# JACK-SAFE

# SAFETY JACKET FOR WOMEN

- Version 2.0


*In recent years there has been a rise in rape and assault cases against women. This encouraged me to create something that can deter the assailants while making women feel safe. I came up with this idea "JACK-SAFE" as an assault deterrent jacket to protect them.*

## Overview-

This is a safety jacket designed for women's safety, to protect them from assaults. Once a user activates the jacket, it gives an electric shock to anyone who touches the jacket. The user can press the panic button on the jacket which activates the boost electric shock circuit, emergency buzzer and GPS-GSM module present in the jacket. Loud noise and electric shock act as a deterrent while current location of the user, in the form of a google-maps link, is sent to the phone numbers feeded in the device. The jacket also has an external taser to add another layer of safety.

# INITIAL BLUEPRINT

# PROTOTYPE

## Components and Specifications

The jacket consists of 3 sections -

- Jacket Shock Module
- GPS-GSM Module
- Taser

| JACKET-SHOCK MODULE | GPS-GSM | TASER |
|---|---|---|
| - Boost converter circuit (converts 4V to 2400V on full charge with a current of 5-6 mA) | - GPS Module<br>- GPRS A6 GSM Module (requires a working sim) | - Boost converter (converts 3.7V / 6V / 9V to around 400kV and a current of 0.5 A) |
| - Emergency Buzzer and Button | - Arduino Nano | - 9V Battery / 3.7 V / 6V Li-ion Battery |
| - 4V Lead Acid Rechargeable Battery | - 7.4 V Rechargeable Li-ion Battery | |

# Design and Working

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It is a wearable that is designed for women's safety and has hidden electric conducting nodes which give an electric shock of around 2400V on full charge and a current of 5-6 milliampere. The shock circuit is powered using a 4V battery and  whenever the jacket is touched it gives a shock to any assailant. The jacket has suitable insulation inside to prevent self shock to the user's body.

It also activates the emergency buzzer on the jacket and sends the current location of the user to family members and police in the form of a google maps link using the GPS-GSM module.

The GPS-GSM module uses an active SIM and is programmed with a microcontroller "Arduino Nano" and is run by a 7.4 V li-ion battery. Whenever the button is pressed the module grabs the current coordinates of the person using the GPS module and generates a map link using the latitude and longitude coordinates. The GSM module then sends those coordinates and the map link to the phone numbers feeded in the module with the help of a sim. The sim needs to be active and working. All this happens quickly with just a click of a push button.

The jacket module and the GPS-GSM module are set in the pocket of the jacket cased inside the small zipper.

The taser also uses a boost converter which converts the potential difference from 3.7V/ 6V/ 9V to 400kV with a current of 0.5 A. It can be easily activated with the help of a rocker switch.

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Here's a video for the working of the jacket - https://www.youtube.com/watch?v=Hu2-h_mW9jM

# GPS-GSM

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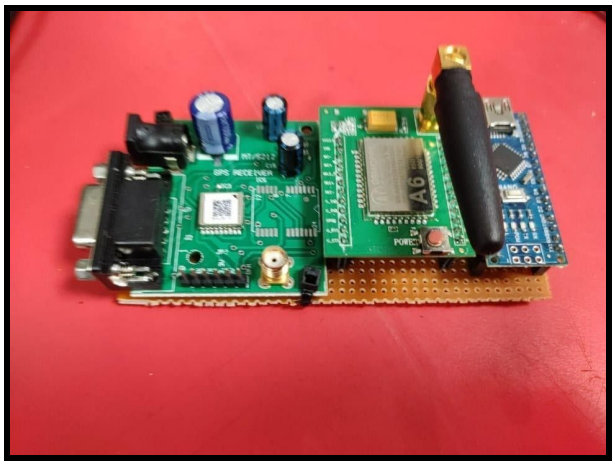

