# Literature Survey


## Abstract:

The World Health Organization has declared the outbreak of the novel coronavirus, Covid-19 as pandemic across the world. With its alarming surge of affected cases throughout the world, lockdown, and awareness (social distancing, use of masks etc.) among people are found to be the only means for restricting the community transmission. In a densely populated country like India, it is very difficult to prevent the community transmission even during lockdown without social awareness and precautionary measures taken by the people. At the days goes, several containment zones had been identified throughout the country and divided into red, orange and green zones, respectively. The red zones indicate the infection hotspots, orange zones denote some infection and green zones indicate an area with no infection. This app mainly focuses on development of an Android application which can inform people of the Covid-19 containment zones and prevent trespassing into these zones. This Android application updates the locations of the areas in a Device map which are identified to be the containment zones. The application also notifies the users if they have entered a containment zone and uploads the user's IMEI number to the online database. To achieve all these functionalities, many tools, and APIs from Device. Therefore, this application can be used as a tool for creating further social awareness about the arising need of precautionary measures to be taken by the people of India.


## Introduction:

Currently there are several research works undergoing in the country to prevent Covid-19 cases from rising. Previously our country was importing medical kits like PPE (Personal Protection Kits), mask from outside, but now it has been successful in developing these kits. Along with taking initiatives to fight this disease, our country has also taken steps to make people aware of the disease. The news and media have a great part in creating this awareness by informing the public about the preventive measures that can keep them away from infection. Awareness among the people to carry out all the preventive measures can immensely help to reduce spread of the virus. The country has created containment zones throughout the cities wherever Covid-19 cases have been reported to prevent further spread of the virus. These containment zones have been kept isolated from the outside public to ensure no contamination occurs outside.

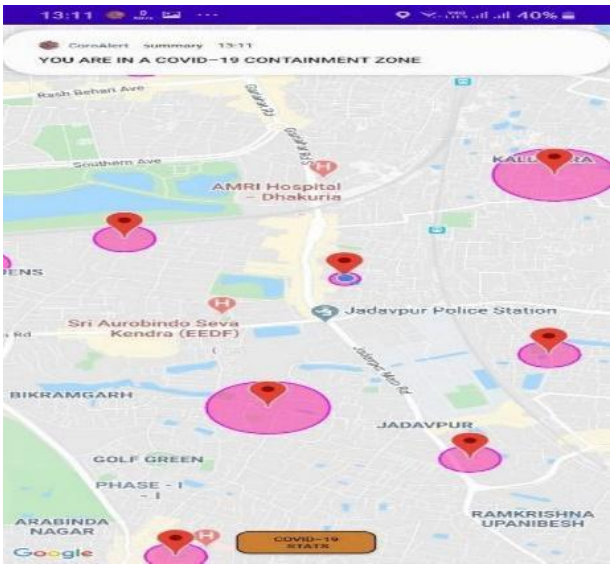
After more than 2 months of the lockdown, the government has relaxed some of the lockdown rules and has permitted reopening of government offices,bus and other road transportation facilities and shopping markets. People can move inside the city for work and other purposes. But the containment zones are still being kept isolated, and new containment zones are being formed wherever Covid-19 cases have been reported. These zones are highly contagious as droplets with virus coughed out from an unscreened asymptomatic patient can travel up to 8 m (Bahl et al. 2020). Though these containment zones are guarded by policemen, still there remains a chance that people might unknowingly step into them. In this situation where people can move in the city, these containment zones pose a risk of infection to these city dwellers. Therefore, informing people about the location of the containment zones can help them bypass and avoid these zones and thereby reduce the chance of community trait

## Proposed Work:

The Android application shows the location of the containment zones to the users. It also notifies the user when he or she trespasses the boundary of a containment zone or stays in the containment zone

## Working of the Application :

The application gets data from the **IBM** database. A collection is created in Cloud IBM with containment zones as documents. Each document has four fields: latitude, longitude, location name and radius. In the map's activity, the instance and collection references are created to which a snapshot listener is attached. With the help of getters each data from the document is retrieved and are converted to string. Markers and circles are set using the location coordinates and radius and tags are given by the location names. The Device map gets populated with these markers surrounded by circles which represents the containment zones. A JSON request is made with the get method to the REST API URL which returns the West Bengal Covid-19 case data as a response. The response is converted to a JSON object and the information is extracted. The Device map shows all the containment zones in West Bengal along with the location of the user using "set my location" enabled (Device map Api). The Geofencing API can create up to 100 geofences per device and the number of containment zones are more than 1000 in West Bengal. The solution to this problem is to create 100 geofences on the 100 nearest containment zones. Once the map is loaded and populated with containment zones and user's location, the user can press a button to add the geofences on the closest 100 containment zones. The snapshot listener returns the documents containing the locations of the containment zones from IBM database which are not sorted according to the distance between the user and containment zone. The distance between the user and each containment zone is measured using distance between method of the location manager (Android developer-Locations). This distance is then used as a key and is stored along with the document in a Tree map. Likewise, all the containment zones with their distance from the user get stored in the tree map and get sorted according to the distance or key. First 100 entries from the tree map are retrieved and geofences are created on these 100 containment zones



## Conclusion and future Scope

The application provides an efficient way of showing the identified Covid-19 containment zones to the users in Device map. With the alarming increase of Covid-19 affected cases throughout the world, this developed application can be employed as a tool for creating further social awareness among the people. This application further tracks the user's location and checks whether it is present in the list of identified containment zones. It sends separate notification alerts to the user on entering. The developed android application further extracts the IMEI Number of the trespasser in the containment zones which can be useful to the local police to track and identify people who are frequently trespassing the containment zones. Thereby this application identifies the containment zones and highlights the need for taking further precautionary measures for combating Covid-19. The application has been tested in various locations and has been found to yield accurate results.

The application can be further used for many purposes like maritime and forest safety to prevent users from entering restricted areas.