COVID 19 Android Application: A Survey

Mr. Santosh Yadavrao Divekar[1], Kunal Gopal Kulkarni[2], Mrunal Shashikant Kshirsagr[3],

Sakshi Ganesh Shendkar[4], Aditya Ajay Thorat[5]

Mr. Santosh Yadavrao Divekar,CO,AISSMS's Polytechnic, Pune, Maharashtra, India[1]

Kunal Gopal Kulkarni,CO,AISSMS's Polytechnic, Pune, Maharashtra, India[2]

Mrunal Shashikant Kshirsagar,CO,AISSMS's Polytechnic, Pune, Maharashtra, India[3]

Sakshi Ganesh Shendkar,CO,AISSMS's Polytechnic, Pune, Maharashtra, India[4]

Aditya Ajay Thorat,CO,AISSMS's Polytechnic, Pune, Maharashtra, India[5]

Abstract: The main purpose behind the creating this application was to spread awareness among the people of this COVID-19 pandemic. All the correct and a particular application related to the COVID-19 are obtained by the systematic search technique in the popular application store. All the COVID-19 tracking applications or the contacting tracing applications are getting developed at a rapid pace by different government in their respective countries. And one of the best Indian COVID-19 application is Aarogya Setu Mobile Application developed by the Government of India. This application was developed by the Government of India to trace or track the COVID-19 spread and aware people about the pandemic situation. The study aims to understand the various useful features of this application or tool. In our application we have lot of the similar features available in the Aarogya Setu application. Not only from Aarogya Setu application we have also included other features from other applications. All the features are based on the correct sources and studied before implementation. This study would be useful for mobile technology professionals, data science professionals, medical practitioners, health-related frontline workers, public administrators, and government officials. Some of the features are all the confirmed cases, recovered cases, total deaths all over the world are shown. Not only about the world, this application contains the information of Indian states and other countries all over the world. All the information included in this application is from trusted and correct sources, so anyone can completely rely on the data provided in the application. Along with that COVID-19 symptoms, majors to take against coronavirus and to stay safe, all the helpline numbers of Indian states, all the containments zone of India, etc and lot more other features included in this application.

Keywords: COVID-19, coronavirus, mobile health application, pandemic.

I. INTRODUCTION

In this pandemic situation of corona virus or more technically known as COVID-19, has spread all over the world. On July, 2020, more than 17M cases of COVID-19 were reported. This COVID-19 situation is listed as the pandemic by the WHO (World Health Organisation). But along with the rise of COVID-19 cases, there are lot of applications create by lot of COVID-19 warriors. Our Indian Government has also created an Android application which gives information about the whether the user is near the COVID-19 patient and to spread awareness about this COVID-19 pandemic situation. Most people infected from COVID-19 experience mild to moderate respiratory illness. If a person is tested positive for coronavirus, every individual who has come in contact with the infected individual is advised to go for self-quarantine for two weeks, so that the infection chain can be broken and the disease does not spread further. Singapore developed a mobile-based application, TraceTogether, which tracks via Bluetooth whenever two application users are nearby. If a person's report is diagnosed with COVID-19, a human contact tracer can then determine follow-up actions.

A similar kind of mobile tracing application has been developed in India, namely, Aarogya Setu. The App is designed in such a way that it informs the user whenever they come in contact with an infected person through Bluetooth and GPS location services. The application has been designed in such a way that it informs the users through notification if they cross paths with a COVID-positive person. The tracking is accomplished with the help of Bluetooth technology and location-generated social graphs or GPS, which shows the user's interaction with anyone who has been tested coronavirus positive and notifies them. It detects and tracks the user's movement with the help of GPS and Bluetooth sensors. This was a very good feature though we haven't included this in our application because it is risky, as all the contact information and location of individual smart is stored and if it gets leaked it will be a major problem. Even the

Bluetooth and GPS is on and if the user is connected to any free wifi it is very easy to hack his/her data. So, we decided not to include contact tracing in our application as we understand the risk and individual privacy. But Aarogya Setu has other features also like COVID-19 symptoms and steps or majors to take against COVID-19, these types of features are available and many more other such features.

