Women Safety Technique Using IoT Devices

Palvadi Srinivas Kumar[1], Dr.K.Suresh Babu[2]

[1]Research Scholar, Department of Computer Science & Engineering, Sri Satyasai University of Technology and Medical Sciences, Sehore, Madhya Pradesh.

[2]Professor and Head, Department of Computer Science and Engineering, Rise Krishna Sai Prakasam Group of Institutions, Ongole, Andhra Pradesh.

Abstract: Today in the current overall circumstance, the eminent request in every youngster's mind, considering the reliably rising addition of issues on women incitement in the new past is generally about her prosperity and security. The potentially thought frequenting every young woman is where they will really need to move uninhibitedly on the streets even in odd hours without worrying about their security. This paper prescribes another perspective to use advancement for women's security. "848 Indian Women Are Harassed, Raped, Killed Every Day!!" That's a far past HUGE number! We propose an idea that changes the way wherein everyone considers women's prosperity. A day when media conveys a more noteworthy measure of women's achievements rather than incitement, it's an achievement achieved! Since we (individuals) can't respond reasonably in essential conditions, the necessity for a device that normally resources and rescues the setback is the undertaking of our idea in this paper. We propose to have a device that is the blend of different contraptions; hardware incorporates a wearable "Splendid band" which continually talks with Smartphone that methodologies the web. The application is altered and stacked with all the vital data which joins Human direct and reactions to different conditions like dismay, fear, and anxiety. This delivers a sign which is shipped off the mobile phone. The item or application approaches GPS and Messaging organizations which are pre-changed so that whenever it gets the emergency signal, it can send help interest close by the space headings to the nearest Police station, relatives, and people near range who have application. This action engages help rapidly from the Police similarly as the Public in the near range that can show up at the loss with unprecedented exactness. This article moves around the privacy in terms of providing very guaranteed in terms of privacy for women so by that it feels more powerless at the time of friendly situations. To improve more we are designing the model with the help of high level microcontroller and named as STM32F407VG Micro-Controller.

Key words: Safety and security, harassment, killed, raped, emergency, IOT, sensors, GPS, GSM, police station, etc…

Introduction

The situation with women in India have gone through various amazing shifts in the direction of the most recent few centuries. In present-day India, women continue facing social challenges and are consistently setbacks of abuse and awful bad behaviors and, according to an overall study drove by Thomson Reuters, India is the "fourth most unsafe country" in the world for women and the most discernibly horrendous country for women among the G20 countries. This endeavor revolves around a security structure [1] that is arranged solely to successfully give security and prosperity to women so they never feel weak while standing up to such cordial challenges.

The Delhi "Nirbhaya" case that set off the whole nation was the best motivation for this endeavor. It was high time we women required a change. Now a days in most of the countries innocent women are brutally harassed by some of the people. [2] Women are facing such a problem very often. The day by day increase in such situation women are afraid of leaving the house at night. So basically women are bounded to such situation in some of countries women doesn"t feel safe at night. Harassment is not only the issue. In most of countries children are threaten and getkidnapped.

Here we are planning the procedure of the Context-Aware Human Tracking System (CHTS). The strategy

was gotten across 3 advancements by improving its quality, effectiveness just as giving Robustness.

A blend of cell phone direction sensors and BLE in IoT will be considered in the main system. The direction sensor recognizes the genuine area of the client's exercises, and BLE utilizes star geography to convey the message to the global positioning framework. Also, using the Laboratory Virtual Instrumentation Engineering Workbench (LabVIEW) devices, the client movement signs will be recorded.

A mix of cell phone accelerometer, whirligig, direction sensor, and Wi-Fi in IoT will be considered in the subsequent procedure. In this situation, the Wi-Fi movement signs will be recorded using the Java Framework interface instrument that has been planned. [3]

Because of its minimal expense of execution and support, the third strategy will examine the coordination of a PIR sensor, BLE, and STM32F407VG microcontroller for the discovery of client movement signals with or without a cell phone.

