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A Human Safety Device - An Attaching Clip Using Internet of Things

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ABSTRACT

Nowadays Human safety has become a major concern, as crime rates are increasing day by day. Out of which most cases are reported against women. As not only women but many other people also need help when it comes to safety, this may include old age people, children, and anyone who is in danger. We are proposing a human safety device that takes input in the form of a voice command or by pressing the panic button. Once the device gets activated, a message and call is sent to the nearby police stations and preferred contacts with some details of the victim and current location of the victim. with this, the buzzers which are placed on the streets on a particular distance also start buzzing. As these buzzers make some amount of noise the nearby people will come to know about the victim and they can also come for help, till the police reach out to the victim. we will be using raspberry pi in the device, NodeMCU in the buzzer and GPS for the location.

Keywords : NodeMCU, GPS, Human safety, IoT, Machine Learning

I. INTRODUCTION

When it comes to utilizing the advanced technologies in the field of safety. nothing is more important than protecting human lives. Given the unpredictable nature of today's world where the threat to human lives can come in any form, it is very important to make use of the best technology and deploy the best gadgets to protect everyone's lives.

An average of 80 murders, 289 kidnappings, and 91 rapes was reported every single day across the country in 2018. Out of which women's life has the maximum threat. According to the report, a total of 3,59,849 cases were reported against women in 2017. In comparison, in 2016, 3.38 lakh cases of crime were registered against women, while 3.2 lakh cases were recorded in 2015. every fourth rape victim across the country in 2018 was a minor, while more than 50 percent of them fell in the age category of 18 to 30 years, according to the latest National Crime Records Bureau (NCRB) data. In almost 94 percent of the cases, the offenders were known to the victims - family members, friends, live-in partners, employers, or others, the data showed. As many as 33,356 incidents of rape were reported during 2018 involving 33,977 victims, an average 89 rapes daily.

Not only women but the senior citizens and children also are in danger as a maximum number of cases are also registered against them every day. These statistics show that criminal records are increasing day by day and it needs a very strong solution.

We are proposing a device with utmost use of technology such as IoT and Machine Learning which will be useful in providing safety against crime and can also act as an instant help for the victim.

II. PROBLEM STATEMENT

According to the latest National Crime Records Bureau (NCRB) data, we can say that crime rates are increasing every year. Every human's life is in threat when it comes to safety. Whether it is senior citizens, children, women, or any other person, everyone is concerned when it comes to their safety. An average of 80 murders, 289 kidnappings, and 91 rapes was reported every single day across the country in 2018.

Considering the above record there is a huge need for providing a solution to this problem. hence, we are proposing a Human safety Device which consists of a panic button and voice recognition. Once the device gets activated it sends the location of the victim to the police station and emergency contacts with the victim's details and also activates the buzzer placed on the streets. We are using IoT and Machine Learning to build the best algorithm in our device.

III. LITERATURE SURVEY

1:- SMART GIRLS SECURITY SYSTEM.

The status of women in India has gone through many great changes over the past few millennia. From equal status with men in ancient times through the low points of the medieval period to the promotion of equal rights by many reformers, the history of women in India has been eventful. In modern India, women have adorned high offices in India including that of the President, Prime Minister, Leader of the Opposition, and Speaker of the Lok Sabha. However, women in India continue to face social challenges and are often victims of abuse and violent crimes, and, according to a global poll conducted by Thomson Reuters, India is the fourth most dangerous country in the world for women and the worst country for women among the G20 countries. This paper focuses on a security system that is designed solely to serve the purpose of providing security to women so that they never feel helpless while facing such social challenges. The system consists of various modules such as GSM shield (SIM 900A), Arduino ATMega328 board, GPS (GYGPS6MV2), screaming alarm (APR 9600), a set of pressure sensors for activation and power supply unit. The Delhi Nirbhaya case that triggered the whole nation was the greatest motivation for this system.

2. Women Employee Security System using GPS And GSM Based Vehicle Tracking

Women's security is a critical issue in today's world and its very much needed for every individual to be acting over such an issue. This paper describes a GPS and GSM based vehicle tracking and women employee security system that provides the combination of GPS devices and specialized software to track the location of the vehicle as well as provide alerts and messages with an emergency button trigger. The information of the vehicle position provided by the device can be viewed on Google maps. The IT companies are looking forward to the security problem and require a system that will efficiently evaluate the problem of women employees' security working in night shifts. This paper focuses on the proposed model that can be used to deal with the problem of security issues of women employees using GPS and GSM based vehicle tracking.

