



**NEW HORIZON
COLLEGE OF ENGINEERING**

Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC
Accredited by NAAC with 'A' Grade.

“ARDUINO BASED WOMEN SAFETY SECURITY SYSTEM”

A MAJOR PROJECT REPORT

Submitted by

Vutukuri Gowtham 1NH18EC122

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION

Under the guidance of

Dr. M Jayanthi
Associate Professor,
Department of Electronics and
Communication, NHCE



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Department of Electronics and Communication Engineering

Certificate

Certified that the Project work entitled “Arduino Based Women Safety Security System” carried out by **Mr. Vutukuri Gowtham USN: 1NH18EC122**, a bonafide student of **New Horizon College of Engineering** in partial fulfilment for the award of **Bachelor of Engineering in Electronics and Communication Engineering** of the **Visveswaraya Technological University, Belagavi** during the year **2021-2022**. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the Report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the said Degree.

Signature of the Guide

Dr. M Jayanthi

Associate Professor,

Dept. of ECE,

NHCE

Signature of the HOD

Dr. Aravinda K.

Prof.& HoD,

Dept. of ECE,

NHCE

Signature of the Principal

Dr. Manjunatha

Principal NHCE

External Viva

Name of the examiners

Signature with Date

1.

2.

ABSTRACT

The Arduino Based Women Safety Security System (ABWSSS) is used to mainly intimate the concerned person as well as police about the current location of the women especially who is in emergency and crisis. Our WSS model will help women to protect themselves from harassment in future in India and across the Globe as crimes are increasing day by day.

The main device includes GPS & GSM module. The GPS system will track the current location, while GSM system will send the message to the numbers saved in the system. When system switched on, it tracks location by GPS & send messages to the person who can help her.

This security system has the capacity to send a message to the pre-set persons contact with the instant location every 2 minutes and can be tracked live using this application.

ACKNOWLEDGEMENT

The satisfaction and euphoria that accompany the successful completion of my project work would be impossible without the set of people, whose guidance and encouragement crowned our effort with success.

I have great pleasure in expressing my deep sense of gratitude to **Dr Mohan Manghnani**, Chairman of New Horizon Education Institution for providing us with the necessary infrastructure and pleasant environment.

I take this opportunity to express my profound gratitude to **Dr Manjunatha**, Principal of New Horizon College of Engineering, for his constant support and encouragement.

I am grateful to **Dr Anandhi R J**, Dean Academics for providing us with suggestions and solutions in the course of my project work.

I would like to thank **Dr Aravinda K**, Head of Department of Electronics and Communication Engineering, for constantly monitoring the development of the project and setting up precise deadlines.

I would like to thank **Dr. M Jayanthi** for the guidance, valuable suggestions in the completion of the project work.

Finally, a note of thanks to the teaching and non-teaching staff of the Department of Electronics and Communication Engineering, for their extreme support and my friends, who always supported me during the course of my project work.

Vutukuri Gowtham (1NH18EC122)

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CHAPTER 1

INTRODUCTION

Even at an unusual place man's communication at the streets frequently steers closer to the escalated and terrible assaults on girls. An overbearing subject every folks has closer to the girls in our households has lent a feel of urgency to our talk at the important and urgent trouble of girl's protection. Many unique gadgets are in the main western and maximum of them have now no longer reached India yet.

Safety is the maximum favored motivation for everybody withinside the global today. This is the motive for the improvement of this undertaking, it is able to act as a rescue tool and offer safety in case of chance. The motivation in the back of the undertaking is to attempt to attention on the safety machine, that's simplest designed to serve the cause of , that's to offer protection for girls, so that by no means face such social demanding situations ie feeling powerless . An superior machine may be constructed which could locate the place and wellness of someone This will permit us to take the corresponding actions.

Another trouble is the excessive price of producing those gadgets. To make packages efficient, they could require GPRS offerings which won't be feasible. Applications get hanged, which lowers down the response time. These packages consume lot of amount of battery power.

Most of the packages to be had withinside the marketplace do now no longer paintings with out the Internet or cell community. This is precisely in which the authorities wishes to step in and attempt to mitigate price and infrastructure troubles for the

agencies operating on this direction. The trouble with apps is they have a tendency to be clumsy. The girls must open her telecellsmartphone, release it, open the app after which press a button. Also, maximum of the instances, the perpetrators normally move for the telecellsmartphone first. The want is to expand unbiased gadgets like protection bands, earrings, key earrings etc. that may be carried around and used faster, and on the way to permit the girls to ship emergency messages with their place in instances of distress.

It's a tool for girls in a chaotic environment. The basic method is to use the Arduino Uno microcontroller, which is built on the ATmega328P and has the capability to ship and receive data via the Arduino GSM protect GSM community. The contemporary place of the sufferer is recognized via way of means of the GSM community the use of Arduino Uno via way of means of starting up the user's clever telecellsmartphone. When the Arduino Uno receives the coordinates of the current location, the Arduino GSM protects the coordinate information and sends it to the user's smart telecellsmartphone.

The SOS light is a signal that is used to warn passers-by and provides a signal of accepted assistance to those who are in distress. If the female is in a chance situation, the alarm buzzer sounds. In a critical circumstance, the girls use GSM and GPS to send a message or create a name that contains the location of the unique incidence to the registered contacts. Even if the tool is discarded, the message is sent to the registered emergency contacts, along with a name, until they pick up or open the message.

Based on digital gadgets, along with GPS receivers, GSM, pulse charge sensors, bendy sensors, MEMS accelerometers, Body temperature sensor. We can use the quantity of sensors to appropriately locate the real-time scenario of girls in intense abuse situations. In this case, people's heartbeats are normally higher, which allows to make

your mind up to locate the extraordinary actions of girls on the time of victimization. The contemporary scenario of the media suggests that girls face many issues and experience insecure in inopportune circumstances. At the equal time, girls paintings as men, IT technicians, doctors, engineers, businesswomen, policemen, nurses, teachers, army, air force, etc. When they move alone, they will face the subsequent issues: robbery, rape and homicide or harassment, etc.

Even in this contemporary era, girls are nevertheless afraid to go away their houses because of growing crime charges in our country, along with harassment, abuse, and violence. The company and IT sectors are booming proper now. Many girls paintings in enterprise settings, which includes night time shifts. Working girls have an uneasy sensation approximately themselves. The proposed tool is greater of a protection degree in case something is going wrong.

