Team SIM4
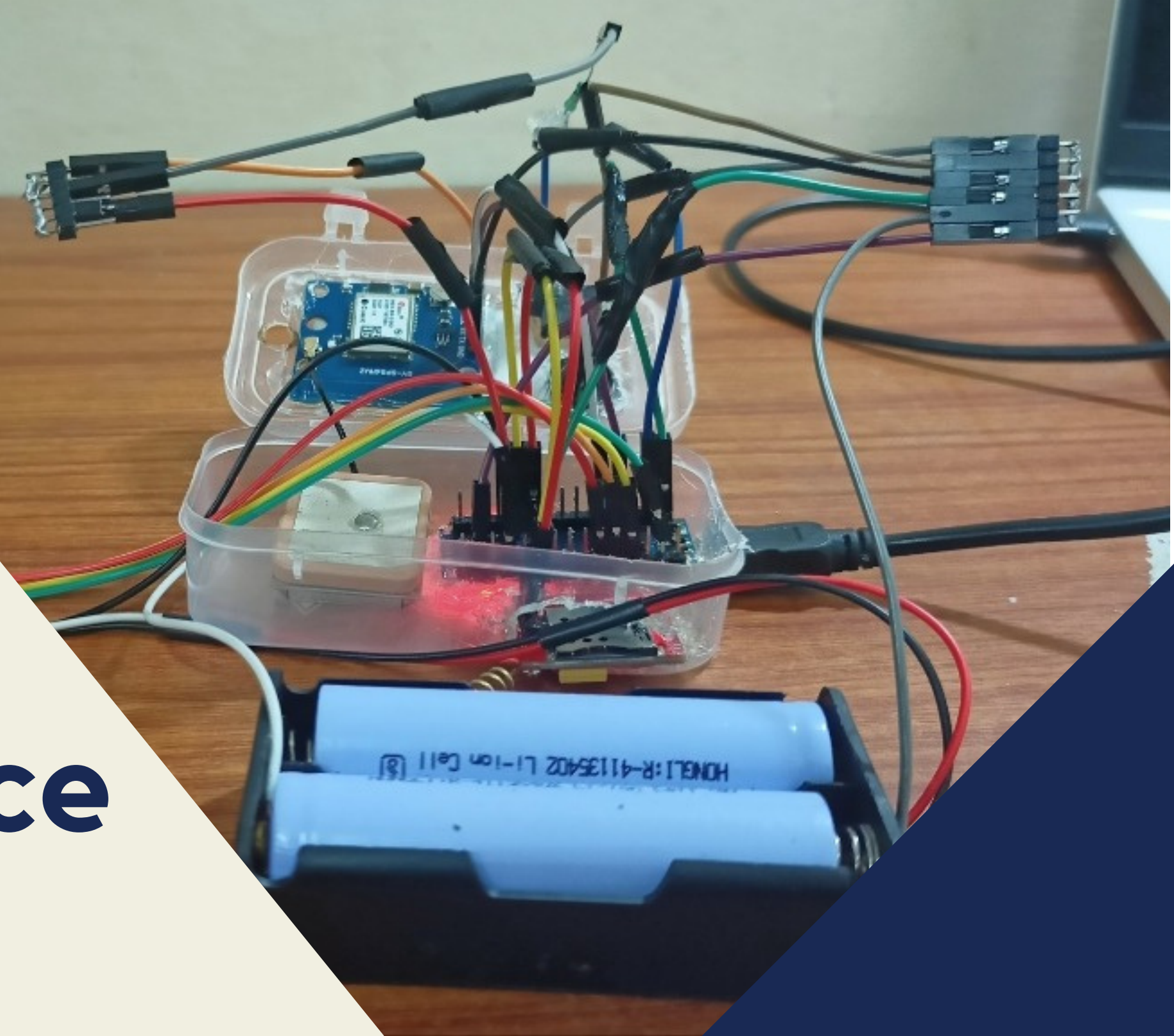
Accident Alert Device

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Report Outline

02

Introduction

In a report, the Law Commission estimated that 50 % of accident victims would have survived if they had got medical attention within an hour.

