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Article

A Study on COVID-19 Applications using Information Technology

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A B S T R A C T

The recent happening of COVID-19 has taken the globe hastily, forcing lockdowns and straining public health care systems. COVID-19 is understood to be extremely infectious virus, and infected people do not at the start exhibit symptoms, whereas some stay well. Thus, a non-negligible fraction of the population will, at any given time, be a hidden supply of transmissions. during this research paper, we offer the primary comprehensive review of 'Aarogya Setu App, COWAR, Coto UM' Mobile primarily based application. we tend to conjointly gift an outline of mere application, some of that are deployed nationwide, and discuss the issues users have rumored relating to their usage. we tend to obtainable outlining potential analysis directions for next-generation app style, which would facilitate improved tracing and security performance, additionally as wide adoption by the population at giant.

Keywords: Sustainability, COVID-19, HealthCare, App, Tracing Apps

Introduction

The year 2020 will be forever marked in history by the worldwide outbreak of the pandemic caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) a.k.a COVID-19. As the virus began to spread globally, the World Health Organization (WHO) declared on the 30th of January 2020 that COVID-19 was a Public Health Emergency of International Concern (PHEIC).[1] COVID-19 is more infectious compared to other known viruses (such as SARS and MERS) albeit with a lower mortality rate. Furthermore, a COVID-19 carrier can be contagious without experiencing any symptoms. Thus, by the time the carrier tests positive they may have already spread the virus to many others who met them. This necessitates a process called 'contact tracing,' to identify individuals who had close contact with the positive carrier, as these individuals may themselves now be infected.[2]

COVID RELATED APPS Information and Communications Technology (ICT) experts on the other hand, attempted during this period to facilitate epidemiologists and governments with a variety of ICT tools to help curb the spread of the virus (with countries like South Korea leading this example and industrial fast developed applications setup by Apple/ Google and telecommunication companies): Examples include, intelligent tracking and infection hotspots dashboards, AI-inspired Deep Learning self- questionnaires with Big Data, collaboration technologies to improve distancing and telework (e.g., e-conferences[6]), paper-less workflows in the cloud at a massive scale (e.g., social applications for COVID-19 benefits), rapid establishment of e- education pipelines (schools, universities, etc.), the uptake of faster and wider communication channels on the edge (5G and last mile fiber-optics).[4]

Aarogya Setu

The Arogya Sethu app was the first ever app introduced in India. Post to its launch, States Governments around India

launched Covid-19 related applications that represent only the pandemic affairs associated with their respective States. These apps have millions of users with high ratings on the Google Play Store. These applications can be used directly in Android and iOS operating systems. These applications enable to send signals to the users regarding the nearest positive Covid-19 patients. Regarding Arogya Sethu, it allows status check of users' family members from one place. These applications also provide Covid-19 cases overview and give answers to users who have enquires of applying e-pass. Further, these apps allow patients who are tested positive to make their entries to alert their neighboring users to stay safe. Therefore, Covid-19 related apps contribute inform regarding how to boost immunity, the joy of workout and yoga, addresses users why wearing mask is important and so on.[11]

Cowar

The specialty of the COWAR app is that it creates awareness among people. It makes them understand how they are being affected by their environment and how they themselves will affect others if they do not take the necessary precautions. A similar concept can be found in many projects related to the health facilities of every individual. One such application is[5] Trace Together, that is designed to assist health officials in tracking down exposures after an infected individual is identified. There is another app,[6] named AI4COVID-19 records and sends three 3-s cough sounds to an AI engine running in the cloud and returns a result within 2 minutes. Cough is a symptom of over thirty non- COVID-19 related medical conditions. This makes the diagnosis of a COVID-19 infection by cough alone an extremely challenging multidisciplinary problem. This problem is addressed by investigating the distinctness of pathomorphological alterations in the respiratory system induced by COVID-19 infection when compared to other respiratory infections. A similar proposal is Assessing Disease Exposure Risk with Location Data: A Proposal for Cryptographic Preservation of Privacy.[7] Their proposal uses recent GPS location histories, which are transformed and encrypted, and a private set intersection protocol to interface with a semi-trusted authority. Rising impacts of the wide spreading Coronavirus many Governments and Organizations have come up with Smartphone applications for Coronavirus led COVID 19 disease and to identify the gap with the available mobile applications we searched through similar apps.[8]