CHAPTER 2

LITERATURE SURVEY

1. Womens' Safety Device-By Basavaraj Chougula, Archana Naik (2014)that the device includes numerous modules including GSM shield (SIM 900A), ArduinoATMega328 board, buzzing alarm,GPS reciever, a set of sensorss for activations and battery unti. It needs to be done for the womens saftey.
2. The use of GPS and GSM-based vehicle tracking by women employees is part of a security system. Akshay Mohite, Poonam Bhilare (2015), It describes a GPS and GSM primarily based totally vehicltracking and girls worker protection device that offers the mixture of GPSdevice and specialised software program to tune the automobiles area in addition to offer signals andmessages with the help of an emergency button.
3. Usha Kiran Reddy and P. Sumitha's Self-Defense System for Women's Safety with Location Tracking and SMS Alerting (2017), A device used to get the location of girl who is in trouble.
4. Sutar Megha -The Sexual Harassment of Women at Workstation(Prevention, Prohibition, and Redressal) Act, 2013 is an Indian law that aims to protect women from sexual harassment at their place of work.. Today girls are gambling an crucial function as a president, high minister, speaker of the Lok Sabha or even withinside the subject of aeronautics, military, IPS, IAS, etc. Even nowadays girls have accomplished top positions in process and society, but they're dealing with issues including bodily harassment and the sexual assault. The instances of harassment and rapes on girls are growing more as a result protection problem for all the girls . So, it's critical to increase

a device to offer protection to girls. In this he built a device where in girls can guard themselves from attackers. In current days the assaults on girls are growing and every now and then they're now no longer even capable of take their cell and dial-as much as police, this device will assist girls in such conditions to tell approximately assaults and additionally in giving their precise area to a close- by police station for essential action. In this, the writer designed a tool, in that, through urgent the button of the tool a message in conjunction with her area can be transmitted through the device to the police station and her few relatives, in order that they may get aware about her contemporary scenario. this device is designed because the protection equipment, it's going to help assault from the attacker. So, that she will be able to rescue herself from that attacker.

5. Snehal Lokesh - Violence in women assaults does now no longer discriminate through race, religion, culture, elegance or country. As womens face more insecurity in this environments which includes sexual violence, intimate violence and infant abuse are increasing day by day. Girls assailant used to cluster in places like streets, public spaces, and public transportation. In this paper, the writer proposed a device include android software, most important tool, and transportable digital digicam. Android software makes use of Phone's GPS or GPS of the principle tool to find the sufferer . The digital digicam can be introduced through the picturegraph can be captured .
6. Anup CJ – The violence and the harassment against women has improved through many folds because of the more publicity of girls in each subject of life. Women had been formerly confined to the 4 partitions of the homes and after globalization, they've got the possibilities and possibilities to face similarly in all sectors at examine with male. Women are actually a day's cab drivers and they're additionally the CEO of

pinnacle companies. It is a superb signal that the patriarchal attitude of the society has modified to a point however now no longer to the quantity it become speculated to. It is the equal attitude that restricts girls to exit and paintings making them as a device for domestication. It is the equal attitude that treats adult males as advanced than woman and usually attempt to dominate the womenfolk. There are special styles of gear which can be being utilized by the male-ruled society to show their domination over the woman. Eve teasing, sexual harassment, rape, home violence in opposition to girls are those guns utilized by the male to show the male superiority. This is one of the high purpose violence is growing in India and girls protection is a situation in India. In this paper, the writer speculated to advised a treatment to protect girls from those conditions through designing a machine like a standard belt. This layout along with GPS, GSM, Zapper, Buzzer circuit. When girls sense unsecured, they could use the machine that's having an emergency button. Controller in that turns on the GPS, GSM for you to discover the area and to switch the distress message to the relied on human beings and to the manage room at some stage in the time of the assault with their precise area. Zapper circuit produce electric shock which has excessive voltage to present a non-lethal stun to the aggressor. Buzzer additionally receives activated which produces boisterous yelling sound to get close by people for assist. Hence, they're escaped from the danger.

Few protection devices and apps for women protection in India are:-

1. Letstrack - Letstrack is a GPS and automobile security gadget which is based on the Internet of Things allowing hardware and software programme responses. It's the car safety device that comes with First Voice. Letstrack provides real-time tracking, a 24-hour history, sector indications, an SOS alarm, and increased connectivity.

2. bSafe - bSafe is a private security app that forms a "social protection network" of people who are alerted in the event of an emergency.
3. Conditions in which the consumer feels hazardous. It has to beSafe alarm that sends the precise area and audio-video of the encompassing regions to the touch formerly decided on through users. It units a timer so one can robotically ship an alarm to pals in the event that they do not go back in time to show it off or provoke a faux name into their telecellsmartphone in the event that they need an interruption.
4. The Safety pin - The SafetyPin app functions as a guide for choosing the safest path. The app sends out indications as you approach a dangerous area, and you may invite your own family or friends to join you on the ride. The safety of a location is determined by a variety of factors, including public transportation, visibility, and security, according to the organisation.
4. Safelet - It's a wearable young ladies' wellbeing gadget with catches as an afterthought that can be utilized to communicate something specific or contact a parent or gatekeeper. It additionally synchronizes with the client's portable telecellsmartphone to begin recording sounds. In case of a perilous circumstance, the concerned part who gets the alarm can promptly telephone 911 from inside the application.
5. Eyewatchs SOS for girls - It records sound and video of the buyer's environmental elements and communicates it alongside an alarm message to the enlisted contacts. The program vows to have high region exactness, works without GPRS, and has a security affirmation include. After safely entering the locale, the client

can tell their friends and family by squeezing the I am Safe button. It is to be on Google Play Store and Apple application store.

CHAPTER 3

EXISTING SYSTEM

The open research scopes in developing the women security systems, in design of a smart safety device for women using IoT we have the limitations like it should scan the finger for every 1- minute. And the shock generator doesn't have separate power backup for using it. This can be rectified by keeping a battery backup for the shock absorber and changing the fingerprint sensor time to 5 to 10 min. And another smart women safety device using IoT. We have the research gaps that the person should turn on the device. The device sends the alert message only when the person turn on the device. This can be rectified by making the device automatic using any automation or sensors like heartbeat and voice recognition.

Embedded based security system, we have the limitations such as the person should press the button to activate the device. After pressing the button, the person should also scan her finger to send alert message. This can be rectified by removing the fingerprint option (or) keeping only finger scanner instead of button.

A unique approach to provide security for women by using smart device. We have the research gap is there is no button if the person wants to turn on the device by herself. This can be rectified by adding the manually activation button for the device.

Artificial intelligence based self protection device for women. We have the limitations like microcontroller should be present to make this device work and the Internet is required. This can be rectified by using nice signal providing SIM cards. AI based women security system, its Needs internet. This can be rectified by using nice signal providing sim cards. ML supported IoT device for women security. We have the research gaps that is no self-trigger is available to perform the operation. This can be rectified by making the device automatic. Women safety device designed using IoT and Machine Learning, we

have the research gap and it is a non-automated system. This can be rectified making the device automatic.

An android app for the safety of women, in which mobile should be in ON condition. This can be rectified by making a separate device for the safety of women using android like watch, etc. In android-based application system for women safety mobile should have power to work. This can be rectified by keeping a backup power only for this safety security purpose assigned in mobile and work and allow power for this purpose only.