Since many accidents take place along highways, access to the nearest medical facility is not always easy.

Approximately 1.35 million people die each year as a result of road accident.
As per the World Bank, road crashes cost the Indian economy 3 to 5 percent of GDP each year.
In India a total of 4,03,116 road accident cases were reported during 2021 and the fatalities in road accidents increased by 16.8% from 2020.
Timely help is not provided to the injured person and this results in more death cases.
Our device addresses this problem and provides a solution for this issue. It's functioning is such that it not only alerts the emergency contacts of the person in need of help but also sends their location.
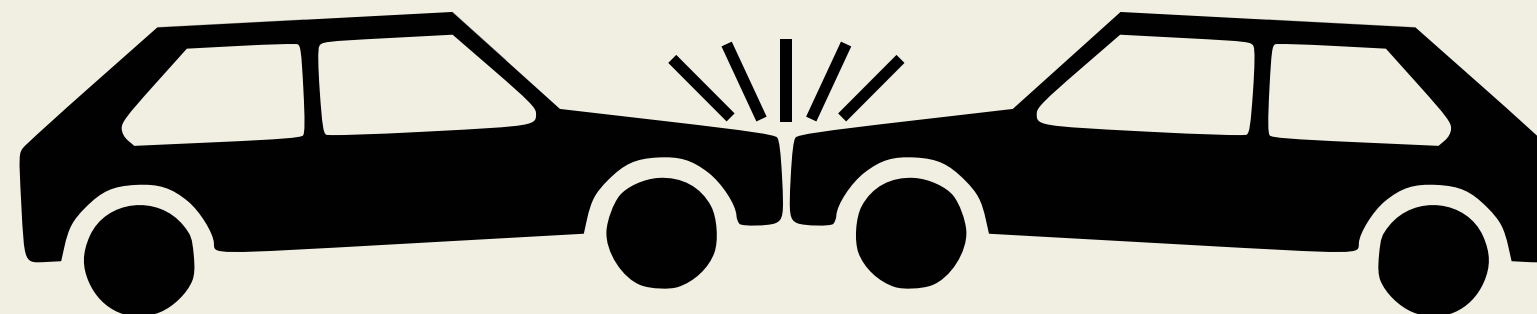
Description

