which ensures the Protection of women. This helps to identify protect and call on resources to help the one out of dangerous situations. The system consists of pulse and temperature sensor, which when activated, sends values to the training dataset to be compared with per 10sec. If the comparison result is abnormal then a popup message is send to women. Using IoT based technologies; the devices for women safely can be introduced.

The Internet of Things (IoT) deals with the use of intelligently connecting devices and system to explore data gathered with sensors embedded machines actuators and other object in physical manner. IoT refers about the devices in network which sense, collection of data from around the world and then sharing the data over the internet where it can be utilized for various purposes and processed. The systems propose is to provide safety and security for the women. As being in a developing nation and independent country, even today women's are not safe. So there must be some constructive measures for the women's security. Now a days there are so many devices and applications developed for the women's security.

II. DIFFERENT TYPES OF TECHNIQUES FOR SAFETY AND SECURITY OF WOMEN

A. Women Security using Wireless GPS:

The GPS system traces the current location of the victim. This Wireless method will alert and communicate with the secure medium via camera which captures the images. When the sensor button is pressed, the camera used to capture the pictures and also collect the information of the user. This information is sent to the phone number which is registered along with the link of the image. The GPS system traces the current location.

Mathematical Model:

Set Theory Analysis:
S be the - Woman and Children safety Application as the final set

S = identify the inputs as D, Q, E
S = D, Q, E
D = D1 - D given user details
Q = Q1, Q2, Q3 .
Q-gives the bus number which is to be tracked
E = E1, E2, E3 .
E- gives the Button click events
Identify the outputs as O
S = N, C, R
N = N1, N2, N3, N4 - N given Notification
C = C1, C2, C3 . — C gives the Current location
R = R1, R2, R3 — R gives the user details
Identify the functions as F
S = F = F1(), F2(), F3(), F4(), F5(), F6()
F1 (D) :: Get User details
F2 (D) :: Registration
F3 (Q) :: fetch current location
F4 (Q) :: Send current location
F5 (D) :: Send user details
F6(E ,D) :: send notification
Hence the functionality can be shown as,

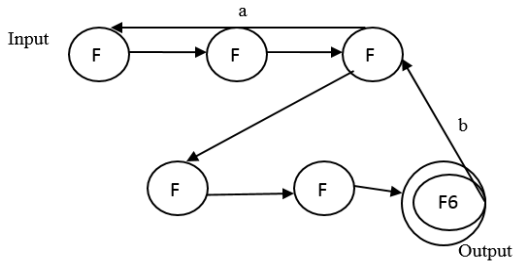

Fig 1: Mathematical Model.

B. Smart GPS Device for Women Safety applications based on IoT:

An android based application solution to supports to track the position of the women. Various devices are connected with a single device through internet. The specified device is connected to the server through internet. Its advantage is to find the locate of the women through provided GSM. The work constitute microcontroller as ARM-7 LPC2148, along with GSM and GPS modules. Using keil compilation is done for core embedded C and checking virtual simulation via Proteus 8.1. A server is created which used to retrieve data generated by the prototype system and the same data is sent to the server using GPRS. A server is created using Filezilla. This device felicitate for Emergency Help Key (SOS), if the key is pressed, automatically help message is generated in server and sent to 3 registered mobile numbers.

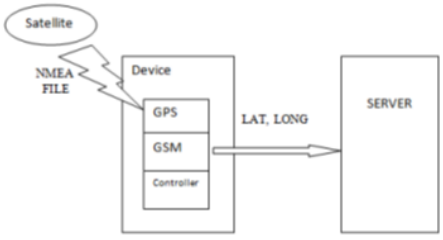

Fig 2: Architecture of Smart GPS Device

C. Smart Gadget for Women's Safety and Security using Panic Button:

The system can be implemented in places like bus stops, footpaths, railway stations, markets, shopping malls etc. This focuses on women's using gadgets for safety purpose. This system uses elements like GSM, Microcontroller, Sensors, GPS and Panic Buttons.

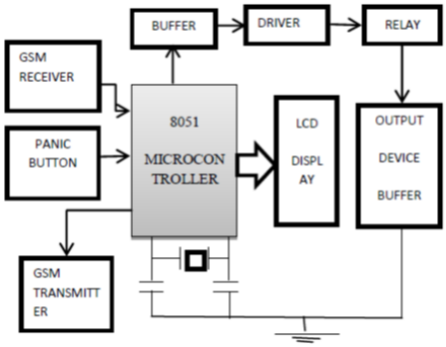

Fig 3: Block Diagram of Smart Gadget for Women's Safety

Can be implemented in these devices:

Purse: Oranment:

Wrist Watch:

D. IOT FOR WOMEN SAFETY USING RASPBERRY Pi:

A device integrated with multiple devices, hardware constitute of a wearable device like "smart Band" which can be tracked through the smart phone through internet. The application is loaded and programmed with the required information and data which is related to human behaviour with various situations like anxiety, fear, anger, nervousness etc. With these behavioural features a signal is transmitted to the device or Smart phone. The application or software keep on accessing the GPS and messaging services which is already programmed in a way that whenever and whatever it receives the emergency signals, it is capable to send help request along the location coordinating with the nearest police station and also for the registered relatives' number. This facilitates victims with all these facilities.