Despite all the benefits of the existing systems, a complete package of women friendly and fully automated security systems are not available in the public. The monitoring and action against the threat are to be made realistic. There is no point of sending the victim's location or intensity of threat to the authorities after she has become physically harassed. The research scope in the field of women security system is immense to address the limitations.

CHAPTER 4

REQUIREMENT SPECIFICATION

4.1 SOFTWARES:

- Embedded C
- Arduino 1.6.9

4.2 HARDWARE COMPONENTS:

- Arduino UNO
- Buzzer
- GSM
- Push buttons & switches
- GPS
- Wi-Fi Module
- Battery
- Magnetic Switch

Implanted designs are advanced devices that contain microchips with in Their executions. The significant elements of the chip are to work on the gadget format and offer adaptability. Having a chip withinside the instrument way that wiping out the bugs, making alterations, or including new capacities are best subjects of reworking the product program that controls the device. Or on the other hand in various expressions inserted PC structures are computerized structures that include a microcomputer to do a specific

submitted application. The PC is covered up inside those items. Installed structures are pervasive. Consistently many a great many small PC chips come spilling out of plants finding their way into our common items. Installed structures are independent applications which can be inserted inside a piece of equipment.

Though a normal PC has numerous great bundles and programming program application that can be applied to severa errands, implanted frameworks are typically set to a chose adventure that can't be modified without physical controlling the circuites. Another way to consider an inserted gadget is as a PC gadget this is made with best effectiveness, subsequently allowing it to complete exact highlights as quick as could really be expected. Implanted constructions fashioners usually have an immense gravitate toward of equipment innovation. They utilized exceptional programming dialects and programming program application to intensify installed frameworks and control the hardware. When looking on the web, bunches give implanted constructions improvement packs and diverse inserted structures hardware to be utilized through architects and organizations. Implanted designs innovation are normally beautiful exorbitant in light of the significant improvement time and built in efficiencies, anyway they're also perceptibly esteemed in exact industry. More modest organizations may likewise need to rent a delegate to choose what sort of installed constructions will transfer expense f or your association.

Characteristics:

Two first locales of varieties are cost and energy utilization. Since many implanted constructions are delivered withinside the several hundreds to countless devices range, diminishing cost is a top notch concern. Installed structures consistently utilize a (generally) steady processor and little memory length to diminish costs. The gradualness isn't just clock speed.

The total construction of the pc is consistently purposely rearranged to diminish costs. For instance, inserted structures consistently use peripherals made do with the guide of utilizing coordinated sequential interfaces, which can be ten to heaps of examples more slow than comparative peripherals used in PCs. Projects on an installed gadget consistently need to run with genuine time requirements with restricted equipment assets: routinely there's no plate power, working gadget, console or show screen. A blaze force can likewise also refresh turning media, and a little keypad and LCD show screen can be utilized instead of a PC's console and show screen. Firmware is the call for programming program this is installed in equipment gadgets, for example in a solitary or more noteworthy ROM/Flash memory IC chips. Installed structures are naturally anticipated to hold 100% unwavering quality simultaneously as walking continually for extended periods, occasionally estimated in years. Firmware is ordinarily developed and inspected an unnecessary measure of stricter necessities than is general-cause programming program, which could usually be easily restarted if a difficulty happens.

Stage There are numerous particular CPU structures used in inserted plans. This in evaluation to the pc commercial center, which as of this composition (2003) is restricted to just some contending models, extraordinarily the Intel/AMD x86, and the Apple/Motorola/IBM PowerPC, utilized withinside the Apple Macintosh. One not strange spot arrangement for installed structures is the gadget on a chip, a utility-specific consolidated circuit, for which the CPU changed into purchased as highbrow things to highlight to the IC's format. Apparatuses Like an ordinary pc software engineer, inserted gadget architects use compilers, constructing agents and debuggers to build an implanted gadget. Those product program stuff can emerge out of various sources: Software offices that practice withinside the implanted commercial center Ported from the GNU programming program improvement gear. Now and then, improvement gear for a non-public pc might be utilized if the implanted processor is a close to comparative with a not surprising spot PC processor. Implanted device planners also utilize a couple of

programming program programming gear now as of now not routinely utilized by customary software engineers. A few originators hold a product application to show insights reports into code, so one can envelop any sort of measurements in an application. Most architects furthermore have programming bundles to include a checksum or CRC to an application, so it might investigate its application insights sooner than executing it. Working gadget They consistently haven't any functioning gadget, or a specific installed working gadget (routinely a real time working gadget), or the developer is appointed to port this kind of to the spic and span gadget. Investigating Debugging is regularly done with an in-circuit emulator, or a couple of kind of debugger that could intrude on the miniature regulator's inward microcode. The microcode hinder will we the debugger act in equipment wherein best the CPU works. The CPU-basically based absolutely debugger might be utilized to check and investigate the gadgets of the pc from the angle of the CPU. This capacity changed into spearheaded at the PDP-11. Designers should demand investigating which shows the serious level language, with breakpoints and unmarried venturing, because of the reality those capacities are extensively accessible. Additionally, manufacturers should compose and utilize simple logging places to investigate groupings of genuine time events. PC or centralized server developers initially experiencing this sort of programming routinely end up being badgering around design needs and advantageous techniques. Coaching, code-assessments and self image significantly less writing computer programs are suggested. Plan of inserted structures The hardware normally utilizes both a chip or a miniature regulator. Some monstrous or vintage structures utilize general-cause centralized servers PC frameworks or minicomputers. Start-up All implanted designs have fire up code. Generally it incapacitates intrudes on, units up the hardware, checks the pc (RAM, CPU and programming program), after which starts off developed the utility code. Many implanted designs get throughout brief time frame period energy debacles with the guide of utilizing restarting (with out most recent self-checks). Restart occasions underneath a tenth of a 2d are not surprising spot. Numerous

originators have found unquestionably considered one among more noteworthy equipment in addition to programming program-oversaw LEDs helpful to imply botches sooner or later of progress (and in a couple of cases, after item discharge, to give investigating diagnostics). A not uncommon spot conspire is to have the gadgets flip off the LED(s) at reset, whereupon the product program turns it on at the essential chance, to show that the equipment and start-up programming program have completed their errand up until this point. From that point onward, the product program flickers the LED(s) or units up gentle styles eventually of ordinary activity, to connote application execution advancement or potentially botches. This serves to console most extreme specialists/engineers and a couple of clients. The control circle In this format, the product program sincerely has a circle. The circle calls subroutines. Every subroutine oversees part of the equipment or programming program. Hinders commonly set banners, or supplant counters which can be look at with the guide of utilizing the unwinding of the product program. A simple API incapacitates and permits interferes. Done right, it handles settled brings in settled subroutines, and reestablishes the past intrude on realm withinside the furthest empower. This is perhaps the best strategy of making an exokernel. Normally, there is a couple of sort of subroutine withinside the circle to control a posting of programming program clocks, the utilization of an occasional real time interfere. At the point when a clock lapses, a connected subroutine is run, or banner is set. Any anticipated equipment event should be upheld with a product program clock. Equipment events flop around when in a thousand billion examples. That is roughly when a year with present day equipment. With 1,000,000 intensely delivered gadgets, leaving out a product program clock is an endeavor catastrophe. State machines can be completed with a trademark - pointer in accordance with realm machine (in C++, C or get together, in any case). An extrade of realm shops a particular trademark into the pointer. The element pointer is executed on each event the circle runs. Numerous planners advocate concentrating each IO apparatus when in accordance with circle, and putting away the final product so the

decision making ability follows up on consistent qualities. Numerous planners decide to format their realm machines to test best one or matters in accordance with realm. Normally that is an equipment event, and a product program clock. Architects advocate that various leveled realm machines should run the decline degree realm machines sooner than the better, so the better run with right data.