At long last, for IoT advances, a Context-mindful Energy Conservation Algorithm (CECA) will be fostered that can be applied to different QoS boundaries, like Inter-Meeting Time (IMT), and will be used to distinguish whether cell phone clients are inside or past the transmission range. After the reproduction is finished, the result will be resolved.

II. Objective

The main agenda in designing this project or doing this work is to make women secured with smart applications and can identify the surroundings is safe or not for them. Whenever any difficulty arises they can alert to the nearest police control room, to their parents as well as nearby people who were using this application so that the alert will goes to the people from time to time based on the GSM mechanism. Here we have used high level Micro Controller named STM32F407VG which helps to embed the sensor in any of the handheld device [4] without any doubt. As in previous projects smart phones were playing the major role for alerting but in this the time taking is very more because of opening the lock or pattern of the phone and dialing to the number is a challenging task for women at that time so instead of that the small micro chip was designed in the form of the button so that the button can be embedded in watch, necklace etc., so whenever the person clicks the button the message will be moved to the concerned departments etc.,

III. Literature Survey

The articulation "Web of Things" (IoT) was first used in1999 by British development pioneer Kevin Ashton to portray a system in which objects in the real world could be related with the Internet by sensors. Ashton founded the term to address the power of interfacing Radio-Frequency Identification (RFID)tagsused in corporate stock chains to the Internet to check and track items without the necessity for human intercession. [5]

By the last piece of the 1970s, for example, structures for remotely checking meters on the electrical grid through telephone lines were by then in business use. In the1990s, advances in far-off development allowed a "machine–to–machine" (M2M) adventure and current responses for equipment checking and movement to get expansive. Ten ―critical‖ examples and advances influencing IT for the accompanying five years were fanned out by Gartner [5]. The Internet is wandering into enormous business assets and buying things like vehicles and TVs. [6] The issue is that most undertakings and advancement vendors are yet to examine the expected results of an all-inclusive Internet and are not operationally or legitimately ready. Gartner recognizes four basic use models that are emerging:

- Manage

- Monetize

- Operate

- Extend

These can be applied to people, things, information, and places, and thusly, the supposed Web of Things will be winning by the Internet of Everything.‖ The Internet of Things is certainly not alone development, it„s a thought where most new things are related and enabled, for instance, streetlights being coordinated and things like introduced sensors, picture affirmation convenience, extended reality, near taking care of correspondence, are composed into situational decision help, asset the leaders and new organizations.

These bring various business openings and add to its multifaceted design. The Internet of Things gives courses of action reliant upon the joining of information advancement, which suggests hardware and programming used to store, recuperate, and measure data and correspondences development which fuses electronic structures used for correspondence between individuals or social affairs. The speedy blend of information and exchanges development is happening at three layers of advancement headway: the cloud, data and correspondence pipes/associations, and contraptions. [7] The coordinated effort of the passageway and potential data exchange opens giant extra freedoms for IoT applications. Adequately the greater part of the Internet affiliations are between or with things. In 2011 there were in excess of 15 billion things on the Web, with 50 billion+ sporadic affiliations. Enabling advances for the Internet of Things considered can be collected into three groupings:

i) Technologies that enable —things to get pertinent information

ii) Technologies that enable —things to manage important information, and

iii) Technologies to improve security and assurance

The underlying two classes can be commonly seen as pragmatic design blocks that required construction —intelligence into —things, which are without a doubt the features that differentiate the IoT from the standard Internet. The second rate class isn't a limit yet rather the acknowledged need, without which the passage of the IoT would be truly lessened. The IoT improvement recommends that the environment, metropolitan regions, structures, vehicles, clothing, advantageous devices, and various things have progressively more information identified with them just as the ability to recognize, grant, association, and produce new information. [8] Moreover, the association propels need to adjust to new troubles, for instance, amazingly high data rates, thick swarms of customers, low lethargy, low energy, insignificant cost, and a colossal number of contraptions, The 5G circumstances that mirror the future challenges and will fill in as course for International Journal of Engineering Research and General Science Volume 4, Issue 3, May-June, 2016 ISSN 2091-2730 162 www.ijergs.org further work are spread out by the EC upheld METIS project [2]. As the Internet of Things gets set up in insightful plants, both the volume and the level of detail of the corporate data created will increase. Also, plans of action will at this point don't include only one organization, however will rather contain exceptionally unique organizations of organizations and totally new worth chains. Information will be produced and communicated independently by savvy machines and these information will unavoidably cross organization limits. Various dangers are related with this new setting – for instance, information that were at first produced and traded to organize assembling and coordinations exercises between various organizations could, whenever read related to other information, abruptly give outsiders profoundly touchy data around one of the accomplice organizations that may, for instance, give them an understanding into its business procedures.

