

A Helpline Application in COVID-19 Pandemic Situation

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Abstract: *In the first phase of 2020, all over the world started facing Corona Virus. For prevention of corona virus, we implemented DRM (Disaster Risk Management) App named as "covid19-state name" for each state as well as union territories respectively, in which we can obtain emergency helpline management features. The main features involved in this are Covid19-tracker for that particular state, Geofence of containment zones, Self-Quarantine System with notification alerts for each week up to 14 days, Medical appointment system with ambulance tracking, Volunteer System for food, shelter tracking, Transportation pass system along with Helpline toll free numbers and live updates from google news along with Covid-19 vaccine updates from Twitter are implemented. One needs to install an App on a smart device with a decent internet connection or check the web app in any smart device to obtain these features.*

Keywords: SARS-CoV-2, API, Disaster Risk Management (DRM), Geo-fence, MSME, Self-Quarantine System, UPI, Covid-19 Contract-Tracing.

1. Introduction

A new Chinese virus, the World Health Organization identified SARS-CoV-2 as a new type of coronavirus on 11 March 2020, has devoured hundreds since the outbreak began in Wuhan, China, in December. Scientist Leo Poon, who first decoded the virus, thinks it likely started in an animal and spread to humans. The number of victims will unfortunately continue to rise. However, in the second week of April 2020, almost all states started facing the coronavirus. Other countries will begin to do the same at the beginning of May

Many nations across the world take measures to contain or make less severe the effects of the pandemic including lockdowns. By the end of 'Quarter 1' means March or April, approximately 1/3rd of the world population was in quarantine. Lockdowns set two major challenges. First, they impose very tight restrictions on individuals. Second, the sudden decrease in economic, social, and psychological costs. Hence, there is high pressure upon governments to find solutions to contain the pandemic and simultaneously exit the lockdown. So, the government implemented a digital tracing strategy. Previously, Due to high pressure on governments all over the world has launched Covid-19 contact-Tracking apps. MobileApp is developed by the Ministry of Electronics and IT to help citizens identify their risk of contracting COVID 19 (Coronavirus). Most of the contact-tracking apps work only when your device BLUETOOTH and LOCATION is accessed based on the survey result it gives an alert to nearby other users of the same app to take measures accordingly. Some of the Governments made it mandatory for them to install this app. The main features of those apps are nearby Covid-19 patient detection using Bluetooth, Covid-19 Tracker, and helpline number with some preventive measure's guidelines. Bluetooth range is less it may be a drawback in some cases but almost it works fine.

2. Problem Statement

By researching, I found that some features are lacking in previous contact-tracing apps for covid19 pandemic those are listed as: what if you detect that covid-19 symptoms in a nearby person? Of course, inform the government but how that feature is being lacked in some contact-tracing apps and they are capable of detecting and alert people who are near to victims that too only certain range because Bluetooth covers a low range if the crowd increases it will eventually fail. If your symptoms are positive what are the preventive methods? How can you locate containment zones in unexplored areas? How can you get notified when their nearby containment zone? How one can apply for an online appointment for nearby covid19 care hospitals or covid19 testing labs? In case of emergency, how one can locate the ambulance nearby in an unexplored area and contact the ambulance? How a migrant can know the details of food and shelter camps near them. To become a self-interested volunteer how to apply? We need a mechanism to solve those problems, this paper came a solution to them by making a new system with a real-time prototype.

3. Implementation

In this research paper, we found that the solution to above all problems related to present contact-tracing apps and developed a new app with existing features and enhanced to an advanced level to prevent covid-19 pandemic at any cost. In the 20th century technology has grown rapidly we are living in a world that everything is digitalized among them one of the trending technologies is Tracking and Tracing Technology. Using Tracking and Tracing Technology in form of App in their smart devices. Luckily, smart devices are popular among people all over the world. Based on input monitoring of the App we can tell the status of the corona virus. So, people feel convenient to have a corona helpline service as an application on their mobile devices.