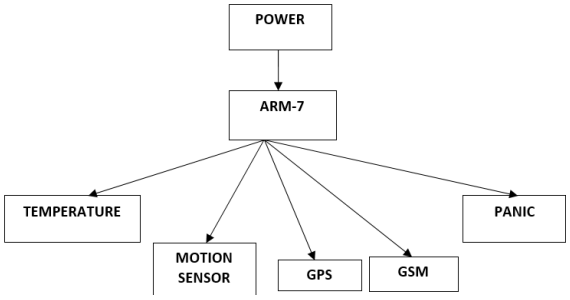

Fig 4: Block Diagram

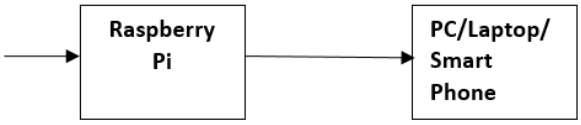

Fig 5: Receiver Block Diagram

E. Electronic Jacket for Women Safety:

Raspberry Pi module is the main part, it has 40 pins. Here three buttons are provided, first button is used for on/off the circuit, second button is used for GSM,GPS and for buzzer and third button is used for shock circuit. Once the first button is pressed, the circuit gets on. Next when the second button is pressed at that time both GPS and GSM both gets on, as it sends the location to predefined numbers or registered numbers. The registered numbers is of police station, friends and family members. Women location is sent to these three numbers in the form of longitude and latitude using GSM alert message, simultaneously buzzer also will be on. When third button is pressed the shock circuit is in on condition, when attacker attacks the women the shock circuit is used to injure the attacker for her self defence. At this point of time camera will captures the image and that captured image is saved in the memory card. Captured image will be helpful for the police to search for the attacker.

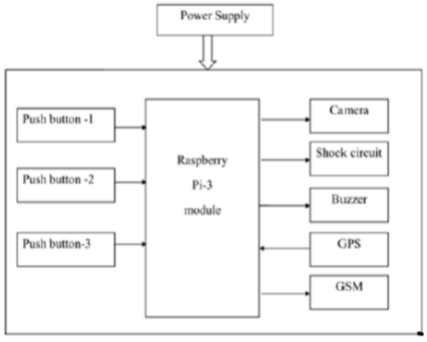

Fig 6: Block Diagram

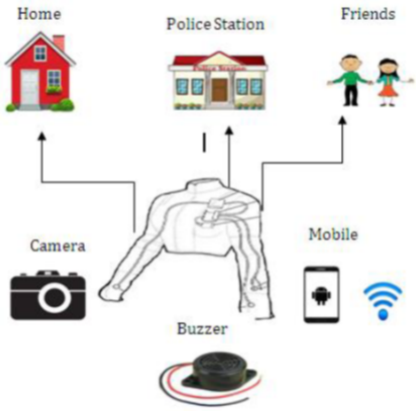

Fig 7: Architectural Model

Fig 8: Hardware with Jacket

F. Women Security based on Internet of Things (IoT) using BLE Module:

Developing a system which can respond faster and provide more security, which includes comparing the data from the sensors with the training dataset, if any dissimilarity occur then automatically message is sent to the nearest police station, friends, family members along with GPS location to provide security to the women who is in danger. The victim women will be handled with a wearable pulse rate sensor and with temperature sensor. From the sensor, the value of these sensors is sent at every 10sec to the server. The server already resides with training dataset along with the normal values of pulse rate according to the temperature of their age group. If any abnormal values is encountered then immediately an alert message will be posted to the women carrying the wearable device by considering some situation like she might be having some stress or jogging. If she does not respond in required time then 3 alert messages will be posted to her friends, family members and also to the nearest police station along with her GPS location. If she responds that she is fine or ok then the flow in the system will stop and starts working normally.

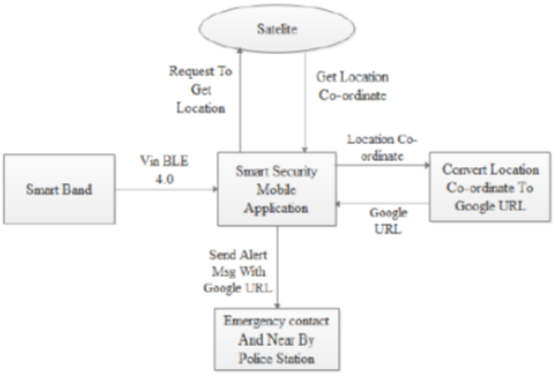

Fig 9: System Architecture

Fig 10: Monitoring system with Application

III. CONCLUSION

IoT based technologies are designed to help women from the dangerous situations. Women can rescue and protect her in any situations, so that she will never feel helpless at any sort of situations and can protect herself even at late night. These techniques will also help police to arrest and search for the culprits. Wearable devices actively keep track of women at each and every time.

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