This venture is to create a unified, web based security apparatus that uses RFID and GPS advancements in distinguish drivers as well as track load trustworthiness. The frameworks that achieve privacy check continuously utilizing the web along U.S. Customs‟ information base (ACE). The focal data set as well as mediators among the information base alons ACE that will set up. Later vehicle was stacked, complete beginnings starts in big hauler were fixed to RFID labels. At that point RFID radio wire along label peruser got which is sent the sign, remotely associated by data sets. Additionally, GPS will track the cargos area whenever and answered to framework at the time of essential. [9] the task will fill by proving grounds to execution for safety efforts which can help forestall lateron psychological oppressor assaults which helps for expecting an

merchandise and items weren't bargained on a way. The framework will diminish the work of safety checks for base that likewise helps for internet charging. These technologies were the 2 primary centers were privately owned businesses and the public authority.

Title 1:-Smart Girls Security System. [10]
Creators :- BasavarajChougula, ArchanaNaik. Year Of Publication:- 2014.

The circumstance with women in India has gone through various mind boggling shifts in the direction of the most recent few centuries. From identical status with men in outdated events through the discouraged spots of the ancient time frame to the headway of comparable rights by various reformers, the recorded background of women in India has been energizing. In present-day India, women have adorned high work environments in India including that of the President, Prime Minister, Leader of the Opposition, and Speaker of the Lok Sabha. In any case, women in India continue standing up to social troubles and are consistently overcomers of abuse and savage infringement and, as shown by an overall review coordinated by Thomson Reuters, India is the fourth most dangerous country on earth for women and the most discernibly dreadful country for women among the G20 countries. This paper bases on a security system that is arranged only to successfully give security to women so they never feel weak while defying such amicable challenges. The system involves various modules, for instance, a GSM protect (SIM 900A), Arduino ATMega328 board, GPS (GYGPS6MV2), yelling alert (APR 9600), a lot of squeezing factor sensors for incitation and power supply unit. The Delhi Nirbhaya case that set off the whole nation was the best motivation for this system. It was high time we women required a change.

Title 2:- Women Employee Security System utilizing GPS And GSM Based Vehicle Tracking. [11]
Creators:- Poonam Bhilare, AkshayMohite, DhanashriKamble, SwapnilMakode and RasikaKahane, Year Of Publication:- 2015

Women's security is an essential issue nowadays and it's particularly needed for every individual to be acting over such an issue. This paper portrays a GPS and GSM-based vehicle following and women laborer security structure that gives the mix of GPS contraptions and specific programming to follow the space of the vehicle similarly as give alerts and messages an emergency button trigger. The information of vehicle position given by the device can be seen on Google maps. The IT associations are expecting the security issue and require a system that will viably survey the issue of women delegates security working in night shifts. This paper revolves around the proposed model that can be used to deal with the issue of wellbeing issues of women laborers using GPS and GSM-based vehicle for following.

Title 3:- A Mobile Based Women Safety Application. [12]
Creators:- Dr. Sridhar Mandapati, SravyaPamidi,Sriharitha Ambati Year of Publication:- 2015

Various lamentable scenes have been happening in women's cases. Issues may come from any course, for instance, women walking around and about after work, going to the supermarket or various purposes behind which they go alone. People at home don't know about their return safely. Another factor is women fail miserably without knowing the clarification as they go to trips and present day outings drove by the affiliations. It happens in view of attacks on women anyway not suicides. In 2013 there happened an event which is an attack in New Delhi because of a 23-year-older individual on the vehicle at 9:30 PM. Another event that has happened at Mumbai because of a woman who is leaving her nearby spot after the Christmas events has been caught and butchered. These are a part of the issues that have happened in the ordinary presence of women. To defeat such problems looked by ladies

