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4th International Conference on Emerging Trends in Science, Technology and Mathematics [ICETSTM '2021]

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Organized by

Department of Computer Science, Parvathy's Arts and Science College, Dindigul, Tamilnadu, India

Women Security Using Arduino and Android Application

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ABSTRACT: This device is a security system that is specially designed for women in distress. GPS and GSM GPS is very efficient and it uses less power. This system can be interconnected with alert SMS and alert the nearest police station and pre-established contacts (parents and friends). This women's security system is equipped with GPS, microcontroller and GSM. GPS receives location information from satellites in latitude and longitude format. The microcontroller processes this information and sends this processed information to the user using GSM. GSM sends an SMS to a pre-defined mobile number. When a woman is in danger and in need of self- defense, she can press the switch assigned to her. By pressing the switch, the whole system is activated and immediately an SMS is sent to the location using GSM and GPS. Android application, in which both the device and the smart phone are synced using Bluetooth, so both can be triggered independently. Contacts set up every 2 minutes can be monitored directly using our app with an alert message and the push of a button. The application sends a message with your location to pre-configured numbers and a link to Google Maps. This username (SIGNORA) is an application for this community

KEYWORDS: GPS,GSM, Arduino uno, button, Bluetooth

I. INTRODUCTION

Safety is the state of being protected from danger or loss. In the general sense, security is a concept similar to security. The subtlety between the two places extra emphasis on being protected from dangers that may appear from the outside. Persons or actions that occupy a condition of security cause a security breach. In common usage the word "security" is synonymous with "security", but as a technical term "security" means not only something is safe, it is alsoprotected.

This project is designed with ATmega328 in mind. The program provides women security detection using GPS and GSM modems. This system can be interconnected with an alarm system to alert neighbors.

This detection and messaging system consists of a GPS receiver, a microcontroller and a GSM modem. The GPS receiver receives location information from satellites in the form of latitude and longitude.

The microcontroller processes this information and sends this processed information to the user using a GSM modem A GSM modem connected to the MCU. The GSM modem sends an SMS to a pre-defined mobile number. When a woman is in danger and in need of self-defense, she can press the switch assigned to her. By pressing the switch, the whole system is activated and immediately an SMS is sent to the location using GSM and GPS.

The project uses regulated 5V, 750mA power. The 7805 three-terminal voltage regulator is used for voltage regulation. The bridge type full wave rectifier is used to adjust the secondary AC output of the 230 / 12V step down transformer.

II. LITERATURE SURVEY

The Sexual Harassment of Women in the Workplace (Prevention, Prohibition and Reduction) Act, 2013 is a legislative act in India that seeks to protect women from sexual harassment in the workplace. Today women are the President, the Prime Minister, the Speaker of the Lok Sabha and the aviation, military, IPS and IAS officers. Women still hold high positions in work and society, but they still face issues such as physical harassment and sexual abuse. Cases of harassment and rape against women are on the rise, so the issue of the safety of such a woman is very important. Therefore, it is necessary to create a system that provides protection for women. In it he set up an organization that allowed women to protect themselves. Attacks on women have been on the rise in recent times, sometimes they are unable to carry their mobiles or dial the police, and the organization helps women in such situations to report attacks and provide their exact location to the nearest police station. Station for necessary action. In it, the teacher designed a device in which, by pressing the button on the device, a message with her location would be sent to the police station



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and some of her relatives through a computer so that they would know her current situation. With that message he can also give a shock to the attacker for defensive purposes, and it will bevery helpful for women in that complicated situation because this system is designed as a defensive tool for the attacker to attack them. So, she has some time to recover herself from that attacker.

III. HARDWARE

Arduino

The Arduino Uno is an open source microcontroller board .microchip ATmega328P microcontroller and developed by Arduino.cc. This group includes packages of digital and analog input / output (I / O) pins that can be connected to various expansion plates (shields) and other circuits. This group includes 14 digital I / O pins (six capable of PWM output) and 6 analog I / O pins, which can be programmed with the Arduino IDE (integrated development environment) a type B USB cable. It can be powered by a USB cable or an external 9 volt battery, although it can accept voltages ranging from 7 to 20 volts.

BluetoothHC-05

Bluetooth module HC-05 is a master / slave module. By default the factory system is SLAVE. The role of the module (master or slave) can only be configured by at commands. Slave modules cannot initiate a connection with another Bluetooth device, but may accept connections. The primary module may initiate a connection to other devices. The user can use this as a serial port alternative to establish a connection between MCU and GPS, PC for your embedded program.