A Disaster Risk Management App, which is a help desk based on the coronavirus. The key features are:

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- 1) Geofencing and Navigation system
- 2) Covid-19 tracker
- 3) Funds and Donations
- 4) Migrant services
- 5) Medical services
- 6) MSME guide and Vocational courses
- 7) Self-Quarantine System.
- 7) Tracking of Corona vaccines

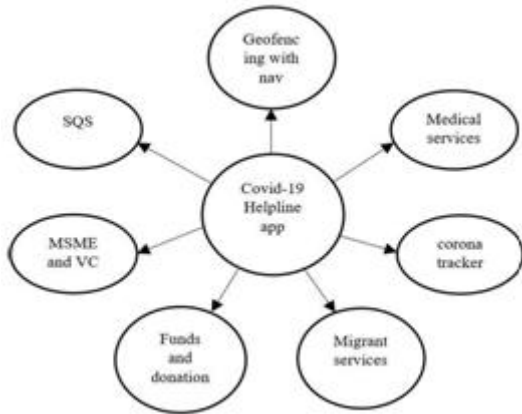


Figure a: features to existing contact-tracing apps

Geofencing and Navigation system: Geo-fencing (geofencing) is a feature in a software program that uses the global positioning system (GPS) or radio frequency identification (RFID) to define geographical boundaries. Geo fencing allows an administrator to set up triggers so when a device enters (or exits) the boundaries defined by the administrator, an alert is issued. We embedded containment zones as the Geo-fence areas by using Google maps API (Application Program Interface), when our app user entered into containment zone, he/she will get the first alert “you entered danger zone”. If the app gets activated in the containment zone it sends an alert as “you are in the danger zone”. If he leaves then the app alerts as “you left the danger zone”. Navigation system gives nearby locations of Hospitals and Medical stores by using Google Maps Places API. It is also capable of giving the shortest route to hospitals and medical stores up to 300 meters range. It works only when location services are activated in smart devices and the GPS accuracy is 20-30mts up to now in some countries.

Covid-19 Tracker: Tracking Technology plays a major role. Tracking of corona cases across the state as well as the district level is implemented by using API made by the WHO which was being updated on daily basis. By using Wats on Assistant which is an Artificial Intelligence chatbot from IBM multi-national company we implemented a helpline bot that can also be accessed by voice commands.

Funds and Donations: All over the world, A network of People who are helping to fight against the Covid-19 pandemic are known as Red Cross and Red Crescent volunteers. These volunteers are involved in delivering relief materials to victims 24/7. They started a campaign in collecting funds to help their country's people. American Red Cross volunteers contribute \$720,000 in helping of international Red Cross and Red Crescent to decrease the spread of corona virus through community-based health and

hygienic promotion. Using direct UPI integration with the relief gives the advantage of donations through App becomes easy besides UPI, bank account details of donation accounts are available for offline payments. By using we can directly donate funds by using UPI apps such as GOOGLE PAY, RAZOR PAY...Etc.

Migrant Services: As being difficult in applying for a Transport pass, we implemented two types of passes 1. Transport pass and 2, Essential pass. A transport pass is given only when in case of emergency by monitoring the input user data the pass can be available with a day or two may be based on the information. Essential pass is available only to essential workers such as medical stores. Based on the user data pass will be available within a day we can check the status on the app directly.

Helping Hands system in which normal people can be a volunteer. This idea is mainly taken from the government of Andhra Pradesh and implemented By Honorable Chief Minister Y.S.JAGANMOHAN REDDY. The main theme is to provide shelter, food, and medical features to the migrants around the world. This is mainly categorized into 3 kinds of services such as food, shelter, essential workers. In every section, the name of the event, location with maps API are mentioned also with available capacity. A user can be either act as a volunteer or maybe a victim of this event. In the case shelter section, it may contain a price, and one needs to enter the current capacity of the shelter you providing in addition to organizing the event. As every person is allowed to participate or organize the event. On Organizing an event, one needs to add their service details to the Organizing section in the Helping Hands with the location, date, and time of the event. Chat feature also available to chat with the organizer with these he can select you as a volunteer after you apply for it, simply more or like a jobportal.

Medical Services: This feature mainly consists of Online doctor appointments and corona testing labs also with ambulance tracking. For this service, an administrator is needed to add new hospitals and ambulances this problem can be solved by adding registration forms to ambulances and hospitals. This feature works simply like Facebook in this patient need to get registered and apply appointment to doctor respective to their location once the doctor accepts the appointment patient can directly contact or the location of the clinic can be shown. The doctor needs to be registered by providing working days in a clinic to get the patient notified that the doctor is available. In addition to this, there is a search feature available to all people for searching for a doctor to place an appointment. The ambulance needs to get registered by the Admin to view the current location status and contact info. Just in case of emergency it becomes handy. All ambulances which are registered are shown to the victim within the 300mt range.