I Safety (ladies security applications) versatile based application isn't simply important to utilize yet additionally assumes a urgent part with android programming.
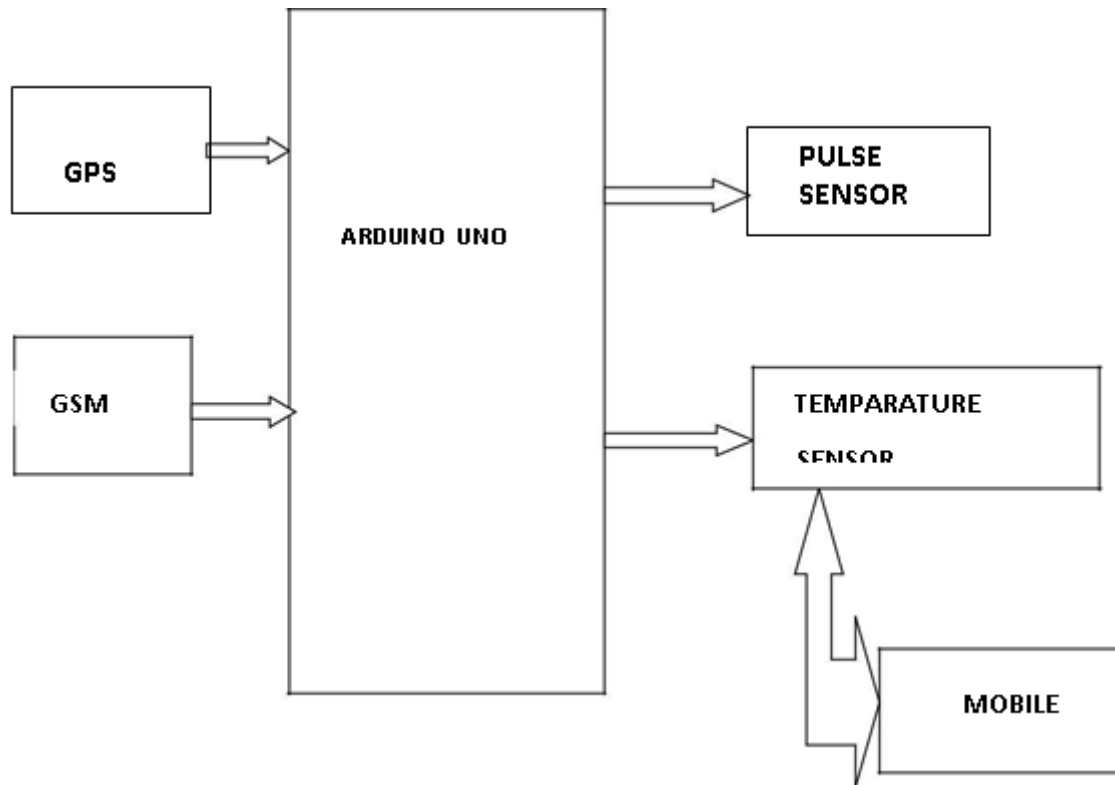
IV. DESIGN IMPLEMENTATAION

Figure 1 Block diagram

Techniques used for work

For developing and implementing this work we have came up with various communication mechanisms, techniques namely cloud server, device-device communication, device to cloud communication, device to device gateway models, GPS, Sapce Segment, control segment, user segment, Arduino UNO. We have used communication technique like GSM. Various sensors were used in the work such as LM 35temperature sensor and pulse sensor

