

# Smart India Hackathon 2020

## PROBLEM STATEMENT

Development of a platform for dialling single emergency no SDC (short digit code).

PS number: PJ240

Category: Software

Domain: Mobile App development

Organization: Ministry of Communications

## Abstract

Development of a platform for dialling single emergency no SDC or just pressing a button on mobile phone using any available network, which will send the live location of the customer to a predetermined server which is to be integrated with the server meant for action program of disaster management team.

## Problem

With so many apps in the market for each region/state disaster management team serving the same purpose there comes a need to have a common national platform for citizens to easily report their problem during emergency which can be integrated with any disaster management server to take appropriate action.

## Solution

To develop a common platform for all the citizens to report during emergency on a single click of the button which can be integrated with any server across the nation to help reach out any part of the society.

Our app will give the data about the users information and location which can be pulled by the corresponding disaster management team to take appropriate action.

## Main points to be noted from abstract:

- Setup on screen one clicks button to send current location coordinates and required information regarding the customer (instead of SDC).
- To be able to send location coordinates when there is no internet connection/when location is off.
- Connect to any available network when the corresponding service is not available and send information to the predetermined server.
- Integrate the predetermined server with the server meant for action program of Disaster management team.

## Literature Survey

### SDC (Short Digit Code) :

PAN (Presence Across Nation) India Bharat Sanchar Nigam Limited has updated all the Emergency Numbers Short code on all India basis for each emergency service of each department noted against in the table which was updated as on 30th September 2019 as a total count of 673, search the helpline numbers for your required emergency service instantly and contact the department. They can vary from three digits to five digits.

<b>Dialing Short Code</b>	<b>Purpose of Emergency Service</b>
100	Emergency (Police)
101	Fire
102	Ambulance
103	Woman and child helpline
104	Health information
105	Police department
108	Ambulance services
1059	Emergency service of hospitals
1060	AIIMs, Delhi
1061	PGI, Chandigarh
1062	Poison Control Centre, Manipal Hospital, BG
10589	Mother& child tracking helpline
10589	Mother & Child Tracking Helpdesk

10720	Train accident inf- metro railways
10721	Railway Disaster

## Mobile Network

A mobile network is a communication network where the last link is wireless. The network is distributed over land areas called “cells”, each served by at least one fixed location transceiver.

A connectivity is maintained between Mobile Station(MS),Base Transceiver Station(BTS), Base Station Controller(BSC),Mobile Switching Centre(MSC) in order and vice-versa.

### Types of Mobile Networks

- **Global System for Mobile (GSM)**  
It is the most employed mobile standard in the world. Other technologies included within the GSM standard are GPS and EDGE, which offer speed data transfers.
- **Code Division Multiple Access (CDMA)**  
It is a network technology and offers higher data transmission capabilities.
- **Long Term Evolution (LTE)**  
It is the next generation of cellular technology known as 4g.
- **WiMAX and**  
It is the first 4g network to enter operation and is run by Sprint.

### Emergency phone calls(Connecting to any network available):

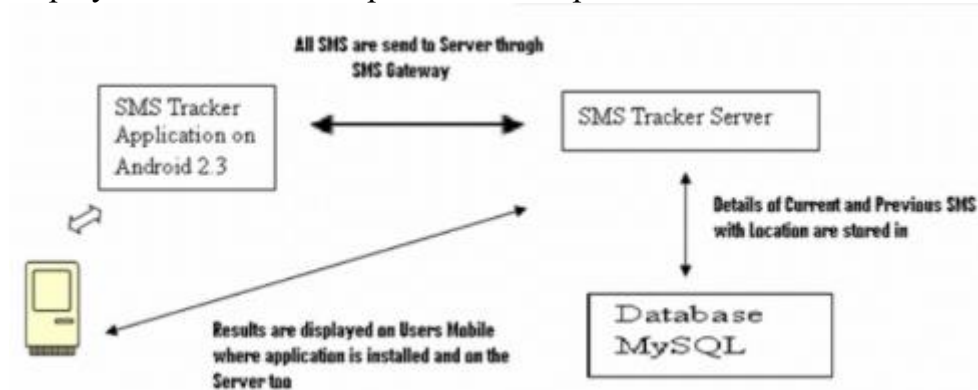
Emergency calls can be made on any mobile phone network, not just your own. If you are somewhere where your network doesn't have reception but another does, you get Emergency Calls Only. If no networks have any signal, you'll be told there is no reception and you can't even make 999 calls.

## Finding Locations

### Location Tracking Through SMS

The SMS Tracker is an application runs on Person Mobile phone to detect the location. The Location is detected after installing an application on Idea Alcatel one touch 918N Mobile with Android 2.3 operating system. When a person sends or receives messages to and from one another, The location and SMS details of sender and receiver are stored in MySQL

database of Server through SMS gateway. The Server processed the data and the results are displayed on website and person mobile phone.



After the above operation you get list of Results of incoming and out-going messages including date, time and an option to see location.

After clicking on the view map option of above results, the Location is detected including Latitude, Longitude, timestamp and a Google map showing current Location of sender and receiver.