Pin description The HC-05 Bluetooth module has 6 pins.

(PCINT14/RESET) PC6 28 C PC5 (ADC5/SCL/PCINT13) (PCINT16/RXD) PD0 2 27 PC4 (ADC4/SDA/PCINT12) 26 PC3 (ADC3/PCINT11) (PCINT17/TXD) PD1 3 (PCINT18/INT0) PD2 25 PC2 (ADC2/PCINT10) 4 (PCINT19/OC2B/INT1) PD3 5 PC1 (ADC1/PCINT9) 24 (PCINT20/XCK/T0) PD4 6 23 PC0 (ADC0/PCINT8) VCC [22 🗋 GND 7 GND 🗆 8 21 AREF (PCINT6/XTAL1/TOSC1) PB6 9 20 AVCC (PCINT7/XTAL2/TOSC2) PB7 10 19 🗆 PB5 (SCK/PCINT5) 18 PB4 (MISO/PCINT4) (PCINT21/OC0B/T1) PD5 11 (PCINT22/OC0A/AIN0) PD6 2 12 17 PB3 (MOSI/OC2A/PCINT3) (PCINT23/AIN1) PD7 [13 16 PB2 (SS/OC1B/PCINT2) (PCINT0/CLKO/ICP1) PB0 14 15 PB1 (OC1A/PCINT1)



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ENABLES:

When the process is dragged down, the module is disabled, which means that the module is not running and it fails to communicate. When the processor is open or connected to 3.3V, the module is turned on, meaning the module is still on and communication is on.

VCC:

Distribution voltage 3.3V to 5V

GND:

Ground pin

TXD & RXD:

Both of these pins act as a UART interface for communication

Status:

It acts as a level indicator. When the module is not connected / paired with any other blue tooth device, the signal will go low. At this low level, the lead is continuously flashing, indicating that the module is not connected to other devices. When this module is connected / connected to any other bluetooth device, the signal will go higher. At this high point, the leading flashing example with a constant delay says 2s delay, which indicates that the volume Is paired.

BUTTON SWITCH:

It is used to convert the module to AT command mode. To activate AT command mode, press the button switch for a second. With the help of AT commands, the user can change the parameters of this module, but only when the module is not connected to any other BT devices. If the module is connected to any other blue tooth device, it begins to interact with that device and fails to operate in AT command mode.

IV. SOFTWARE

Location (GPS)

API supports Global Navigation Satellite System (GNSS) constellations, such as Global Positioning System (GPS), which allow your app to locate user drivers for updates to the device's default location via Android location services. GNSS modules are triangular receiver-only devices that remotely determine signals from remote satellites. Once the module has collected enough satellite data to calculate an accurate position, it has the exact location toreport.

SMS (GSM)

GSM technology was developed as a digital system using the Time Division Multiple Access (DTMA) technique for communication purposes. A GSM digitizes the data and then sends it through a channel containing two different streams of client data, each in its specific time slot. The digital system is capable of carrying data rates of 64 kbps to 120 Mbps.

There are different cell sizes in the GSM system like macro, micro, pico and umbrella cells. Each cell will vary according to the implementation domain. The GSM network has five different cell sizes in macro, micro, pico and umbrella cells. The coverage area of each cell will vary according to the operating environment.

Time division Multiple Access (DTMA) technique relies on assigning different time locations to each user at the same frequency. It can be easily converted to data transfer and voice communication and can carry 64kbps to 120Mbps datarate.

SIGNORA (APK)

The APK file is an application developed for Android, Google's mobile operating system. Some apps are already installed on Android devices, while other apps can be downloaded from Google Play. Apps downloaded from Google Play will be automatically installed on your device, and those downloaded from other sources will need to be installed manually.

For normal use APK not be seen. because android uses application installed in back end through Google play or in some other application platforms. However, there are many websites that offer direct APK file downloads for Android users who want to install applications manually.



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Android packages contain all the files needed for a single Android program. Below is a list of the most important files and folders:

ET meta-INF /: contains the transparent file, signature, and list of sources in thearchive

lib /: Native libraries running on specific device configurations (armeabi-v7a, x86,etc.)

