Mobile Application Development for COVID-19 Awareness

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***Abstract*—The outbreak of novel Corona virus disease that began in Wuhan, China escalated into a worldwide pandemic. As it reached India and the nationwide lockdown was imposed, efforts were made on research and ways of combating it through technology. The uplift of the lockdown resulted in a spike in the number of cases and it became important for generating awareness among the citizens. Mobile technology has been leveraged quite largely to control the spread of COVID-19. The App is meant to alert the users about the containment zones near them as well as the status of the locations where they plan to travel. The application also possesses a chat-bot to cater the queries of the user and thus translate knowledge.**

I. Introduction

In less than five months, the COVID-19 outbreak in India has spread to all states and union territories with Maharashtra being the worst hit state. Mumbai is the worst affected city in India, about half of the cases in the state emerged from Mumbai.In this scenario, all efforts are being taken towards reducing people to people contact and the exposure of people to contaminated areas. The lockdown implemented, worked at the national level, while the classification of zones into red, orange and green worked at the district level. Containment zones are areas where positives have been detected and it is necessary to restrict movement of people inside and outside these regions. Thus, these areas are sealed to prevent further spread. Once the lockdown measures were relaxed, a sense of normalcy returned in Mumbai with initialization of its busy commercial activity, opening of offices and shops, running of public transport that indicate the movement of crowd within the city. The cases were observed to rise at double speed and there was a need for innovating new ways to trace the contact among locals and aware the community about the containment zones present near them and the status of their destination locations. In this situation, where people are free to move in the city, containment zones pose a risk of infection to the locals. Currently, researchers and technologists have been working on developing applications that can help to tackle the community spread. The objective of this paper is to understand the usage of the current applications among the community and focus on developing an application that is easy to access and use by the community. The application will provide information about the addresses of the containment regions in the zones and the user can access information about the required region. The paper also describes the design of a chat bot system that the user can use for self-monitoring and gain insights into the guidelines given by the World Health Organization.

II. Problem Definition

Develop a mobile based application that lists the containment zones present in Mumbai and provide Covid-19 information as requested by the user.

III. Proposed Work

The Android application shows the address of the containment zones to the user. It also has a built-in chat bot to interact with the user queries. There are majorly two components of the application:

A. List of containment zones

Raw data about containment zones will be fetched from geoiq.io through their API. The data will be filtered and processed to get a list of all the containment zones in Mumbai. The containment zones will then be stored in a remote SQL database against their respective pin codes. This database will be updated every 24 hours to provide the latest information. This database will be linked to the application, the user will have to enter the pin code of the region in which they want to see the containment zones. The containment zones stored in the database which match the pin code entered by the user will be fetched and displayed.

B. Chat-bot

Frequently asked questions regarding COVID-19 will be downloaded from WHO's website and nltk will be used to train a chat-bot The data will be stored in a SQL database in order to keep it up to date. The interface will be built using kivymd and kivy.

IV. Research Methodology

Initially, a survey among the community in certain regions of Mumbai was conducted. The aim of the survey was to generate the feedback of the people on the existing applications for contact tracing or viewing containment zones. The feedback emphasized that majority of people were not using any such App to find out the status of their destination and were keen on having access to such information and looked forward for a mobile application that could aid them. The data of the containment zones was then researched to get an appropriate, accurate and updated data set. The responses to be given by the chat-bot to the queries of the users were taken from the World Health Organization's Frequently Asked Questions.

V. Conclusions and Future Work

The application is an effective one as it identifies and displays the demarcated containment zone addresses. As, the city is stepping towards normalcy but with an alarming rate of increase in new coronavirus cases, the application can be of great use for the local community. The developed application can be further used to spread awareness among the people. It can be extended to the state or the nation. The application can further include data about the available quarantine centres and vaccination centres in the near future. The application can further track the user's location and check whether it is present in the list of identified containment zones. Thereby this application identifies the containment zones and provides response with appropriate information thus highlighting the need for taking precautionary measures to tackle COVID-19.

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