ARDUINOUNO

It is a board based on micro-controller which completely depends on datasets. It comprises of 14 I/P & O/P digital pins , resonator, USB connection, Power Jack , ICSP Header as well as Reset Button.
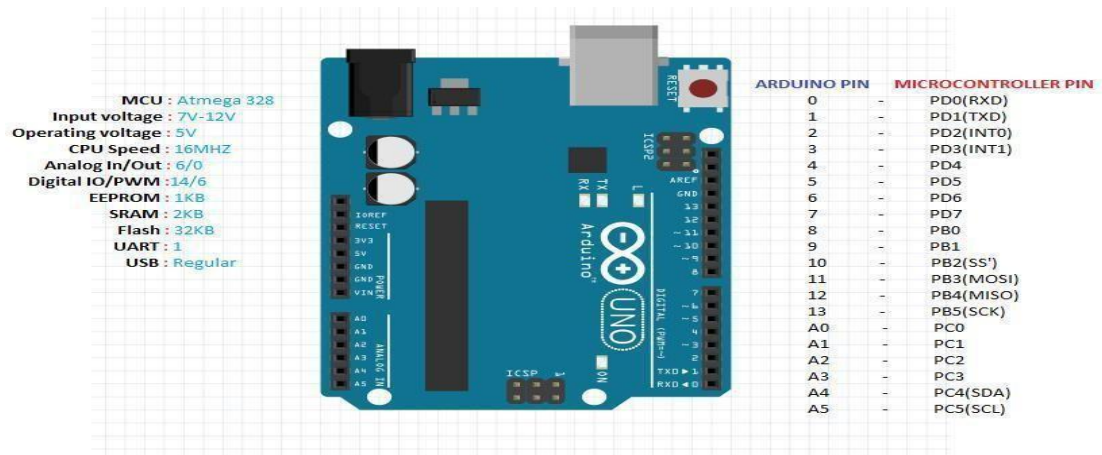
PIN DESCRIPTION OF ARDUINOUNO

Figure 2 Pin description of ArduinoUnoWORKING OFARDUINO

Generally Arduino works on the software called Arduino. Several components present in the arduino namely Digital Pins, Serial, Analog Pins, Power Pins, GND, Other Pins like which helps in supplying of input as well as output, AREF, RESET pin.

EMBEDDED SYSTEMS

Presentation

An embedded structure is a system that will do a predefined decided task is the embedded structure and is even described as a mix of both programming and hardware. A comprehensively valuable significance of introduced systems is that they are devices used to control, screen, or help the action of equipment, device, or plant. All embedded structures are including PCs or computer chips. A part of these PCs is in any case clear structures as differentiated and a PC.

The most clear embedded systems are prepared for performing simply a single limit or set of abilities to meet a singular fated explanation. Programming deals with the vernaculars like ALP, C, and VB, etc, and Hardware oversees Processors, Peripherals, and Memory.

Memory

It is used to store data or addresses. Peripherals: These are the external devices related.

Processor

It is an IC that is used to play out some endeavor Applications of embedded systems, for instance, Manufacturing and association control, Construction, Transport, Buildings and premises, Domestic help, Communications, Office structures, and adaptable hardware, Bank, account, Testing, observing, and indicative frameworks.

Installed SYSTEMS USING ARDUINO

Arduino is an open-source electronic prototyping stage dependent on a basic I/o board and improvement climate for composing programming for the board.

Composing SKETCHES IN ARDUINO SOFTWARE

Ventures formed using Arduino Software (IDE) are called traces. These portrayals are written in the word processor and are saved with the report command .ino. Supervisor had highlights for cutting as well as for looking text.
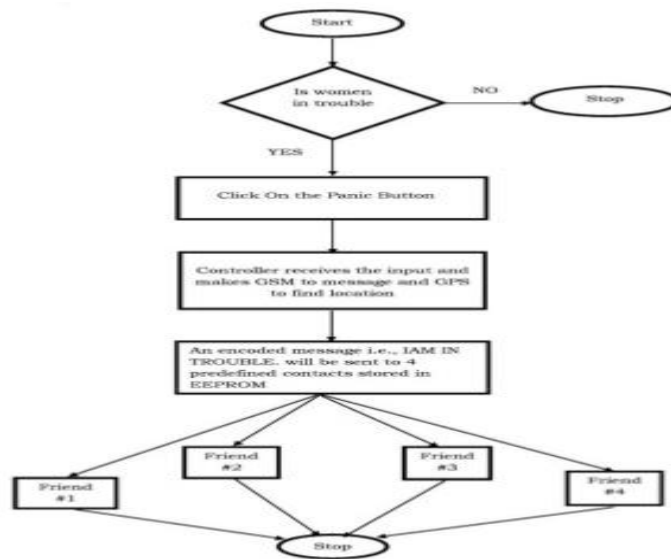
V. Tchitectural FlowChart