Complex highlights like internal burning controls are consistently managed multi-dimensional tables. Rather than muddled computations, the code shows up the qualities. The product program can add among sections, to hold the tables little and modest. One first flimsy part of this gadget is that it does now presently don't guarantee a chance to answer to any exact equipment event. Cautious coding can easily ensure that nothing impairs hinders for extended. Subsequently interfere with code can run at exceptionally specific timings. Another premier flimsy part of this gadget is that it might end up being convoluted to include new capacities. Calculations that take a long haul to run must be circumspectly harmed down so best a piece gets completed on each event through the rule circle. This current gadget's power is its straightforwardness, and on little parts of programming program the circle is usually rapid to such an extent that no individual cares that it isn't unsurprising. Another advantage is this gadget guarantees that the product program will run. There isn't any strange working gadget liable for horrendous conduct. UIs User interfaces for installed structures range fiercely, and consequently merit a couple of special remark. Planners advocate evaluating the individual interface for ease of use on the most punctual possible moment. A speedy, dirty investigate is to welcome a govt secretary to apply cardboard designs drawn with wizardry markers, and controlled with the guide of utilizing an architect. The recorded final product is most likely to be every interesting and truly instructive. In the tapes, at whatever point the architect talk, the interface has fizzled: It could reason a transporter call. Precisely one individual should

endorse the individual interface. In a perfect world, this should be a client, the premier wholesaler or an individual promptly responsible for advancing the gadget. The decision creator should be equipped for choose. The difficulty is that a council will in no way, shape or form decide, and neither will a couple of individuals. Not doing this reasons avoidable, lavish deferrals. A convenience investigate is more noteworthy critical than any scope of sentiments. Interface planners at PARC, Apple Computer, Boeing and HP decrease the scope of assortments of individual activities. For instance, use catches (totally the base) to oversee a menu gadget. A touch-show screen or show screen-region fastens moreover decrease the assortments of individual activities.

CHAPTER 5

PROPOSED METHODOLOGY

In this chapter, schematic diagram and interfacing of ATmega328 microcontroller with each module is considered.

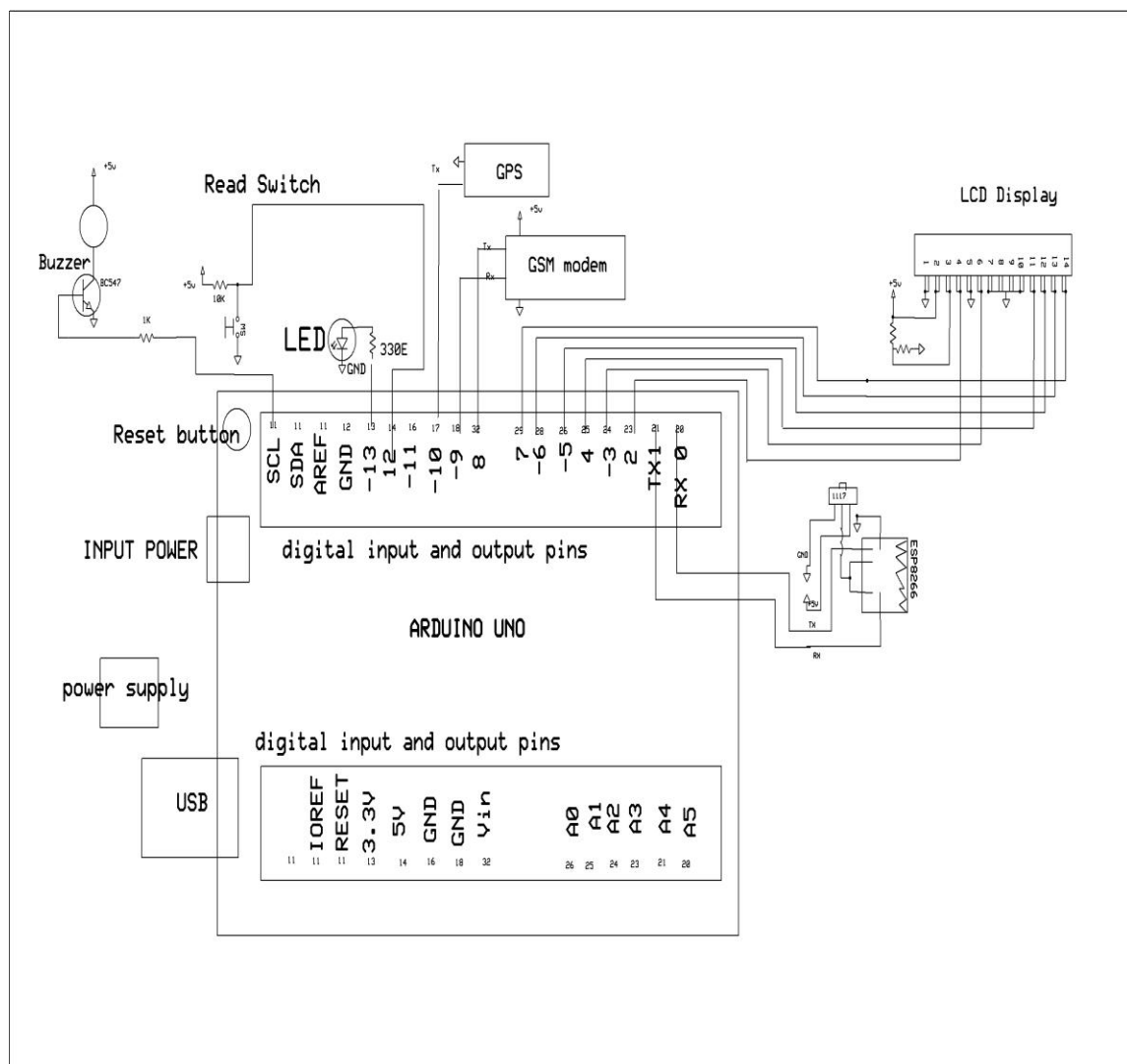


Fig 5.1: schematic diagram of Android Based Women Safety Security

The above schematic diagram of **Android Based Women Safety Security** explains the interfacing section of each component with micro controller.