MSME and Vocational Courses: MSME stands for Micro, Small and Medium Enterprises. The business that comes under this category is manufactures and service providers. The Manufacturing sector businesses are the ones that are in the business of manufacturing and supplying goods like Processed food. We implemented this feature MSME is a major platform for working migrants so in covid-19

situation it shines.

Vocational courses are the courses that help to get through the MSME. Vocational courses are generally deemed to be non-academic and area specific trade, profession, or vocation centric Skilled trades such as plumbing, heating, air conditioning, and automobile repair are also provided by various vocational courses available. We used YouTube API to directly link those courses into the app.

Self-Quarantine System: Self Quarantine is a state of isolation without any contact with the outside world in which people have arrived from somewhere else or are exposed to the transmitting disease. In the case of corona, it is an infectious disease one needs to be in Quarantine for 14 days. Self-Quarantine System is an alarm system in which based on user survey it schedules the alarm for 14 days with frequent alerts by name "self-Quarantine". The Self Quarantine System evaluates the user data based on the 3 factors: 1. Neutral 2. mild 3. high neutral has 0 value, mild has value 3, high has value 5. In survey overall value becomes more than 25 then Self Quarantine System gets activated if less than 25 nothing to do with it.

Table 3 (b): Survey evaluation points in Self-Quarantine System

S.no	State	Point value
1	High	5
2	Mild	3
3	Neutral	0

Also, with the Self Quarantine System, Emergency Helpline numbers are added to the section.

Tracking of corona vaccine: Vaccine details are crucial in a pandemic situation, Covid-19 vaccine updates page in Twitter directly provides live information about the Vaccine all over the world, so we implemented a direct Twitter page by using Twitter API and for the latest news in the app used Google news API.

The app supports up to API level 29 and additionally supports inbuilt Dark Mode.

4. Result

The above features are implemented in form of both websites and android application by using Java, HTML, CSS, JS, Php, MySQL, Firebase, Google Maps API, Xml. The results are shown below

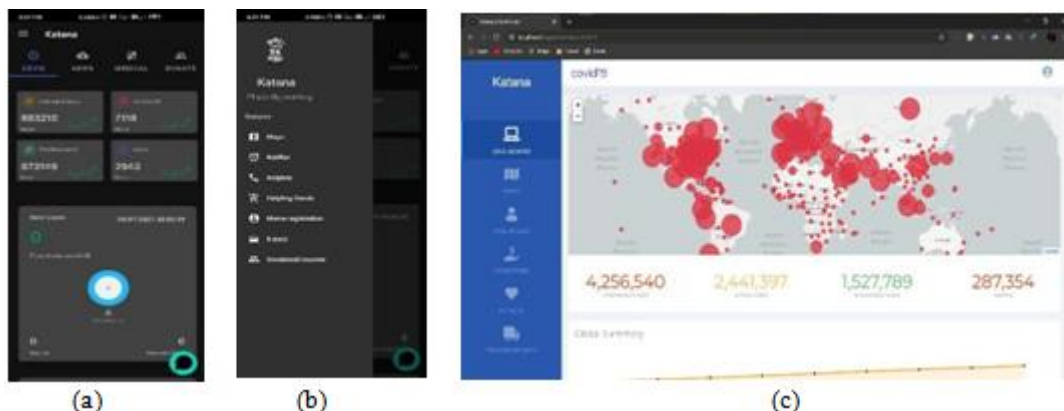


Figure (a, b, c): Dashboard of Android app and Website

Dashboard: As shown in the above figures (a), (b), (c) Dashboard is the main page of the app or web containing a corona real-time tracker with help of WHO API. As it consists of news, medical, and donate tabs to look simple

and easier to navigate. With the help of graphical representation, a user can easily grasp the content of daily increase in cases, and an additional chat assistant with voice access is implemented at the dashboard for easier usage.