Our product is a safety device which can be attached to various other devices and programmed accordingly for the purpose of protection of the user.
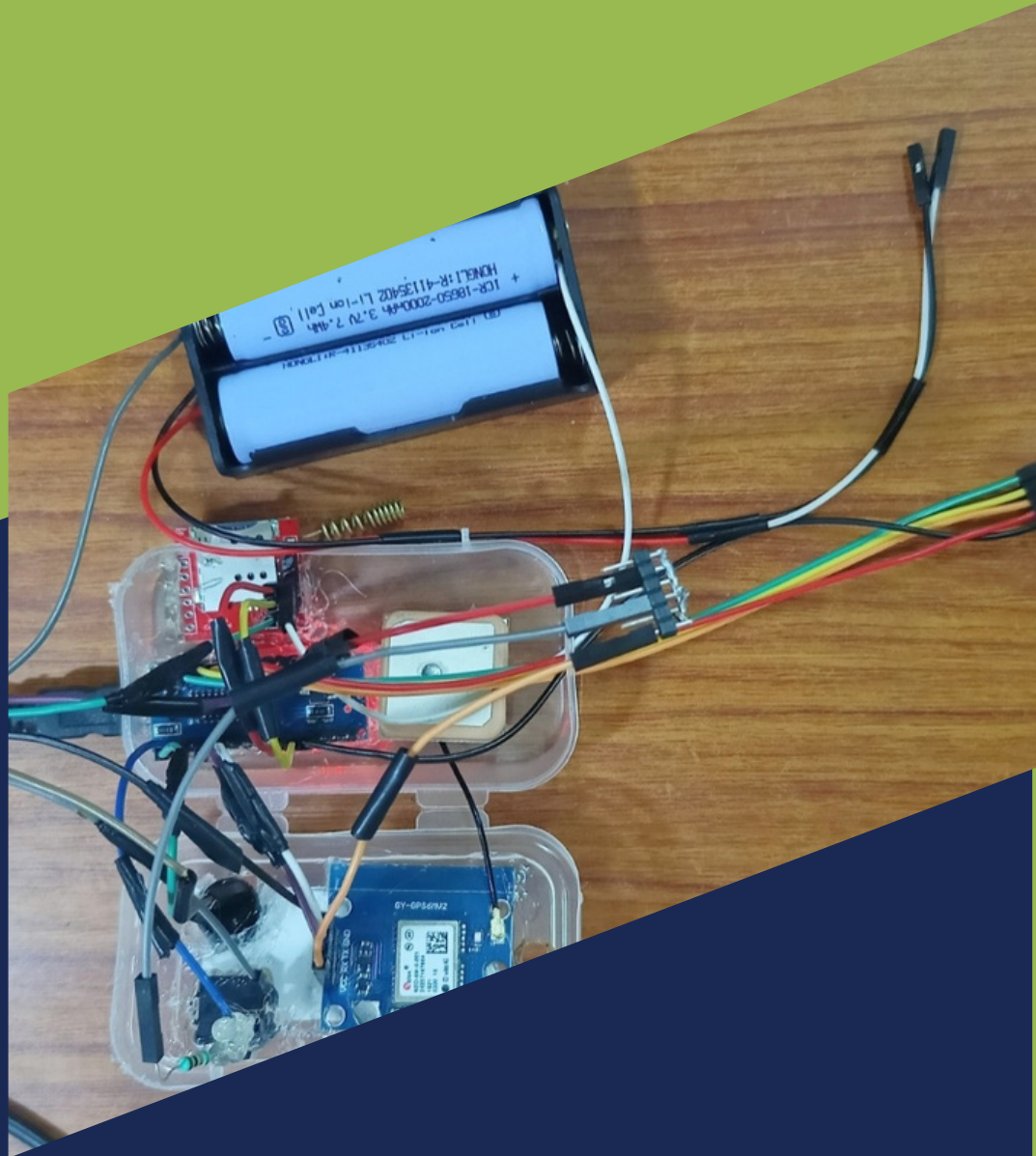It can be attached to the helmet of a bike or to the body of a car.
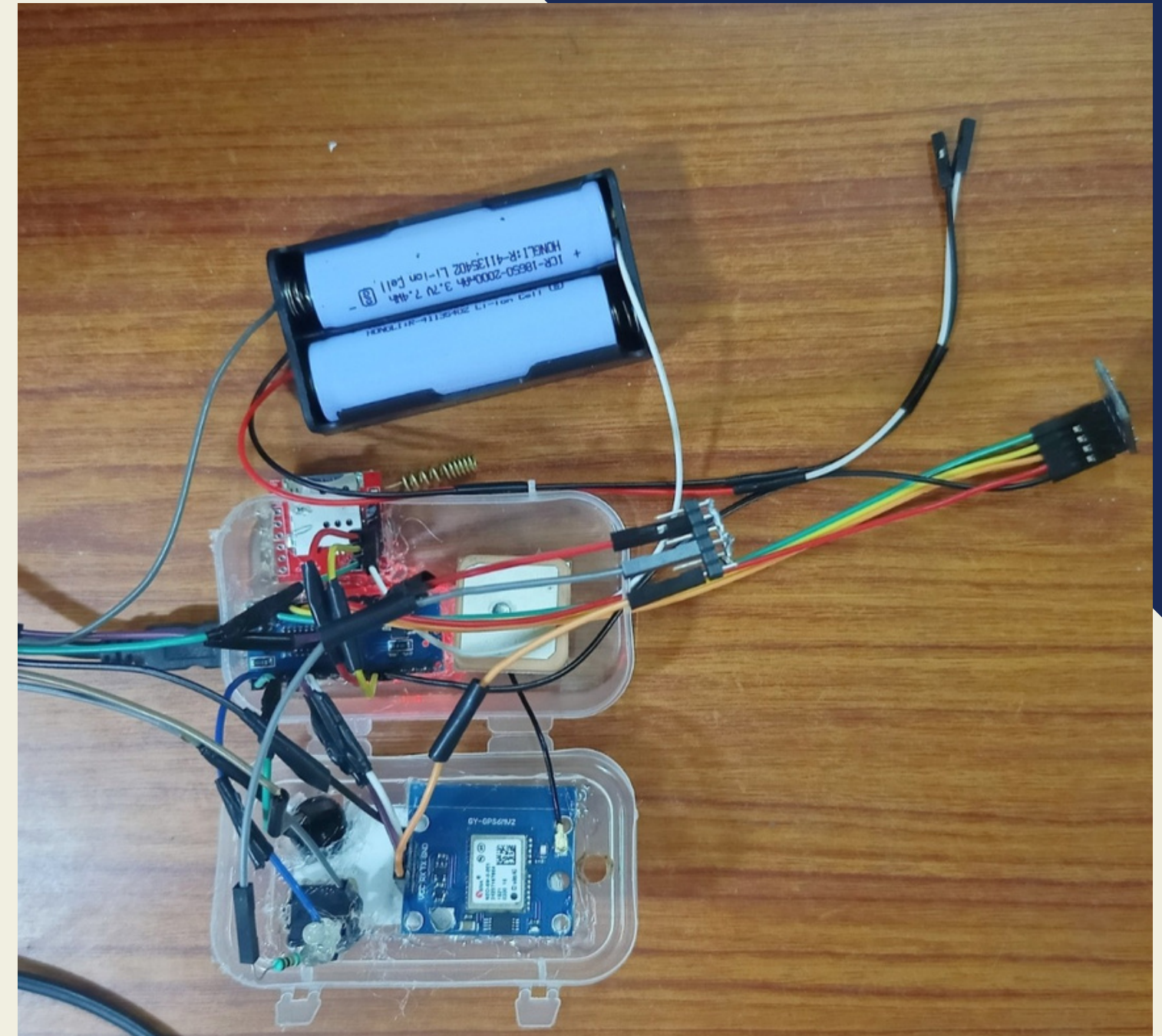
Working