METHODOLOGY:

- First when the magnetic is removed the module gets activated.
- Then the buzzer will get started immediately after the magnetic switch detaches.
- If we didn't place the magnetic switch back in 10-sec the module starts its work.
- It will start sending the SMS with location to the listed contacts in the module.
- And in Blynk app there will be a ALERT message saying that the person is in danger and the location is shared continuously.

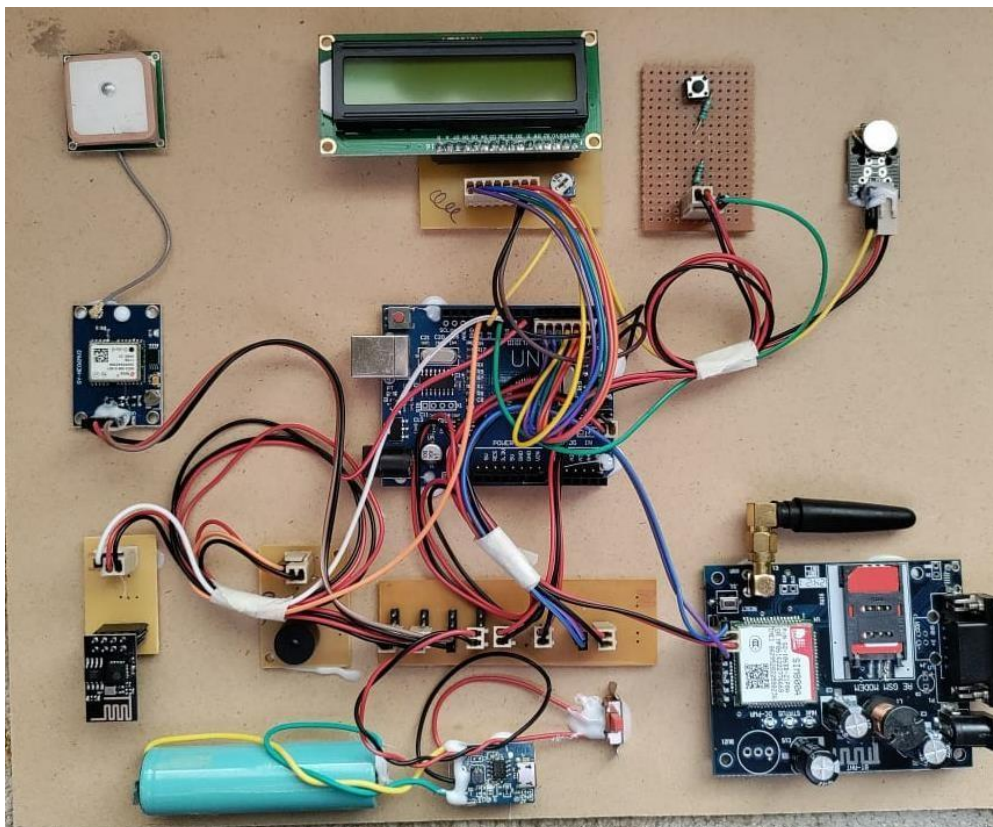


Fig 5.2 : Working module

CHAPTER 6

DESIGN

6.1 DESIGN GOALS

To design a security device for women's safety and security. To reduce complexity, so that every woman can use.