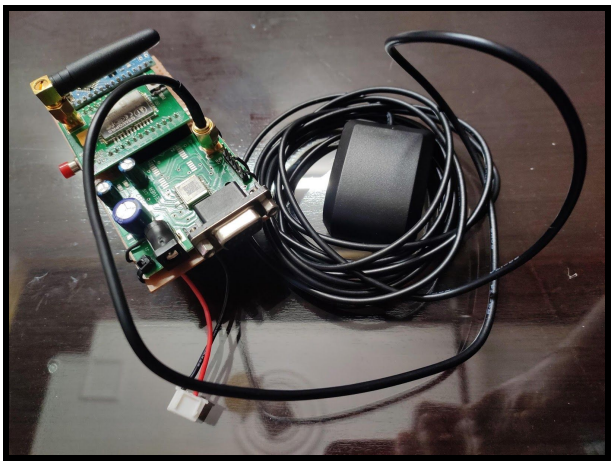

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- Global Positioning System (GPS) makes use of signals sent by satellites in space and ground stations on Earth to accurately determine its position on Earth.
- GPS receiver module uses USART communication to communicate with microcontroller or PC terminal.
- It receives information like latitude, longitude, altitude, UTC time, etc. from the satellites in the form of NMEA string. This string needs to be parsed to extract the information that we want to use.
- The active sim in the GSM module acts as a messaging module sending messages to the phone numbers feeded in the program or in the sd card.

This module also provides the exact time and date as well as the speed, course and altitude but in the project we just need the latitude and longitude.