Whenever our device senses any sudden change in acceleration or heavy jerk on the object on which it is attached then immediately a buzzer activates and an SOS call is made to the emergency contact. In order to provide immediate help, the location of the accident is also messaged. If due to any reason a false SOS is sent then the user can cancel the SOS by using the cancel button provided.

➤ ADXL335 Accelerometer detects the strike and sends the information to Arduino Nano.

➤ Arduino Nano checks the magnitude of the strike, if the magnitude is greater than a normal bump then it signals the circuit to send SOS.

➤ GPS NEO detects the location and a contact of the victim is alerted through sms and call using GSM800L.

➤ In case of false information, cancel button can cancel the process.

Product

We plan on reducing the weight of the product and making it more versatile, compact, portable and cheap so that even lower middle class people can afford it.

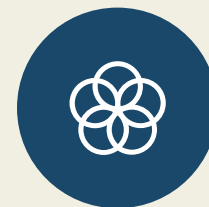## PRICE

The main components needed are
- Arduino nano : 200 INR
- ADXL sensor : 100 INR
- GSM : 300 INR
- GPS : 250 INR
- others (buzzer, battery, wires): 30 INR

Total: 880INR (rough estimation)

PRIORITY

Priority will be given to the material and durability. It will be enclosed in a box of 5x3x1.5 inches.

ADVANTAGES OVER OTHER SIMILAR PRODUCTS

The only other similar product in India is priced above 5k and is specific to helmets. The feature can also be available in digital watches but the price level will be too high. So we have an advantage of price factor over other products.

