SMART BAND FOR WOMEN SECURITY USING IOT

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ABSTRACT

Women's safety was a prime concern and the most important duty of every human being. The world has no chance of being happy unless the condition of women is improved. Women have always been given the most respected place in society, but in many parts of the world, every day, every minute, women from all walks of life (women, girls, babies) are harassed, abused, attacked, and injured. An estimated 35% of women have experienced physical or sexual violence at some point in their lives. This paper contains various ideologies and methods of numerous authors who reviewed several applications and devices using current technology and processors and updated them with specific requirements to reduce violence against women. is included. This paper serves the purpose of keeping women safe. It consists of her IOT-based smartband that implements machine learning technology. Even the small improvements suggested in this document will improve the performance of these devices and improve safety for women. With the app revolution in smartphones, many security apps are being developed every day, but cheats or even their opponents know that such apps exist and are willing to confiscate the victim's phone. smart enough to This project system includes a wearable device that sends data to be compared with a training data set, and messages are sent to the family members if abnormal temperature and pulse rate values are detected . and a friend.

Keywords: - *Sensors, GPS, GSM, Mobile Application, machine learning.*

1. INTRODUCTION

India which sees itself as a promising super power and an economic hub can achieve its goal if and only if a large numbers of women participate in the development process. This paper presents an analysis review on the principal need of intelligence security system with technology requirement and challenges to build the system. Since the prediction of such incident is not possible hence to minimize the possibility of physical violence (robbery, sexual assault etc.) by keeping all the help tools ready to safely escape from violent situation. This system is designed using IOT devices which consists of sensors i.e. pulse, temperature, motion, vibration, ultrasonic which are integrated with Arduino UNO board which results according to the situation of the women. The safety and security of a woman can never be at rest, no matter what new device is on the market or no matter how nice a new application is made, there always can be something added to it.

There cannot be a cop always guarding a woman, but there can be secret safety measures with them which can be easily used at the time of threat and let the nearby people know that there is something bad happening and their support is need. By keeping all these things in mind many safety devices have been made and few of them are discussed in this paper.

We are all aware of importance of women safety, but we must analyze that they should be properly

protected. Women are not as physically fit as men, in an emergency situation a helping hand would be assistance for them.There should be some effective solutions which can provide security and safety to women. Here, an Android application and one smart band are built. Based on a temperature and pulse sensor, this project operates automatically. This application uses the woman's pulse readings to safeguard her. If she is in danger, a text message with her GPS location is sent to a family member and the local police station.

This urgent warning was sent using an application, giving users a social media platform.Our intention is to provide you with fastest and simplest way to ask for help. The basic approach (single click) is to convey the instant location and a distress message to the registered emergency numbers, so that unfortunate incident can be averted and to provide real time evidence for the action against the committers of crime. This can also help the police to reduce the crime rate against women and the evidence can be used for tracing the culprits. As we see in (fig 01) Many devices are designed and proposed essential feature for the safety of women but they come up with a drawback that the application requires initial interaction of women and that condition is not possible.
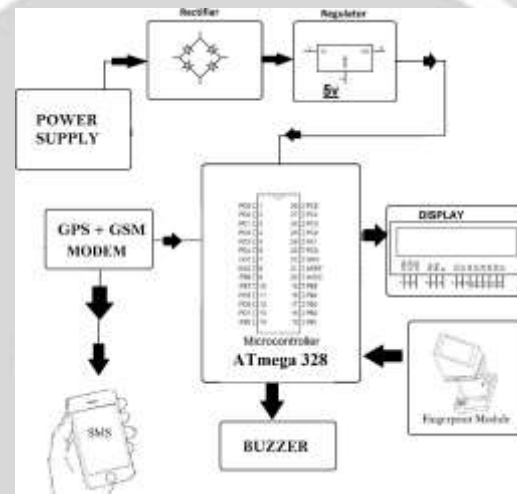

Fig: 01 (Working Module)

In this paper, section 1 contains the introduction to the paper, section 2 has the objective of the study, section 3 contains the dataset used, section 4 contains the literature review, section 5 has the conclusion of the study and in last we have the references in section 6.

2. OBJECTIVE OF THE STUDY

The main aim of this study is to identify the solutions for reducing the problems while traveling and creating a betterbudget Security system.

1. To monitor, evaluate and report on the implementation of the Framework and promote women leadership andinitiative and showcase best practices for replication. Since at last to identify protect and call on resources to help the oneout 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
2. To advocate for the continental framework's implementation at regional andcontinental level

1. DATASET USED

For the implementation plan of the system, the different sensors which are used in the system are implementedand tested separately. The implemented system includes three sensors, ADXL Accelerometer,

Pulse Rate Sensor and Temperature Sensor LM35.These are implemented using Arduino Nano.

A threshold value is set for all the sensors. This value fluctuates when the victim faces any danger and is captured by the sensors. The system also includes a buzzer which buzzes when the threshold value is crossed by any one of the sensors. T

A. Arduino Uno:

The microcontroller used is an ATmega 328p microcontroller. it's one chip microcontroller of the megaAVR family. The [6] microcontroller are often divided into two parts- hardware and software. The hardware consists of the next features- the USB plug which is used to upload the program into the board. It can also be used as a source of power supply. The plug supplies a regulated voltage of 5V. just just in case it's insufficient, an external power supply of 9 to 12V are often given. There are 5 analog pins (A0 to A5). The digital i/o pins are from 2 to 13. The push is used to reset the microcontroller so on run a fresh program. There are 3.3V and 5V power pins to power the Arduino. The second part is that the software. The software involves sending commands and directions to talk with and run the hardware. Present in (fig 02)
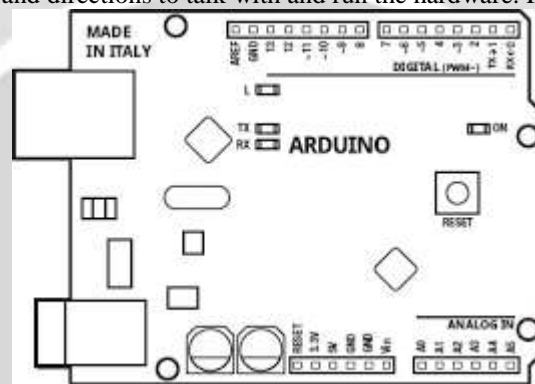

Fig : 02 (Arduino)

B) Temperature Sensor.:

To maintain the health condition, body temperature is an important factor. Here we use LM35 series body temperature sensor. It is operates in +10.0mV/°C scale factor with 0.5°C accuracy.