6.2 SYSTEM ARCHITECTURE

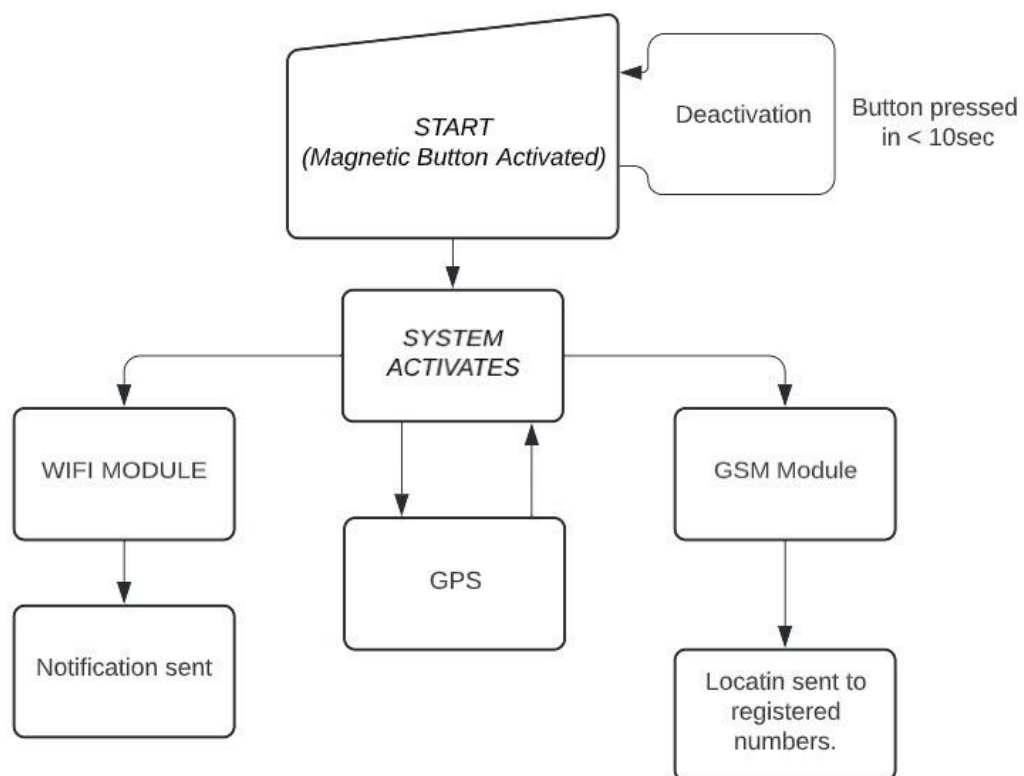


Fig 6.2.1 Module Section

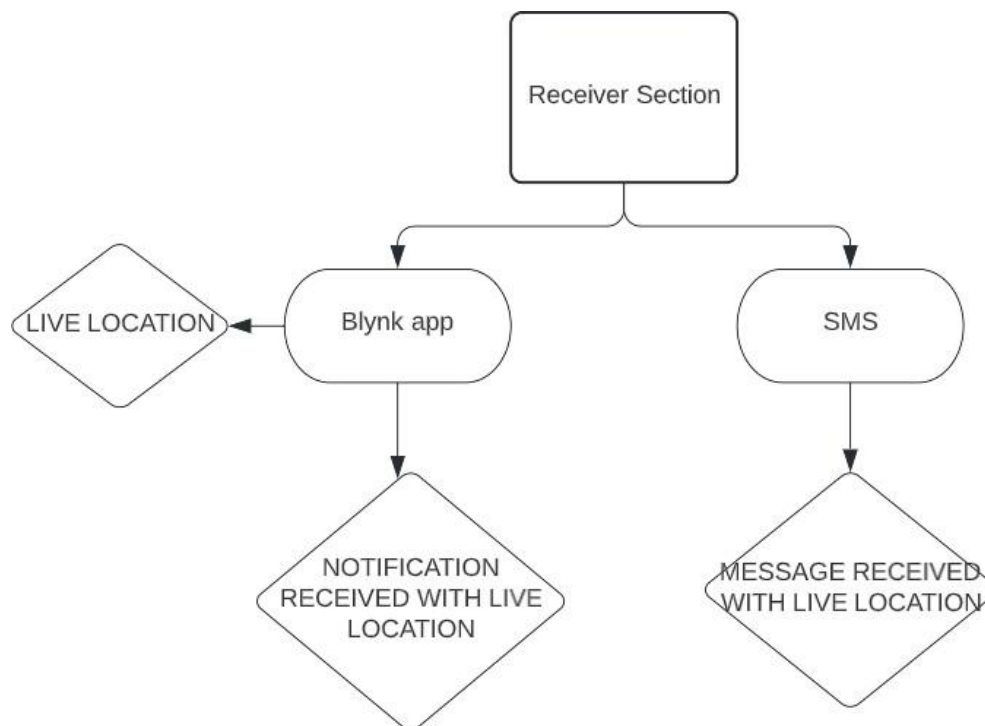


Fig 6.2.2 Receiver Section

The System consists three main components: -

- GPS Module/GPS Tracking unit
- GSM Module
- Arudino Uno

6.2.1 GPS Module

A GPS tracking unit is geo-tracking unit, or surely tracker is a navigation tool typically on a vehicle, asset, individual or animal that makes use of the Global Positioning

System (GPS) to decide its motion and decide its WGS84 UTM geographic position (geo-tracking) to decide its location.

Locations are saved withinside the monitoring unit or transmitted to an Internet-linked tool the usage of the mobile network (GSM/GPRS/CDMA/LTE or SMS), radio, or satellite tv for pc modem embedded withinside the unit or WiFi paintings worldwide.

Various organizations purchase role and tune statistics for marketing. Also used for navy and criminal, to close down and choose up repossession/thefts and locate truck loads. Tracks may be map displayed in actual time, with GPS monitoring software. smartphones with GPS capability.

A GPS "tune me" basically carries a GPS module that gets the GPS sign and calculates the coordinates. For facts loggers, it carries massive reminiscence to save the coordinates.

Data pushers moreover comprise a GSM/GPRS/CDMA/LTE modem to transmit this statistics to a primary pc both thru SMS or GPRS in shape of IP packets. Satellite- primarily based totally GPS monitoring devices will perform everywhere at the globe the use of satellite tv for pc generation which include Global Star or Iridium. They do now no longer require a cell connection.



Fig 6.2.3: GPS Module

Types:

There are 3 styles of GPS trackers, despite the fact that greatest GPS-prepared phones can be in any of those modes depending at the cell bundles introduced:

Data loggers:

Commonplace GPS lumberjack GPS lumberjacks log the situation of the apparatus at standard terms in its inward memory. GPS lumberjacks can likewise moreover have both a memory card space, or internal glimmer memory card and a USB port. Some go about as a USB streak drive, which grants downloading the tune log records for comparatively pc examination. The tune posting or factor of leisure activity posting can be in GPX, KML, NMEA or distinctive configuration. Most virtual cameras store the time an image diagram became taken. Given the computerized digicam clock sensibly speaking right or utilized GPS as its time supply, this time might be associated with GPS log records, to offer a right area. This might be conveyed to the Exit metadata withinside the photograph record. Cameras with a GPS beneficiary developed in can immediately deliver one of these geotagged photo. In a couple of non-public examination cases, records lumberjacks are utilized to keep up with tune of an objective vehicle. Information logging might be performed physically through consistent human perception. An occasion of this is likely chronicle the temperature changes over the bearing of an hour in a halfway warmed room the utilization of a clock, thermometer, pen and paper. In any case, the utilization of an advanced records lumberjack is parts extra compelling, right and trustworthy than taking intermittent aide readings. The non-public examiner need now at this point don't notice the objective too intently, and persistently has a reinforcement supply of records.

Data Pushers:

A facts pusher is the maximum not unusual place sort of GPS monitoring unit, used for asset monitoring, private monitoring and car monitoring systems. Virtually each mobile tele cell smartphone is on this mode in line with person agreement, despite the fact that close off or disabled storing the facts for destiny transmission. Also called a "GPS beacon", this type of tool push (i.e. "sends"), at ordinary intervals, the location of the tool in addition to different statistics like pace or altitude to a decided server, that may save and examine the facts instantly. They commonly are available in parts: the monitoring tool and the monitoring software. A correct instance of this kind of 3G GPS monitoring tool withinside the marketplace is Trackimo. It makes use of main era that routinely locates your car and is able to sending this statistics thru an utility that may be checked thru some thing as handy as your cell phone. A GPS navigation tool and a cell tele cell smartphone take a seat down facet-via way of means.

Data Pullers:

GPS facts pullers also are regarded as "GPS transponders". Unlike facts pushers that ship the location of the gadgets at everyday intervals (push era), those gadgets are continually on, and may be queried as regularly as required. This generation isn't in sizable use, but an example of this type of device is a computer associated with the Internet and taking walks gps. These can regularly be used withinside the case wherein the area of the tracker will simplest want to be regarded now and again e.g. positioned in assets that can be stolen, or that doesn't have a steady supply of electricity to ship facts on a everyday basis, like freight or containers. Data Pullers are getting into extra not un usual place utilization withinside the shape of gadgets containing a GPS receiver and a mobile tele cell smartphone which, while dispatched a unique SMS message respond to the message with their area.

Convert Trackers:

Clandestine GPS trackers include the equivalent gadgets as conventional GPS trackers anyway are inherent any such way as to resemble a standard item. One use for secretive GPS trackers is for strength gadget assurance; those contraptions might be covered up inside strength gadget pressing compartments and followed if burglary happens.

6.2.2 GSM Module

The Global System for Mobile Communications (GSM) module is an up-to-date progressed with the helper of utilizing the European Telecommunications Standards Institute (ETSI) to clarify the shows for second-age (2G) virtual cell networks used by cell contraptions including telephones and tablets. It wound up being first passed on in Finland in December 1991. By the mid-2010s, it have gotten an as a rule up-to-date for cell correspondences coming to more than 90% business place offer, and running more than 193 by and large locales and territories. 2G affiliations progressed as an opportunities for novel (1G) direct cell affiliations. The GSM general at first depicted an undeniable level, circuit-exchanged neighborhood for complete duplex voice correspondence. This duplicated during that opportunity to intertwine records correspondences, first through procedure for method for circuit-exchanged transportation, then, at that point through system for strategy for bunch records dispatching through General Packet Radio Service (GPRS), and Enhanced Data Rates for GSM Evolution.