COTO UM

The personnel monitoring system consists of three parts as mentioned above, that are COTO UM Android application, the administrator backend application, and the cloud-based real-time system. The backend was developed together with the database system in the cloud; therefore, both will be discussed together as follows. The application on smartphones with the Android operating system is named COTO UM which stands for Covid Tracking of the State University of Malang. This application has the following features. The front page of the application as well as a page to enter the application or login page. On this page, the application logo and the UM logo are embedded. Username uses the telephone number used when registering. The position of the user will be detected when logging in using the GPS equipment on the user's smartphone. This data is sent and recorded in the cloud database system. The front page which also functions as the login page is shown in Fig. 2 a) User registration using a phone number and verified using One Time Password (OTP). The OTP code is sent via SMS from the server to the registration page shown in Fig.2 b). The body temperature detection page and blood oxygen level are a page for manually entering temperature and oxygen level data. The temperature and oxygen content in the user's blood is measured using a thermometer and oximeter, consecutively. Users enter this measurement result data into the application manually and routinely every day at the hours set by the user institution. The mobile application also provides warnings or warnings if the user is in an area with a high risk of infection, namely the orange area and the red area. The status of an area is determined by the presence of COVID19 patients. The notification that appears on the screen is shown in Figure 3.[9]

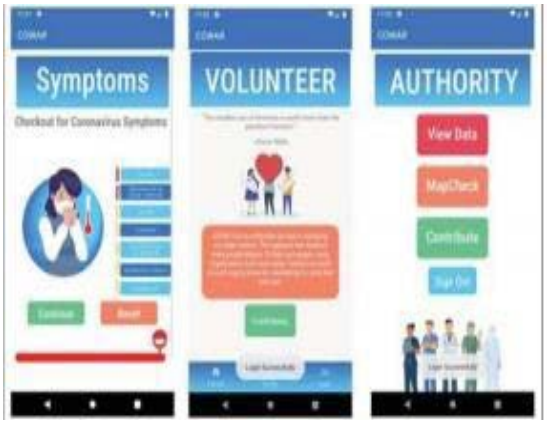

Figure 1.UI of Cowar[8]

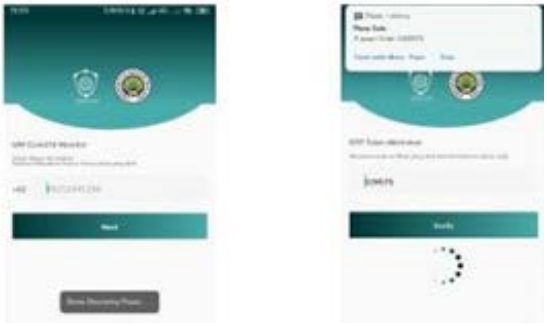

Figure 2.[10]Welcoming page a) Login page b) Registration Page

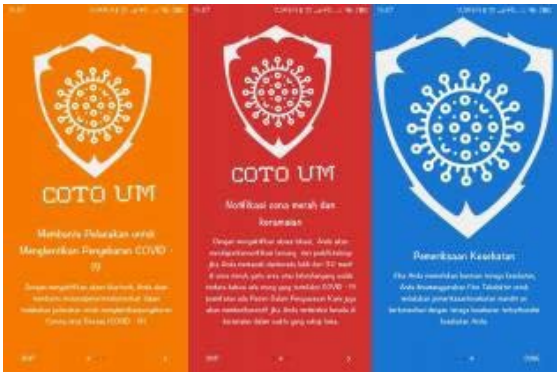

Figure 3.Transmission risk status, a) orange, b) merah, c) bantuan[11]

Conclusion

The findings of the study have proved that satisfaction of COVID-19 related apps has a positive influence on their attitude, creating a positive attitude. Ultimately, the reason to develop Covid-19 related applications to create awareness among the people during this high period of crisis. The result of the study seems to reach the goal for why these applications were created.[14] People are admitted being wearing masks, washing hands, and maintaining social distance to remain far from being infected. From inquiring about if these applications are informative, the bulk of the people agree it is useful. We hope that this research will aid the research community to grasp various technological and cybersecurity aspects of tracing apps and help users and agencies to form a more informed decision about the voluntary adoption of an app offered in their geographical areas.

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