Before getting into the features of our application lets see how we attained our goal. To attain the research goal, we extracted data related to the objective of the apps, functionalities provided by the apps, the platform (operating system) of the selected apps, country-context, language of the apps, user ratings, first release, and user comments. The objectives and features of the apps were extracted both from the app description and by the experimental use of the apps. We ensured that the features extracted against each app from the description must be present in the actual app through the experimental use of the app. Our approach helped us to explore the stated features as well as other features (if any) from our experimental use of the apps. Each of the selected apps was investigated to extract their functionalities or features. Each author of this article separately participated in exploring the app functionalities and then in grouping (mapping or clustering) process through an affinity diagram. As an outcome, a total of 26 functionalities were found from the 25 mobile applications. This was the research about the application features and information. It was not possible to provide all the features in our application so we provided the main features like all the confirmed cases, deaths and recovery of the world. Along with this all the confirmed cases, deaths, recovery of our country is available state wise. Symptoms are also available in two major languages Hindi and English, steps or majors to take against COVID-19, containment areas according to Indian areas, helplines numbers according to Indian states, etc. We haven't included the contact tracing features as this feature is risky and the user privacy is at risk.

Our application COVID-Info is available for both iOS and Android users. The application currently supports Android 5.0 and above versions and iOS 10.3 and above versions. It relies on certain vital features and functionalities that are not supported in older versions of Android/iOS.
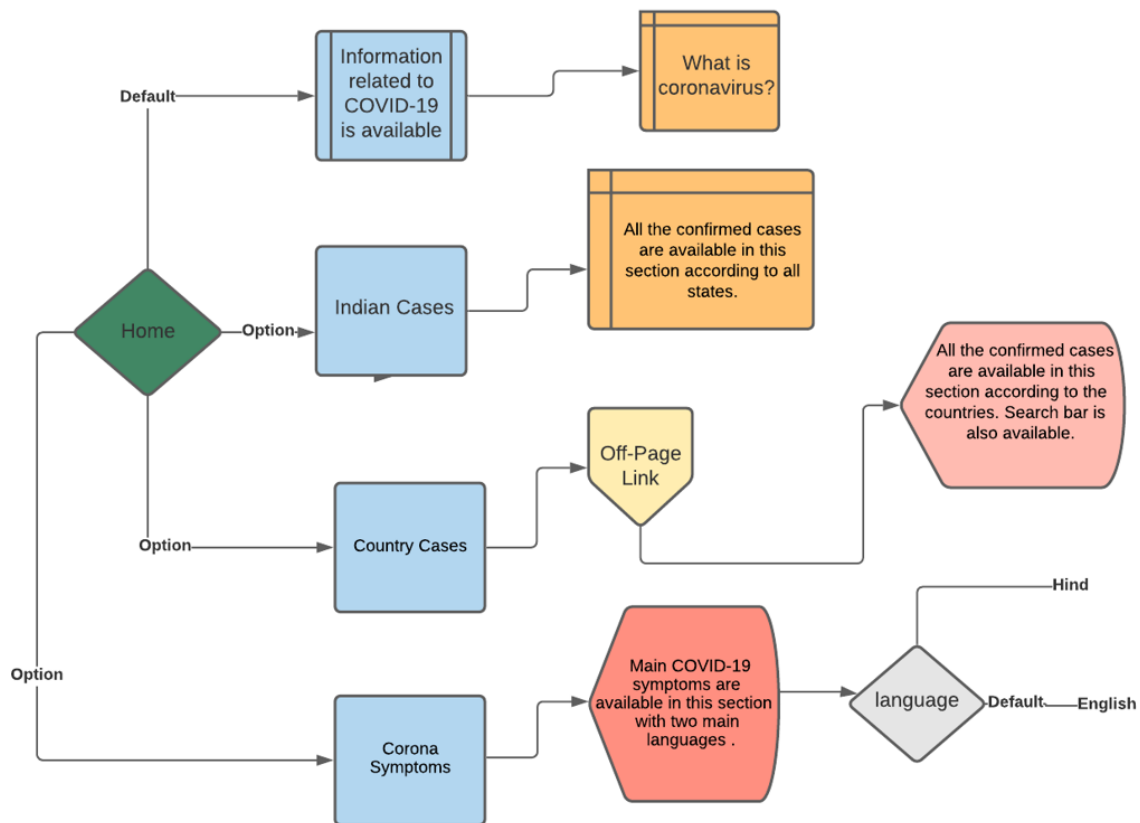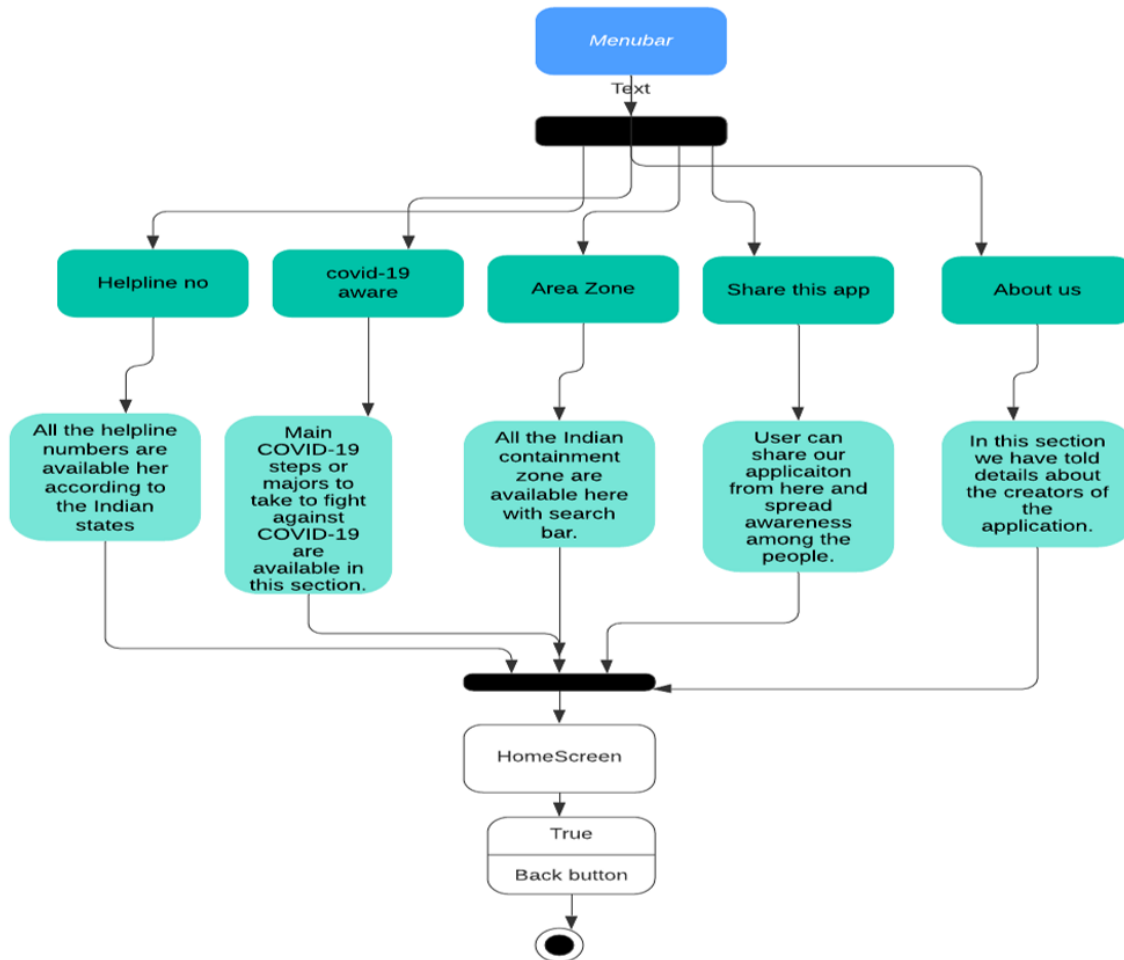
II. DISCUSSION

The review found that only a limited number of mobile applications have been developed. However, we note that more application development efforts will eventually come in the future. Our review revealed the main purposes of developing the mobile applications and the functionalities to achieve these objectives for the prevention, mitigation, and containment of COVID-19. The review study also explored the key factors or concerns that affect the end-user experience. Our results indicate that users prefer applications with higher reliability, performance, responsiveness, supportive, ease-of-use, usefulness, security, privacy, and flexibility. We also observed that culturally sensitive applications are needed. COVID-19 pandemic creates a crucial situation in the affected countries.