As such, the 3GPP grew third-development (3G) UMTS standards, went with through the fourth-advancement (4G) LTE Advanced and the fifth-advancement 5G standards, which do now by and by don't shape a piece of the ETSI GSM standard. "GSM"

is a change mark asserted through the GSM Association. It may likewise talk over with the (from the outset) most prominent not shocking spot voice codec used, Full Rate.

Beginning Development of GSM:

In 1983, innovative indications began to expand an European delighted in for virtual helpful voice media correspondences while the European Conference of Postal and Telecommunications Administrations (CEPT) establishment the Groupe Special Mobile (GSM) board and later outfitted an endless specific help relationship on an extremely essential level based absolutely in Paris. Following five years, in 1987, 15 specialists from thirteen European in general areas indicated a warning of data in Copenhagen to increase and set up a not stunning spot adaptable cell phone device all through Europe, and EU rules have been given to make GSM a required adored. The affirmation to build a region upheld at last finished in a bound together, open, Preferred-based absolutely certainly network which changed into gigantic than that withinside the United States.



Fig 6.2.4: GSM Module

6.2.3 Arduino Uno:

Arduino is an open source business, project and user community for hardware and software that designs and develops single-board microcontrollers and microcontroller kits for digital computer construction. Its hardware products are licensed under the CC-BY-SA license, while the software is: licensed under the GNU Lesser General Public License (LGPL) or the GNU General Public License (GPL), which allows anyone to develop and distribute Arduino boards and software.

Usable Arduino boards are from the official website or by registered distributors, commercially. A variety of microprocessors and controllers are utilized in Arduino board designs. The boards are fitted with digital and analog input/output (I/O) pin sets which will be attached to different expansion: boards ('shields') or breadboards (for prototyping) and other circuits. On some versions, the boards feature serial communications interfaces, including Universal Serial Bus (USB), which are often used to load programs from Computers for personal use. Using the programming languages C and C++, the microcontrollers can be programmed using a standard API that is also known as the Arduino language.

In addition to the use of conventional compiler toolchains, an integrated development environment (IDE) and command line tool (arduino-cli) built in Go are provided by the Arduino (project.-cli) built in go are provided by Arduino project. The Arduino project started in 2005 as a tool for students at: the Ivrea Institute of Interaction Design in Ivrea, Italy, with the intention of providing a low-cost software. A quick and easy way for novices and professionals to build devices that use sensors and actuators to communicate with their environment. Simple robots, thermostats and motion detectors are typical examples of such devices intended for inexperienced hobbyists. The Arduino name comes from a bar in Ivrea, Italy, where some of the project's founders used to meet. The bar was named

after Arduin of Ivrea, who from 1002 to 1014 was the Margrave of the March of Ivrea and therefore the King of Italy.

Microcontroller (Arduino 328 P):

Microcontroller is based on a 32/16 bit ARM CPU. It provides large buffer size and high processing power. Various 32 bit timers, single or dual 10-bit ADC, 10-bitDAC, PWM channels and 45 fast GPIO lines level sensitive external interrupts pins.



Fig 6.2.5: Arduino UNO

Communication:

The Arduino/Genuino Uno has some of habitats for talking with a PC, some other Arduino/Genuino board, or distinctive microcontrollers. The ATmega328 manages the cost of UART TTL (5V) sequential discussion, that will be had on virtual pins zero (RX) and 1 (TX). An ATmega16U2 on the board channels this sequential verbal trade over USB and shows up as a virtual com port to programming program programming on the PC. The 16U2 firmware utilizes the typical USB COM drivers, and no external intention power is required. Nonetheless, on Windows, a .inf report is required. Arduino Software (IDE)

comprises of a sequential showcase which allows simple literary data to be dispatched to and from the board. The RX and TX LEDs at the board will streak while data is being sent through the USB-to-sequential chip and USB association with the PC (but at this point no longer for sequential discussion on pins zero and a Software Serial library license.

6.2.4 Wi-Fi Module - ESP8266:

The ESP8266 Wi-Fi Module is a self-contained SOC with integrated TCP/IP protocol stack that can give any microcontroller access to your WiFi network. The ESP8266 is capable of either hosting an application or offloading all Wi-Fi networking functions from another application processor. Each ESP8266 module comes pre-programmed with an AT command set firmware. The ESP8266 module is an extremely cost-effective board with a huge, and ever growing, community.



Fig 6.2.6: Wi-Fi Module - ESP8266

CHAPTER 7

Advantages & Applications

Advantages:

- Women's health status can be continuously monitored.
- Using IOT technology.
- In case of emergency intimation can be sent to predefined numbers.
- Low power consumption.
- Location of the women can be known.
- Efficient design.
- Works anywhere in the world (GSM availability).
- Highly efficient and user-friendly design.

Applications:

1. Women Security System.
2. Child Security System.
3. VIP Security System

CHAPTER 8

Result

The project “**Android Based Women Safety Security**” was designed an intelligent security system for women. The system is capable of tracking the location of the women when the magnetic switch was pressed. The system sends alerts to the predefined numbers through GSM and also sends the location details to the mobile applications. It will display the project status on LCD module.

Output:

- The live tracking can be observed using the Blynk app.
- The notification will be sent saying an alert message with location in Blynk App.
- A SMS will be sent to the registered mobile numbers saying an alert message with location.

SMS:

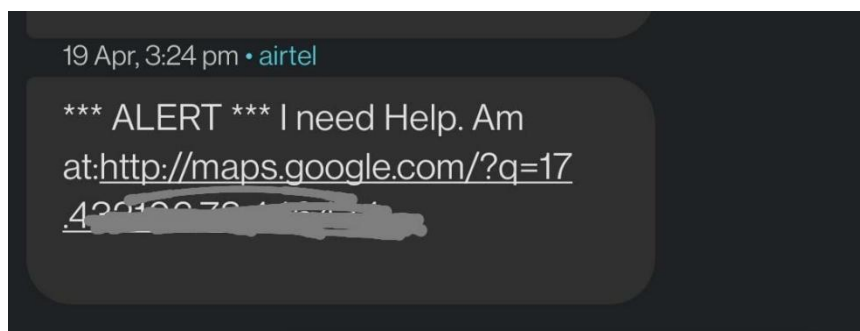


Fig 8.1: SMS Output

BLYNK APP IOT:

Normal:

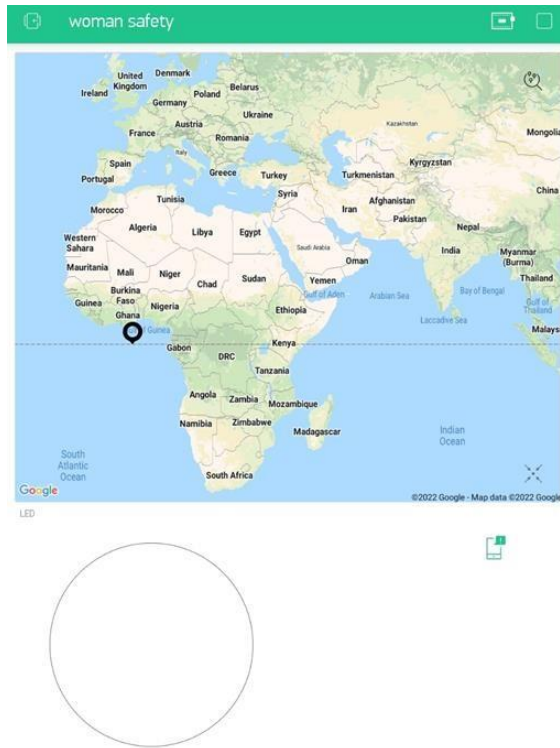


Fig 8.3: Blynk App in normal state.