Figure 3: Schematic Representation of women security system

IV. SoftwareAlgorithm Used

1. Define the pin number where the information have to receive.

2. Define the buffer band rate 9600 as well as bit rate of4800.

3. Define the loop which performs the following functions

3.1allow permissions to read the contacts which are provided in sim card

3.2 extract the information from GPS module

3.3 Change longitude as well as latitude by GPS over the GoggleURL.

3.4 Link the generated URL with emergency message.

3.5 Perform the forward operation for all the contacts which were extracted from time to time whenever the GPS alerts the location to server.

V. Experimental Results
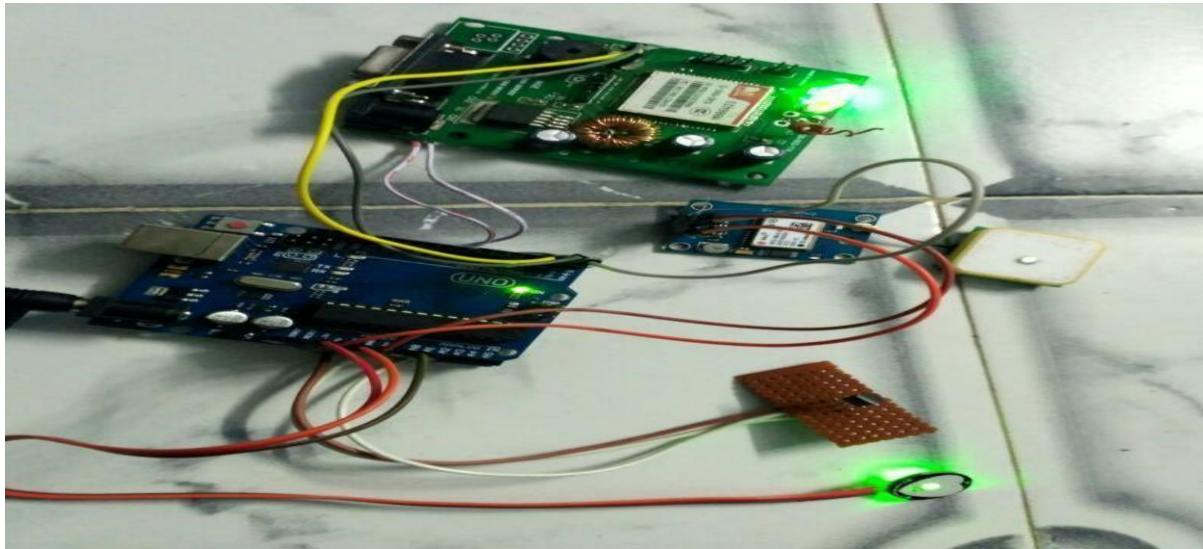
PROJECTOUTLOOK:

Figure 4: Connected hardware components

Discussion AboutWorking

1. Arduino ATMega328 board: The Arduino Duemilanove ("2009") is an ATmega328 microcontroller-based board based which involves 14 progressed data/yield pins 6 straightforward data sources, a 16 MHz valuable stone oscillator, a USB affiliation, a power jack, an ICSP header, and a reset button.

2.   GSM Shield (SIM 900a): The SIM900 which is a completed Quad-band GSM/GPRS game plan shows up in a SMT module that can be embedded in customer applications. Quad-band GSM/GPRS module with a size of 24mmx24mmx3mm, SMT type suit for the customer application.

1. **Arduino ATMega328 board:** This is a board which comprises of 16 pins and having the set of predefined terms.

2.   **GSM Shield (SIM 900a):** The SIM900 is a purely GSM/GPRS is to develop SMT mechanism which help in designing various applications. Quad-band GSM/GPRS architecture is designed with the dimension of 24mmx24mmx3mm, SMT type of application set for the customer based on the application.