C) BLE Module.

Here we use BLE 4.0 Module which is HC-0.5v.This is used to connect smart band with the smartphone because which is required less power consumption. Data transmission rate is 2or3 mb/s.which is operates in frequency range 2.4GHz(ISM band) and transfer data in the 10m range.

D) Smart Band.

Smart band consist of temperature sensor, pulse rate sensor, microcontroller. Smart band is connected with thesmart phone by BLE 4.0.

E) Women Security Application.

This application is preprogramed with the standard health values of pulse rate and body temperature accordingto age group. Values obtained from sensors are compared in this application.

F) GSM and GPS Module.

GSM is used to transfer the signal from smart band to smart phone and also used to send emergency message tothe family member, friend and nearby police station. GPS module is used to track the current location of victim with the help of latitude and longitude of receiver.

2. LITERATURE REVIEW

Stay Safe (SOS): It is another powerful personal safety app that permit you against acts of violence, and helps someone in the case of an emergency. SOS – Stay Safe is an application which is useful in a large range of possible dangerous situations like being stalked on the way home, attempted physical or sexual assault, domestic violence, road accidents or medical emergencies. The working is by pressing the power button of phone three times in succession. It automatically sends an emergency message to friends and family along with your location and device battery level. The app allows you to get help effortlessly and discreetly without raising any suspicion. The GPS tracking helps the recipients track your exact location. This app also has an disadvantage such that if girls fail to shake or click button or if girl become unconscious, this app is not worth for the sure safety. [1,2]

FEMME using ARM controller: This paper proposes a safety device and application called FEMME using ARM controller. It is a security device which is specifically designed for women. The device and be purchased or the application can be installed in smart phones and can be accessed in emergencies. FEMME provides quickest and easiest way to contact for help, when a person is in distress. The application is activated by pressing the volume key and the power button together. When the application is being used, first it displays 4 main icons, audio recorder, SOS message, video recorder, hidden camera detector.

Depending on the option pressed now, it either sends message and recording to the preset contacts or detects the hidden cameras. Whereas the device is activated by pressing the button on it, the device is linked with smart phone and it provides 2 buttons, one being the emergency button and the other to activate hidden camera detection. If the emergency button is clicked once (Single Click) the GPS location is tracked and is sent to preset contacts once in every 2 minutes with updated location. If it is clicked twice (Double Click) audio recorder is activated and is sent to preset contacts with an emergency help message. If it is pressed for long (Long Press) it automatically calls the preset contact. By using ARM controller the device works without internet connectivity and is an all in one system, the controller uses less power and gives more efficiency. .

SMART GIRLS SECURITY SYSTEM: The status of women in India
has undergone many profound changes over the last few thousand years. The history of women in India is eventful, from equal rights with men in ancient times to the sluggish period of the Middle Ages to the promotion of equality by many reformers. This post focuses on security systems designed solely to keep women from feeling helpless in the face of such social challenges.

The system consists of various modules such as a GSM shield (SIM 900A), an Arduino ATMega328 board, a GPS (GYGPS6MV2), a Screaming Alarm (APR 9600) and a set of pressure sensor for startup and power. The collapse of Delhi Nirbaya, which rocked the entire country, was the biggest motivation for this system. The time has come for us women to need a change.

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3. CONCLUSION

All the applications and devices are built by using new technologies and processors, where in it might become difficult to operate for women in rural areas and uneducated people, also makes it difficult for them to use smart phones and their updated features. And if the phone is running out of battery, the application present in the phone cannot be used. There are many more portable devices just in order to charge the phones (portable chargers), they can be used to charge the phones before the battery dies. People who are not comfortable in using applications which are installed in smart phones can always opt for devices. The devices can be made in different forms and sizes using specific components. It can be a belt, band or even a cosmetic shaped item.

4. REFERENCES

[1] Design and Development of an IOT based wearable device for the Safety and Security of women and girlchildren. Anand Jatti, Madhvi Kannan , Alisha R M, Vijayalakshmi P, Shrestha Sinha. IEEE InternationalConference On Recent Trends In Electronics Information Communication Technology, May 20-21, 2020,India.

[2] Palve Pramod, "GPS Based Advanced Soldier Tracking with Emergency Messages & Communication System," International Journal of Advance Research in Computer Science and Management Studies Research Article, Volume 2, Issue 6, June 2021

[3] G C Harikiran, Karthik Menasinkai, Suhas Shirol, "Smart security solution for women based on Internet of Things" IEEE 2021, Volume: 3

[4] Stalidis P, Semertzidis T, Daras P (2018) Examining deep learning architectures for crime classification andprediction. arXiv preprint arXiv: 1812.00602. p. 1–13

[5] A Review on Iot based smart GPS device for Child and Women safety application. Niti shree. InternationalJournal of Engineering Research and General Science may-june2020

[6] Block Diagram. (2022, November 6). In

https://nevonprojects.com/womens-safety-device-with-gps-tracking-alerts/