Alert Notification:

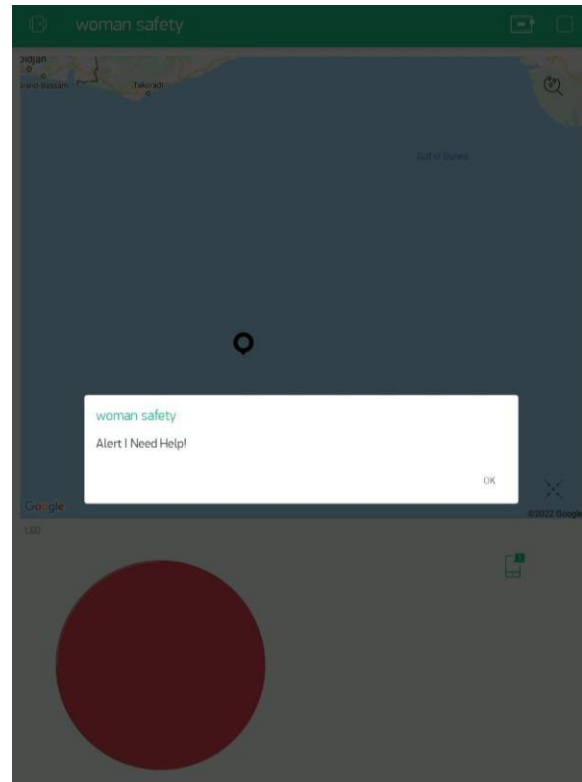


Fig 8.4: Blynk App in Alert state.

CHAPTER 9

FUTURE SCOPE AND CONCLUSION

The project can be extended by adding blood pressure sensor and SpO2 sensor for measuring blood pressure and oxygen levels in the blood. This project can be extended by using GPRS and 3G technologies. Through GPRS, we can monitor from anywhere in the world. We can also add AV Camera so that we can monitor the live video images.

Integrating features of all the hardware components used have been developed in it. Presence of every module has been reasoned out and placed carefully, thus contributing to the best working of the unit. Secondly, using highly advanced IC's with the help of growing technology, the project has been successfully implemented. Thus the project has been successfully designed and tested.

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APPENDIX

```
#include<LiquidCrystal.h>

LiquidCrystal lcd(2,3,4,5,6,7);

#include <SoftwareSerial.h>

#include <gps.h>

SoftwareSerial gps(8,9); // RX, TX

int led = 13;

char strn[16];

char gstr[55];

char *test="$GPRMC";

int inByte = 0;

String str="";

String name="";

String number="";

String slat = "";

String slng = "";

char lat[12];

char lng[12];

float flat, flng;

float dd;

int i,j,k,coln;
```

```
int h = 0;

int flag = 0;

int tcount = 0;

int temp = 0;

int cstart = 0;

int sw = 11;

int sw_reed = 12;

void setup()

{

    lcd.begin(16,2);

    Serial.begin(9600);

    gps.begin(9600);

    pinMode(led,OUTPUT);

    pinMode(sw, INPUT);

    pinMode(sw_reed, INPUT);

    lcd.clear();

    lcd.print("  IoT Woman ");

    lcd.setCursor(0,1);

    lcd.print(" Safety System ");

    delay(2000);

    gsm_init();
```

```
Serial.println("AT+CMGF=1");

delay(400);

Serial.println("AT+CNMI=2,2,0,0,0");

delay(400);

Serial.print("AT+CSMP=17,167,0,0\r\n"); //AT+CSMP=17,167,0,0

delay(700);

digitalWrite(led,1);

delay(700);

digitalWrite(led,0);

delay(700);

digitalWrite(led,1);

delay(700);

digitalWrite(led,0);

delay(700);

delay(2000);

lcd.clear();

lcd.print("System Ready");

temp=0;

}

int sstart = 0;

void loop()
```

```
{  
    read_gps_data();  
  
    dd = atof(lat);  
    flat = conv_coords(dd);  
    delay(10);  
    dd = atof(lng);  
    flng = conv_coords(dd);  
    delay(10);  
    slat = String(flat,6);  
    slng = String(flng,6);  
    lcd.clear();  
    lcd.setCursor(0, 0);  
    lcd.print(slat); //Print blanks to clear the row  
    lcd.setCursor(0, 1);  
    lcd.print(slng); //Print blanks to clear the row  
    delay(700);  
    gps.print("0");  
    gps.print(",");  
    gps.print(slat);  
    gps.print(",");
```

```
gps.println(slng);

if(digitalRead(sw_reed) == 1)

{

    sstart = 1;

}

if(sstart == 1)

{

    digitalWrite(led,1);

    tcount++;

}

if(tcount > 7)

{

    lcd.clear();

    lcd.setCursor(0, 0);

    lcd.print("Sending Message"); //Print blanks to clear the row

    init_sms();

    digitalWrite(led,1);

    gps.print("1");

    gps.print(",");

    gps.print(slat);
```

```
gps.print(",");

gps.println(slng);

Serial.print("*** ALERT *** I need Help. Am at:");

Serial.print("http://maps.google.com/?q=");

Serial.print(slat);

Serial.print(",");

Serial.println(slng);

delay(700);

Serial.write(26);

delay(5000);

sstart = 0;

tcount = 0;

}

if(digitalRead(sw) == 0)

{

sstart = 0;

tcount = 0;

digitalWrite(led,0);

}

}

void init_sms()
```

```
{  
    Serial.println("AT+CMGF=1");  
    delay(400);  
    Serial.println("AT+CMGS=\"+91*****\""); // use your 10 digit cell no. here  
    delay(400);  
}  
  
void send_data(String message)  
{  
    Serial.println(message);  
    delay(200);  
}  
  
void send_sms()  
{  
    Serial.write(26);  
}  
  
void lcd_status()  
{  
    lcd.clear();  
    lcd.print("Message Sent");  
    delay(2000);  
    lcd.clear();  
}
```



```
    lcd.print("System Ready");

    return;
}

void tracking()
{
    init_sms();

    send_data("Your Vehicle Ignition-OFF, Location is:");

    Serial.print("http://maps.google.com/?q=");

    Serial.print(slat);

    Serial.print(",");

    Serial.println(slng);

    send_data("Please take some action soon..");

    send_sms();

    delay(2000);

    lcd_status();
}
```