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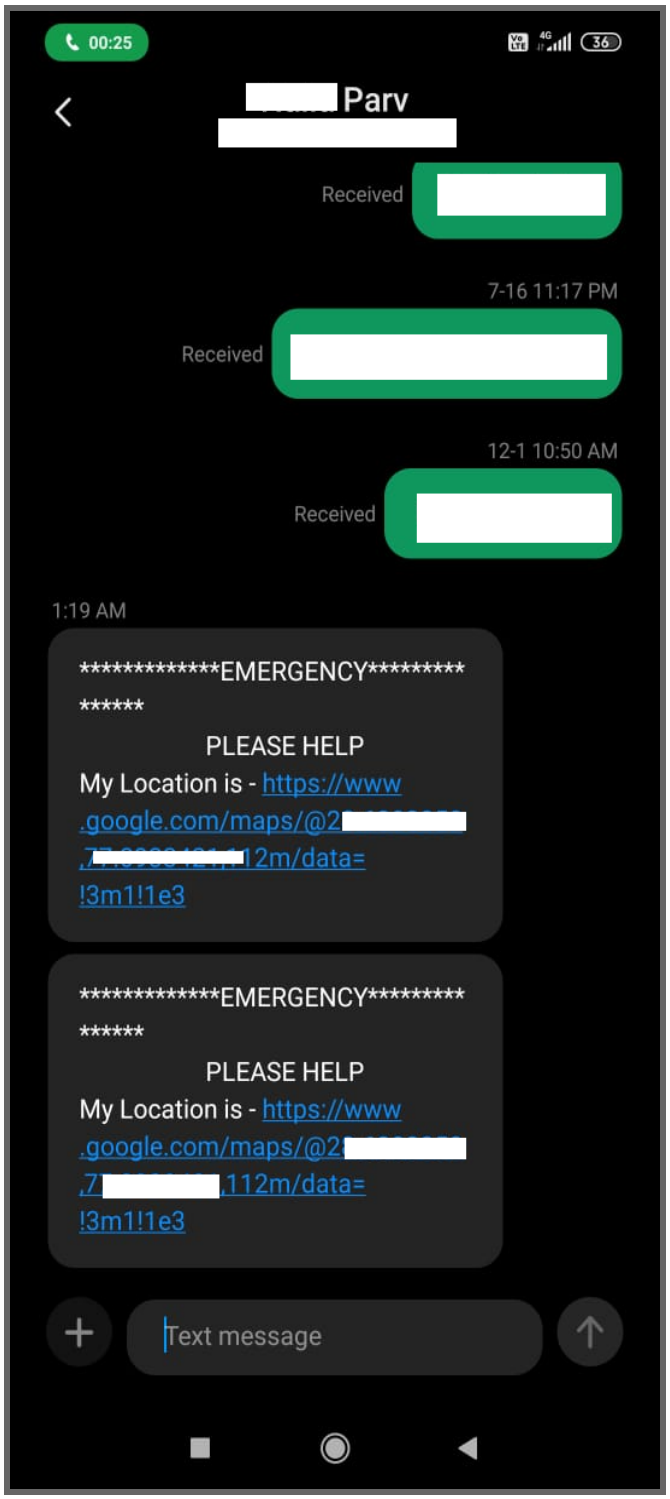
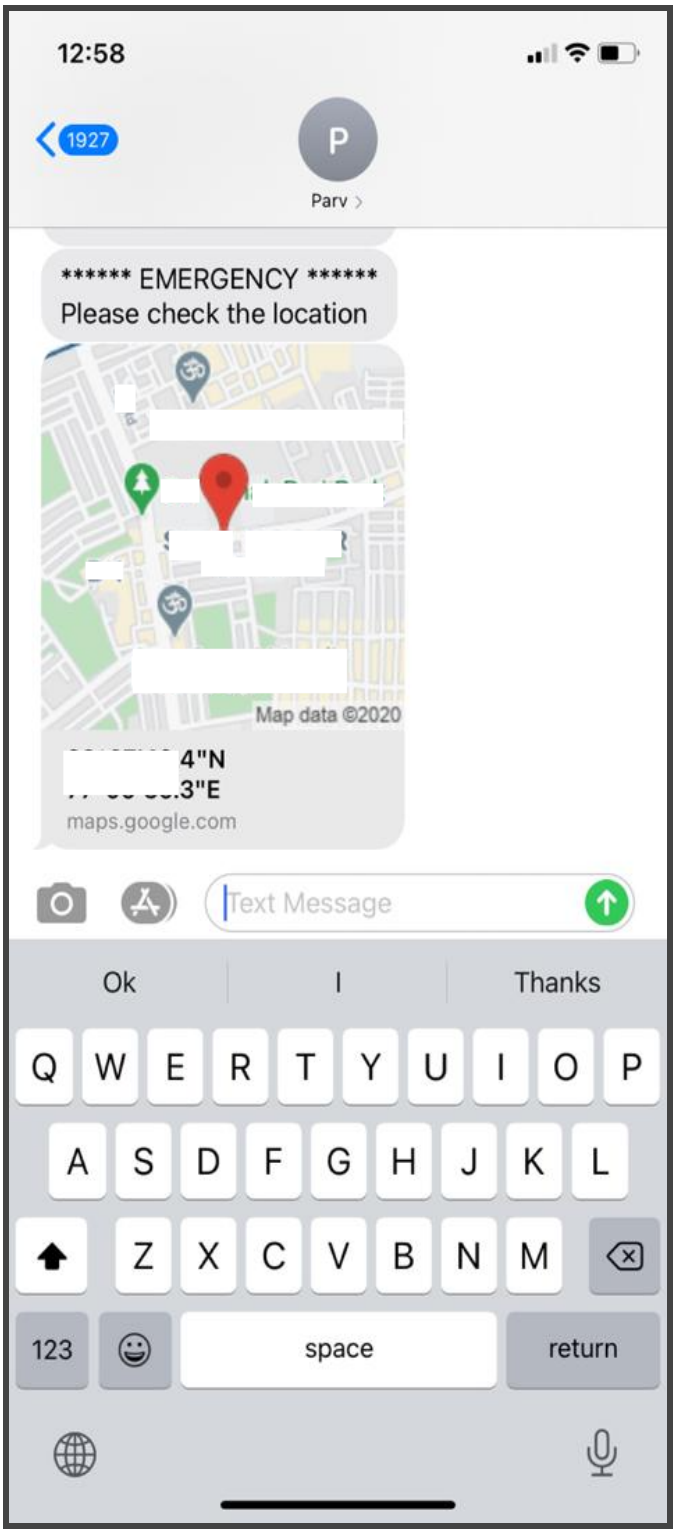
Message sent to emergency mobile numbers -



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# THANK YOU

Project made by - **Parv Narang**