Resources such as images not compiled in res /:resources.arsc

Assets /: Source resource files that developers compile with the application

AndroidManifest.xml: Describes the APK file name, version and contents

classes.dex: Compiled Java classes must be run on the device (.DEX file)

resources.arsc: bundled resources such as strings used by the application (.ARSCfile)

V. EXISTING SYSTEM

It is an emergency application launched by a popular Indian crime television series, which airs on the "Kumra" channel. In this application, when the power button of the smartphone is confirmed twice, users will start sending alternate messages with a linkto the contact area every two minutes. This is a beautiful development. This garment has an electrical circuit, which is 3800 kV. Read Fabric Player, user not affected. It can also send emergency messages.

VI. PROPOSED SYSTEM

The proposed system is specifically for the protection of women and addresses the disadvantages of the existing system: - The proposed system is the 'GSM & GPS based Women Protection System'. This means the GPS device. Any Android phone and emergency button. The GPS device must be placed inside



This scheme has power with +5V & -5V option Generally +5V is sufficient for total circuit Another (-5V) supply is

used in the case of the OP amp circuit The main side of the transformer has an AC voltage of 230 / 50HZ, while the secondary winding voltage is reduced to 12/50 Hz, and this voltage is adjusted using two full-wave rectifiers. The signal is then output again to a regulator LM7805 (to deliver + 5v) to the regulator. Provides LM 7905 –5V regulation.

z (+ 12V circuit is used for stepper motors, fan and relay by applying LM7812 regulator.

Most of us think that GPS navigation is only for. However, this technology can be used to find things and people using various GPS based devices and applications. ET shows you how to keep track of everything that is important to you.

Here will be times when you want to keep track of family members or let them know where you are. The easiest way to find a person on a map is to use your phone's built in GPS Find My Phone feature (Find My iPhone for iOS users, Find Your Phone on Android). Note that you need an Apple ID / Google ID to access this information.

Family Locator is a free app for Android and iOS, let's see where each family member is in the app. You create a personal circle in the app with you and other family members, and can automatically place location sharing for static use. The app also allows you to chat with each other or in a group withothers in the circle.

Cycle of Women Security



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Alert Message (GSM)

The Global System for Mobile Communication (GSM) SIM card is a device that sends location obtained via GPS. GSMSIM card number is registered in the system. GSM acts as a receiver and GPS as a transmitter on this proposed device. The values received from the transmitter are sent as s SMS to some pre-defined emergency numbers. The receiver pin of the GSM is connected to the 16th pin of the microcontroller. The supply voltage is about 3.4 V, which is supplied from the voltage regulator circuit.

Development

1) Safety of women

In some areas women still facediscrimination and other social challenges and are often victims of abuse and violent crimes. For these reasons it is very important for women to be vigilant and deal with all such situations.

2) Bluetooth Automation We use Bluetooth in thisprogram.

- No need for Bluetooth to think about setting up a connection or pressing any buttons.
- 3) It is very reliable for the safety of women.
- 4) Its cost ismoderate.
- 5) All they need is a device that a woman can carry easily and as a woman whenever she feels insecure. I.e. the size issmall.
- 6) Quick response time from emergency company.
- 7) Women avoidrape.
- 8) Provides highly accurate data via GPS system

Disadvantage

- All existing systems must be connected to the GPRS service to work properly, so it cannot beused
- In case of emergency without internet connection.
- There is no hidden cameradetector
- To ensure ourprivacy.
- It is difficult tomonitor.
- Incorrect rate of rateattendance.

VII. CONCLUSION

Women safety is a critical social issue in today's world. Through this paper we aim to put forward an efficient and handy safety device for women. The proposed design can handle some critical issues faced by women and will help to solve them withtechnologically sound and simple equipments. It can be concluded that this system helps to improve the gender equality by providing safe environment to women in the society, and allows them to work till late nights. The band helps to get necessary help in any distress and facilitate a means of self defense. Anyone before doing any crime against the women will be detected and it help reducing the crime rate against the women. The proposed design will deal with critical issues faced by women in the near past and will help them with technology and ideas. In this way, This system can overcome the fear that scares every woman in the country about her safety and security.

VIII. FUTURE ENHANCEMENT

- The wireless gps & gsm will used for our future.
- The future will use machine learning based brain reading
- We can use this safety device in hand bags, luggage, vehicle, etc...
- By using nano size materials, the kitsize gets reduced,.
- This system also can be interfaced with vehicle air bagsystem.



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