Components

COMPONENTS	USE
ADXL335 Accelerometer	Detects the strike
Arduino nano	microcontroller
GPS NEO	Traces loacation
SIM800L	send call and message
Buzzer	to indicate an accident
Switch	deactivate false sos
5 V	power supply
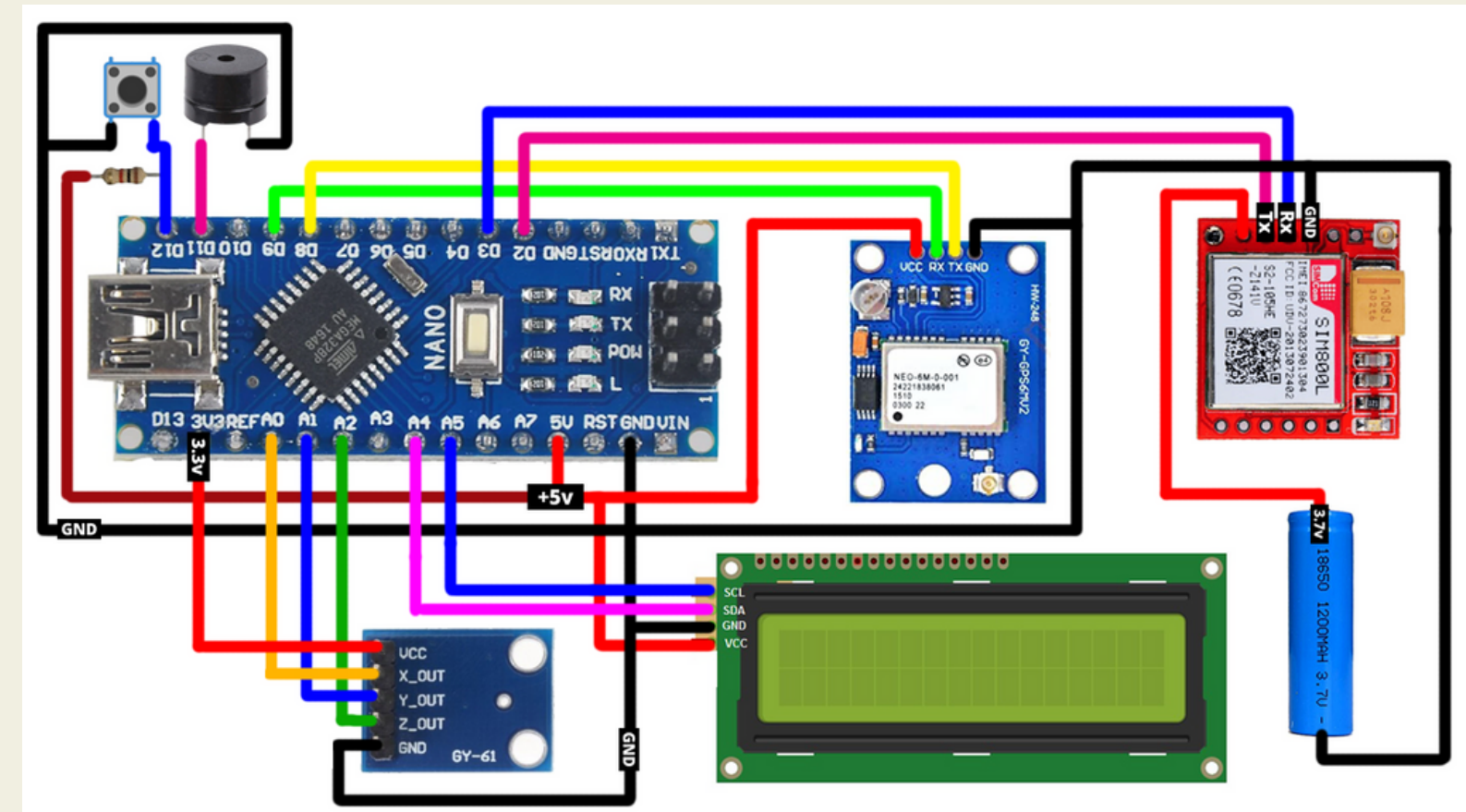
CIRCUIT DIAGRAM

Next Steps

Our team aims to advance our product constantly by adding new features and launching other specific variants. The following are some ideas that we are working on to upgrade our product.

SOFTWARE APPLICATION

- We have an idea of developing an app which tracks the real time movement of the device.
- The user can adjust the magnitude of the strike according to different geographical location and road traffic.
- The user can disabling the false SOS using the app too.
- This app will enable the admin to monitor the user.

LOGISTICS VARIANT

- This variant is built for the goods shipped by logistics where the goods can be damaged due to mishandling.
- Our device alerts the client if such mishandling is sensed by our device.

THANK YOU