3. GPS Module: It is a GPS receiver mechanism which is having the 4 pin sized having 2.54 mm of pitch . the patch antenna top helps for receiving signals.

4. GPS Module: It is a GPS Receiver (5V Serial) which is having a huge 4 pinned 2.5 mm pitch. Here it is the 5V task which is a 3 to 5 volts converter.
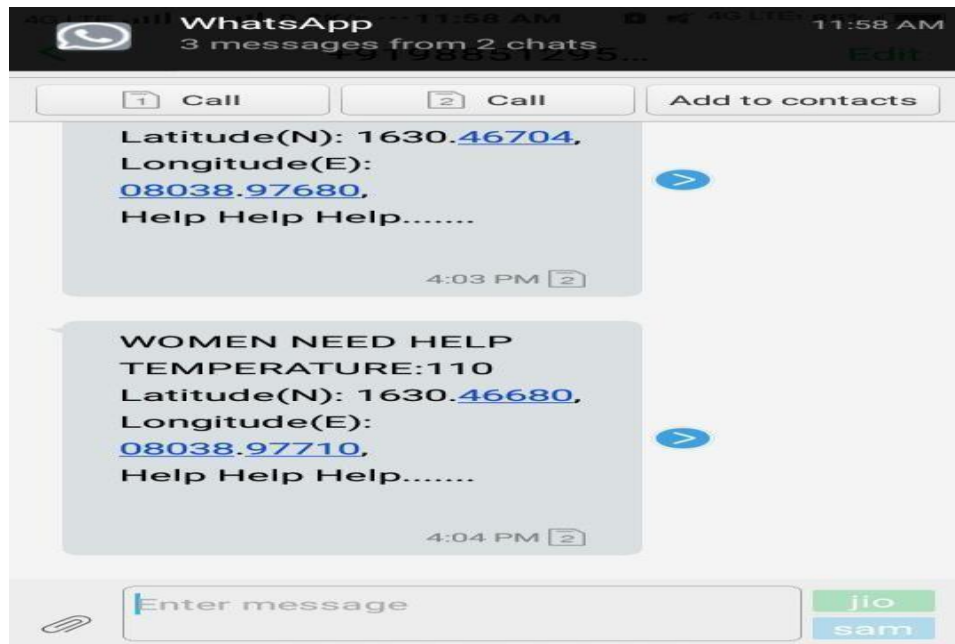
SAMPLEOUTPUT

Figure 5: Output sent to registered mobile numbers

NotificationAlert

When victim is in risk, the concerned person clicks on emergency toggle then location tracking process turns on. Using GPS the accurate latitude and longitude of victim‟s location get tracked respective alert message will be send on registered contact..

VI. Conclusion And Future Work

In conclusion, the Women Safety Device was successfully able to fetch heartbeat and temperature readings of a woman‟s body. A threshold condition of 100 beats per minute and 38°C was set above which the buzzer would turn on, after turning on, it sent the message to the police and known relatives via GSM messaging module. The sent message includes the current position of the woman which is fetched by the location tracking GPS module. When the device was turned on, readings displayed on the LCD screen were zero beats and room temperature respectively. When the device came into contact with the body, it started showing woman‟s heartbeat and temperature readings on the LCD screen.

This proposed design will help to solve critical issues looked by ladies in the close past with innovatively solid equipment's and thoughts. While society might change for the improved, the ability to be independent, confident, and really free can accompany furnishing oneself with the most ideal gadget. The framework will give the right data as actual gadgets give an assurance for the equivalent. Our essential objective of this work is to guarantee each lady in our general public has a sense of security and got. The framework will be convenient, shockproof, and savvy.

Coming to the future work of the project if we can able to implement these below things to the existing work then the usage gets benefited. Such improvements like

- Making the more user-friendly IoT device using STM32F407VG microcontroller.

- While hiding the information in GOOGLE MAPS over GPS sensors which can identify the location of the Longitude along Latitudeinformation.

- If we can reduce the sensors size automatically the product size will be reduced.

- By embedding wireless GPS mechanism carrying of extra kits or items will be reduced.

- Mover to make the working design in more effective manner we can include MOTION DETECTORmechanism in present work.

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