## Through IP ADDRESS

An IP address (*internet protocol address*) is a numerical representation that uniquely identifies a specific interface on the network. They are generally used to transmit data packets across network.

How IP Addresses Work

IP address is a numerical code used to route data across the internet to cell phones and computers. IP addresses are generally assigned by internet services providers, whether those are home ISPs a phone might connect to via Wi-Fi or phone carriers themselves if a phone is using a data plan to get online.

Computers and smart phones use what's called the Domain Name Service to translate human-readable addresses like `www.example.com` into IP addresses.

## How does geolocation work?

Geolocation represents the process of tracking the location of a user, or place, on a map by using information from the IP address (for desktop devices) or RFID – radio-frequency identification – (for smart-phone users). IP geolocation works similarly to GPS systems. At present, many small businesses are interested in finding the IP address location data to improve their marketing efforts.

### How accurate is IP-based geolocation?

The accuracy of geolocation IP services depends on the type of database used. In general, IP-to-country data has an accuracy of 98-99%, while IP-to-region accuracy varies between 50 and 70%.

### BENEFITS OF USING THE GEOLOCATION

- Enforce digital content and territory rights. IP address location data can also be used to enforce distribution rights.
- Prevent credit card and check fraud. Enable geolocation to compare the location of a shopper's IP address to that of their credit card or shipping address. If there is a mismatch between the two, you can look into it manually to reduce the risk of fraud.

## GPS

GPS stands for Global Positioning System. A GPS device communicates with 4 or more satellites to determine its exact location coordinates (latitude and longitude) anywhere on Earth. It works in any weather if the device has a clear line of sight to the satellites. The Global Positioning System (GPS) is a government-owned navigation system that operates using radio waves. In order to properly use GPS, you must have a clear line of sight with at least four GPS satellites. Objects such as mountains, clouds, buildings and trees reduce your chances of creating a successful GPS connection.

We can use GPS without internet but for loading the maps we need internet connection.

### A-GPS

Android phones, like many smartphones, also use Assisted GPS (aGPS). This allows them to compute satellite position using the network and get the location faster. The Android GPS can also get a location without cell towers. It is common to think that a cell phone can't get a location without cell service.

#### **High accuracy**

Use GPS, Wi-Fi, Bluetooth or mobile network to determine location

#### **Average accuracy**

Use Wi-Fi, Bluetooth or mobile network to determine location

#### **Low accuracy but without mobile network**

Use GPS to determine location

# Features of existing apps in market

## RED PANIC BUTTON

### Features

- SMS, Panic, Email, Twitter messages are sent simultaneously
- Unlimited number of contacts can be saved
- Victim can send a picture, video, voice message (up to 10 secs) to all the contacts saved.
- Live location can be sent through a message.
- Emergency dial is present, thereby contacting concerned dept becomes easier.
- Remote access.

### PROS

Amazing speed of functionality

### CONS

The app can be switched off without turning off the device

## HAWK EYE

### Features

Must save 5 contacts before hand

Concerned police station will be alerted when SOS is pressed (if there is a fire accident, police dept will be informed first who will then have to call the fire station, implies any sort of accident, police will be informed first)

SOS will be redirected in 10 sec.

Has many features like vehicle, mobile search, reporting a violation etc but not in our area of concern?

Has list of all emergency contacts, but the nearest locality station must be known.

### CONS

Too many features which make the work of police easier.

On spot reporting is the least used (SOS)

Works super slow without internet

## 112

### Features

Also, a cancel option is present, where someone presses it by mistake can cancel it

If someone doesn't cancel, the control room will be alerted, "I am safe" is still present to abort the process.

Another benefit is if we don't want to download the app, we can simply press the power button thrice and 112 will be called(gesture) even if the app isn't installed on our device.

## PROS

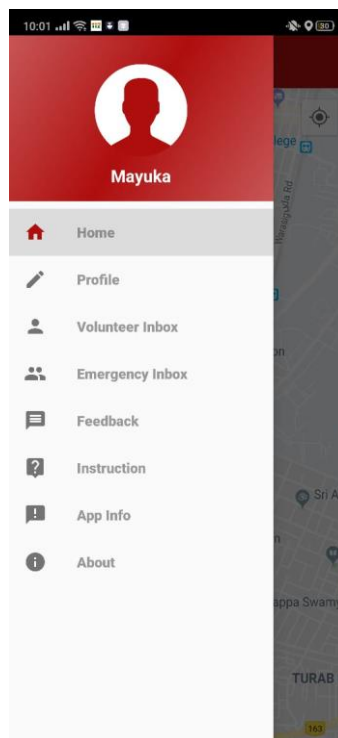
- Super easy interface
- Clear instructions given
- It asks for the user to turn on the location whenever the app is opened.
- Registered volunteers in the nearby area will be alerted if the user gives permission for volunteers to come to their rescue.
- The details of the volunteer will be shared to the person in emergency (volunteers will be verified by a KYC form)(optional)

## CONS

Alerting the concerned department is not possible without internet.