3. A Mobile-Based Women Safety Application

Many unfortunate incidents have been taking place in women's cases. Problems may come from any direction such as women walking on the road after work, going to the supermarket, or many other reasons for which they go alone. People at home are not sure of their return safely. Another factor is women die without knowing the reason as they attend excursions and industrial trips conducted by the organizations. It happens due to attacks on the woman but not suicides. In 2013 there happened an incident which is a gang rape in New Delhi in the case of a 23-year-old woman in the bus at 9:30 PM. Another incident that has taken place at Mumbai in the case of a woman who is leaving

her native place after the Christmas holidays has been kidnapped and killed. These are some of the problems that have taken place in the day to day life of women. In order to overcome such problems faced by women the I Safety (women security apps) mobile-based application is not only necessary to use but also plays a pivotal role with android software.

4. A Smart Watch for Women Security Based on IOT Concept 'WATCH ME'

Today, in the current global scenario, Women were facing lot of challenges. We can hear the news of women harassments than their achievements. There are many existing apps and devices for women security via smart phones. Though the smart phones have increased rapidly, it is not possible to have the phone all the time in our hand to make a call or click on it, so here we introduced a new technique via smart watches. When a women or child wearing this 'watch me' is exposed to sexual or vulnerable attack, the sensor present in it detects the heart beat rate of a person which will be high at the moment by the secretion of epinephrine hormone from hpa axis and gets activated, this will not only provide a alarm sound to the attention of nearby people, it will automatically make an call to our registered contact and also through GPS/GSM it will detect the nearby police station and make an ring there so it will be helpful for police to arrive soon at the spot by tracking the GPS , such a system will lead to safer and better environment

6. NIRBHAYA

This is another app which lets women to be connected with the people who can help her in danger situations. Here it allows her to send alert message with real time location whenever she moves 300 meters. It also have unique feature where she can also shake her phone and send the message to contacts and it also allows to send message with power button click to send alert signal.

Drawback : - This application does not consider human parameters.

7. WoSApp

Women's Safety App provides a secure way to get help from police. The user can easily and easily trigger function by shaking her phone, or by a simply clicking on a PANIC button on the screen. WoSApp has a direct tie-up with the local police, which can be extended as the area of use of the application expands

Drawback : - In this it's not always possible to have phone with you and send message to contacts so this can be overcome by providing easy to carry device which does not require human intervention.

8. FIGHTBACK: -

This app was proposed by Mahindra faction. Earlier, this app was not free, customer had to pay for this app. But after Delhi gang rape incident, this app is now available at no cost. This app sends a message to your friend or contacts that the person is danger and needs help through Email, SMS and GPRS. This app works on the mobiles that support Android Java Programming.

Drawback: - This application does not consider human parameters

IV. Existing System

In the existing system the device has a button for emergency alert.

When device get activated its send messages to the mobile contact list and nearby police station.

It shares GPS location to the nearby police stations.

The device has an inbuilt alarm that gets activated after the device gets activated.

V. PROPOSED SYSTEM

The main motto behind the device is providing safety to human lives. We are suggesting a human safety device that anyone can carry with them. This can be used in the situation when the victim is in danger.

The user can press the button in case of an emergency or can speak out a few predefined words (for voice recognition) for activating the device if it is not possible for them to reach out to click the button. When the device is activated, a short signal (SMS, CALL) will be sent to the nearest police station as well as the user's emergency contacts. This signal will be in the form of a message that contains the coordinates of the victim's location and the details of the victim like name, photo and phone number etc. Along with the message, the buzzers on the street will start beeping loudly that will make the nearby people aware of the situation and they can come for help. This can be a quick help for the victim until the police arrive.

When the device gets activated the device will vibrate and the victim will know that the message and call are sent.

In this device we are using Raspberry-Pi, Node MUC,GSM , Microphone(MIC), and a push-button for hardware. We are using voice recognition technology which will generate panic signals for devices and backups. We are also using push buttons. At the output side we are using IOT technology to send SMS or call and ring buzzer also.

VI. METHODOLOGY

This work develops a Human safety system that provides the current location details of the victim who are in danger using GPS and GSM modules. The main purpose of this device is to act as an emergency device for Humans who are in potential danger of being attacked. IoT module will track the current location of the victim and update in the webpage. In addition to location tracking it also provides some safety and security. Simultaneously message also sends to the nearby police station and emergency contacts.