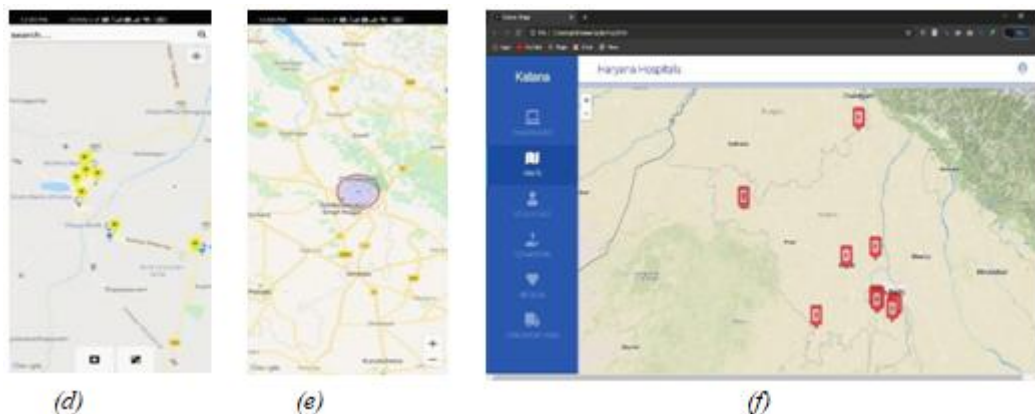


Figure (d, e, f): Geo-fencing of quarantine zones and navigation services

Geo-fencing & Navigation: As shown in the figure (d, e, f) Navigation uses a Global Positioning System from the U.S to detect the location of the smart device because that technology able to solve lacking features in previous

contact-tracing apps. Implemented geo-fence, helpline navigation services, and volunteer services.



(g)



(h)

Figure (g, h): Medical services

Medical: As shown in figure (g, h) by taking Facebook as a motive, converted online appointment services as simple as friend requests between two friends, helps to make an easier appointment also with the availability of doctor working

days thanks to google calendar API services. A helpline toll-free numbers are implemented in case of emergency purposes.



(i)



(j)



(k)

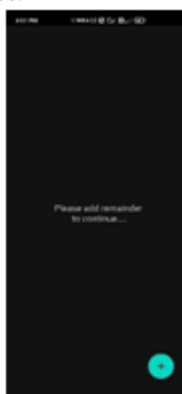
Figure (I, j, k): Volunteer services and Donations

Volunteer services and Donations: As shown in figure 4(i, j, k) a volunteer system is implemented to help migrants, which helps to locate the location of helpline services such as migrant shelter campaign's and food donation campaign's, which also helps a user to organize an event to help covid19 victims with the help of this app, that was lacking in previous ones. UPI is used for direct donation services.

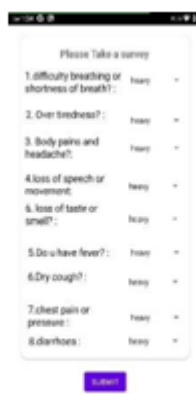
Self-Quarantine System: As shown in the above figures (l,m), It is an additional update to the contact-tracing using Bluetooth in most apps that helps the user to get alerts about their health conditions regularly also gives alerts about the self-Quarantine in case of heavy symptoms based on the above-mentioned table 1.

5. Conclusion

From the result analysis, screenshots show the outcome of the app features which are implemented so far these make the app far superior from the previous contact-tracing apps previously available all over the world. Finally, an update to Covid-19 Contact-Tracing apps which is a preventive measure not only for detecting but also helps in emergency case situation, which has additional features in comparison. It's easy to use for both victims as well as the normal people. Easy to get appointments from hospitals and labs without any delay. Location of near by hospitals and medical stores made easy, Shelter location and shelter tracking for migrants is beneficial if it is present in our smart device. If symptoms represented according to the survey, Self-Quarantine Systems get activated and push notification to your smart



(l)



(m)

Figure (l, m): Survey based Self-Quarantine System

device.

So due to the presence of Geo-fence, it monitors our location with the containment zones helps us to prevent contact with the Covid-19 patients. Due to flexibility, this can be modified if any other natural cause happens in any further future. Atleast these features help in decreasing the probability spreading of coronavirus in coronavirus in comparison with other Covid-19 Contact-Tracing apps.

By concluding that this app can provide the solution to the question “what you have to do, after finding he/she having symptoms?” and provides much more precautionary methods to prevent coronavirus from spreading. For further development this app can be generalize in various pandemic situations.

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