Easy Interface



Clear instructions

## Where are you

### Features

“Where are you” app also provides a simple interface with three easy options that includes :

- 1) notifying the department when victim isn't in apposition to talk.
- 2) making an emergency call.
- 3) Send a message.

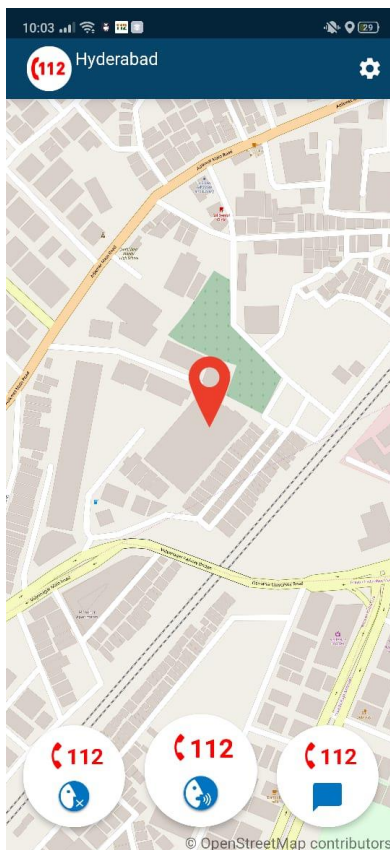
There is no cancel or “I am safe” button.

#### PROS

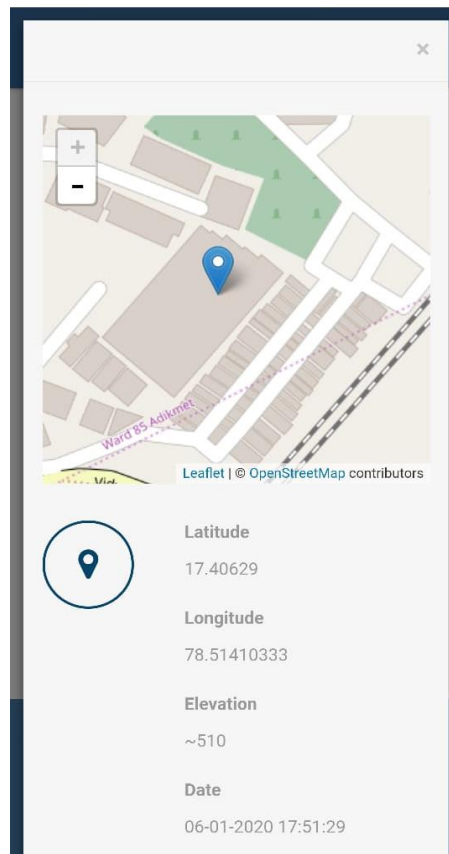
- user friendly interface.
- Clear-cut instructions.
- Demos are present where one can click the SOS button (for a trial) and their location will be sent to the server.
- Option to add emergency contacts.

#### CONS

- Alerting the concerned department doesn't work without internet



Easy interface



location

#### Default SOS button in every device

- There is already an in-built SOS on every phone
- SOS button on android can be accessed by clicking the power button thrice in a row.
- The SOS will be redirected in 5 seconds if not cancelled.

#### IOS:

- Press the power button 5times in a row (3 in India) [iPhone 7]
- Press the volume button and power button simultaneously.
- An emergency dialler will automatically appear, which you must slide to make a call.



## Fire chat app (app that can send messages even without cell service)

With Fire Chat, you can send text messages without any cell service and uses no mobile data. Your text can even go through when you're in airplane mode. ... In groups of thousands of people, cell phone towers get overloaded. As a result, calls will drop and texts won't go through.

### Using mesh networking concept

The app lets you communicate without a cellular or Wi-Fi connection, providing enough other users are close by. A new smartphone app lets you send text messages to your friends without a Wi-Fi or cellular network.

## Our solution

1. First, its function is totally different. It has nothing to do to the what kind of service must be provided. Our app only gathers and creates logs of the data.
2. The data from our (pre-determined) server is meant to be designed for the Disaster Management team, but it can also be integrated with any kind of services (Ambulance, Fire, Police etc).
3. It can be used anywhere in the country (instead of each state having different app) and make use of the data, to ease the process of help during disasters.
4. No need to call/dial/talk, a single gesture or button will send your information, location details to the server and be recorded.
5. It can be used as a subscription model, i.e. whenever there is a trigger, the subscribed people can be notified of the emergency location and details.
6. We use the concept of "polling", which means the database will be updated every 30 sec, and the logs will be up to date.
7. It can be used even in offline mode, i.e. without internet as we are using GPS technology to get the location coordinates
8. It is very easy to use and send SOS for the user, since it is a single emergency button with a user-friendly UI/UX.
9. It will work even if the phone's location is switched off.
10. If in case, the button is pressed by mistake, we will provide an option to take back the SOS call
11. Once the user alerts of his emergency we would restrict him from switch off the phone.

## References

The following [link](#) redirects to our google sheet containing of our updates about the research and features of our app.

SDC <https://bsnlteleservices.com/emergency-service-dialing-numbers-india-short-code/>

Gps [<http://backcountrynavigator.com/android-gps/>]

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## TEAM DETAILS:

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