Workflow of the proposed System The workflow of Human safety and security is explained in this section.

Step 1: Start.

Step 2: User gives the input in the form of voice or button.

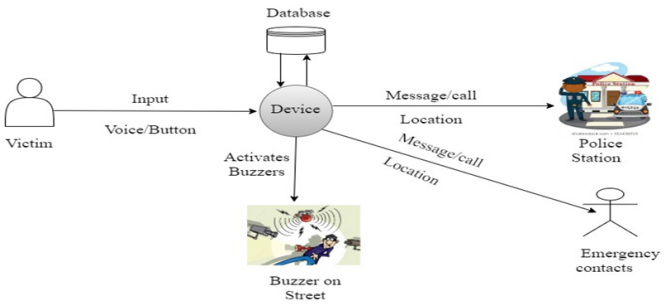
Step 3: Then the device will fetch user data through the cloud and save into the device.

Step 4: Emergency button is pressed or Voice recognize by device, it will create a panic alarm signal pass to the controller (Raspberry -PI).

Step 4: If GPS receives signal, GPS will start calculating the current latitude and longitude values and details of the victim send it as SMS to the police station and emergency contacts

Step 5: Alarm will buzz which is placed in streets when node mcu Received signal.

ARCHITECTURE DIAGRAM



Software Requirement and specification
Google Speech Recognition:
Google has a great Speech Recognition API This API converts spoken text (microphone) into written text (Python strings), briefly Speech to Text.Internet of Things (IoT) is revolutionizing the way devices/things

interact with each other. And when you have IoT with Python on your side, you'll be able to build interactive objects and design them. ... By the end of the book, you will be able to develop IoT prototypes with Python, libraries, and tool./ Programming for IoT is usually a polyglot (multiple languages) effort since the Internet-of-Things (IoT) is a system of interrelated computing devices that are provided with unique identifiers and the ability to transfer data over a network.

(A)Python :

Python is a widely used high-level programming language for general-purpose programming, created by Guido van Rossum and first released in 1991. A interpreted language .The language provides constructs intended to enable writing clear programs on both a small and large scale. Python features a dynamic type system and automatic memory management and supports multiple programming paradigms, including object-oriented, imperative, functional programming, and procedural styles. It has a large and comprehensive standard library. Python interpreters are available for many operating systems, allowing Python code to run on a wide variety of systems. Python, the reference implementation of Python, is open source software and has a community-based development model, as do nearly all of its variant implementations. C Python is managed by the nonprofit Python Software Foundation. The images stored in the SD card are in bmp format. These images can be read using python programming.

(B) AWS Cloud:

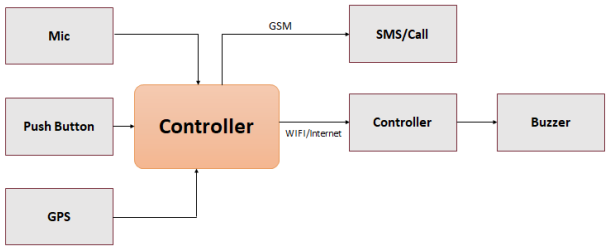
Hundreds of thousands of peoples rely on AWS databases, AWS database is purpose-built, fully managed, it having enterprised class and its performance at scale.Amazon EC2 is without any doubt the most used AWS service that lets users launch and manage server instances, at any time and for as long as one needs. In AWS Storage-optimized instances are designed for workloads that contain very large data sets which has to be written in memory and require high, sequential read and write access.

Functional requirement:

Functional user requirements may be high-level statements of what the system should do but functional system requirements should also describe clearly about the system services in detail

- This specification is used to specify the requirements for the initial implementation of the system and update the system in future.
- The software requirement specification bridges the gap between client/user and the system developer.
- Cloud based technology used to store data and device is connected to cloud and it will fetch new register user information from cloud.
- Device must be on with internet connectivity.
- User friendly GUI
- System must be fast and efficient

Technical flow chart



VII. CONCLUSION

This human safety device will deal with all the critical situations faced by every human , and will help to solve these issues with the help of some latest technologies and tools.it provides the trusted contact with the real time location to alert and also works as an instant help for the victim.This device has been designed in a manner that it covers the various situations for humans can be stuck in like when they are in some kind of help or danger..This device will act

as eyes and ears for the police and help them in preventing crimes against Humans.

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