III. CONCLUSION

In this way, we conclude that Mobile apps are considered to be a valuable tool for citizens, health professionals, and decision makers in facing critical challenges imposed by the pandemic, such as reducing the burden on hospitals, providing access to credible information, tracking the symptoms and mental health of individuals, and discovering new predictors. And spreading awareness among the people through a simplest possible way, not only the people get aware of this pandemic situation of COVID-19, they also get lot of information about the situation around them.

The application, overall, helps the people in keeping track of COVID-19 cases and aware them whether they are in red zone areas. It is also an excellent way to alert people about the number of infected cases in their area that have been identified as coronavirus-positive.

IV. REFERENCES

[1] D. Cucinotta and M. Vanelli. 2020. WHO declares COVID-19 a pandemic. Acta Bio Med.: Aten. Parmen 91, 1 (2020), 157–160.

[2] World Health Organization. 2020. Coronavirus disease 2019 (COVID-19): Situation report. Retrieved from https://www.worldometers.

info/coronavirus/?utm_campaign=homeAdvegas1?%20. Digital Government: Research and Practice, Vol. 1, No. 4, Article 28. Publication date: August 2020. 28:8 • R. Gupta et al.

[3] The Government of India. 2020. Live updates from Worldometer. Retrieved from https://www.worldometers.info/coronavirus/country/ india/.

[4] H. Cho, D. Ippolito, and Y. W. Yu. 2020. Contact tracing mobile apps for COVID-19: Privacy considerations and related trade-offs. Retrieved from arXiv preprint arXiv:2003.11511.

[5] M. Amit, H. Kimhi, T. Bader, J. Chen, E. Glassberg, and A. Benov. 2020. Mass-surveillance technologies to fight coronavirus spread: the case of Israel. Nat. Med. (26 May 2020) 1–3.

[6] D. J. Leith and S. Farrell. 2020. Coronavirus Contact Tracing App Privacy: What Data Is Shared by The Singapore OpenTrace App? Retreived from https://www.scss.tcd.ie/Doug.Leith/pubs/opentrace_privacy.pdf.

[7] Aarogya Setu. 2020. MyGov. Retrieved from https://www.mygov.in/aarogya-setu-app/.

[8] A. Dhindsa and S. Kaushik. 2020. The Constitutional Case against Aarogya Setu. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3610569.

[9] World Health Organization. 2020. Digital tools for COVID-19 contact tracing: Annex: contact tracing in the context of COVID-19, 2 June 2020. World Health Organization. Retrieved from https://apps.who.int/iris/handle/10665/332265.

[10] Philipp Kindt, Trinad Chakraborty, and Samarjit Chakraborty. 2020. How Reliable is Smartphone-based Electronic Contact Tracing for COVID-19?. Retreived from https://arxiv.org/pdf/2005.05625.pdf.

[11] Aaqib Bashir Dar, Auqib Hamid Lone, Saniya Zahoor, Afshan Amin Khan, and Roohie Naaz. 2020. Applicability of Mobile Contact Tracing in Fighting Pandemic (COVID-19): Issues, Challenges and Solutions. Retreived from https://www.researchgate.net/publication/340977670_Applicability_of_Mobile_Contact_Tracing_in_Fighting_Pandemic_COVID-19_Issues_Challenges_and_Solutions.

[12] Jinfeng Li and Xinyi Guo. 2020. COVID-19 Contact-tracing Apps: A Survey on the Global Deployment and Challenges. Retreived from https://arxiv.org/ftp/arxiv/papers/2005/2005.03599.pdf

1. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200407-sitrep-78-covid-19.pdf

2. https://www.worldometers.info/coronavirus/country/india/

3. https://www.nbcnews.com/tech/tech-news/how-contact-tracing-could-use-bluetooth-track-corona virus-your-smartphone-n1187796

4. https://doi.org/10.1145/3416088

5. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus-disease-covid-19