



Personnel Monitoring System Using Mobile Application during the COVID 19

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Abstract

Corona virus disease(COVID-19) is a disease caused by the new corona virus called severe acute respiratory syndrome corona virus (SARS CoV-2). This disease has infected almost the entire world with a total of 47.5 million sufferers and a death total of 1.2 million people, WHO categorizes it as a global pandemic. Proven efforts to reduce the spread of COVID-19 include limiting physical interactions between humans or physical distance, maintaining the cleanliness of hands and limbs by washing with soap, and limiting outdoor activities by staying at home. Government and private agencies have required employees to report their health conditions via web pages. Real-time and accurate mobile applications can help prevent the spread of COVID-19. This research will develop a real-time monitoring and command system using mobile applications and cloud computing technology. The application will collect GPS-based location data and the user's body condition in the form of temperature and oxygen levels in the blood. User data is stored and processed in a real-time database in cloud computing which can be accessed through an application on the user's smart phone. The database also stores data on COVID-19 sufferers and where they live. Advice is given by the app when the recording of the body condition points to the early symptoms of COVID-19.

Keywords: Monitoring System; Covid-19; Healthcare; Mobile Applications

1. Introduction

COVID-19 is a deadly disease caused by a new type of corona virus that causes acute respiratory failure which can spread through free air and has spread over a large area so that it is categorized as pandemic disease. Although the number of new sufferers in several countries has decreased following lockdowns, a second attack has returned to areas that have experienced the COVID-19 has impacted all regions of human existence so efforts to save you its spread are very critical further to efforts to discover a cure. The preventive efforts undertaken via way of means of the authorities are mentioned in the COVID-19 Prevention Protocol19 followed from WHO, namely preserving bodily distance, lowering interactions, using masks while doing sports outdoor the home, washing hands with soap, and preserving environmental hygiene. Such prevention efforts could have a high-quality effect if they are done in a disciplined way through the entire network in order. that their implementation desires to be monitored in real-time.

Independent tracking may be done through using a telephone tool with tracking software and processing facts intelligently and quickly.

2. Literature Survey

The paper [1] COVID-19: A Novel Framework to Globally Track Corona virus Infected Patients using Block chain. Authors - Mohamed Rimsan1, Ahmad Kamil Mahmood, Muhammad Umair, Farruk Hassan. The detection of infected or tested patients during the COVID pandemic globally is challenging when patients travel abroad.. Block chain enables us to share any transaction or information, securely, in real-time, among relevant parties present as nodes in the chain. This encourages COVID-19 tested patients in full control over the data's privacy. Due to nature of block chain data security its data refuse to modification [2] Application of Firebase in Android App Development-A . Authors - Chunnu khawas , pritam shah. It is difficult for Relational Database Management System to handle the unstructured data. Firebase is a relatively new technology for handling large amount of unstructured data. It is very fast as compared to RDBMS. This use Firebase in the Android application according to the developer requirement. This also helps in making android apps faster and efficient as no PHP is required as a third party language to communicate with the database. The work can be further extended by adding new features and exploring new possibilities in Android applications [3] Designing an Iot based smart monitoring and emergency alert system for COVID 19 patient. Authors - Igor dider sabukunze margaretha sulistyoningsih The purpose of this study is to suggest an IoT design for smart monitoring and emergency alert system for COVID-19 patients using sensors. The authors expect the proposed system to be reliable and effective in reducing mortality and hospitalizations by saving lives in emergencies. Our system can alert in case of blood pressure is higher not caused by corona while this[4]Development of Location Detection and Human Tracking authors - Inurina Ibrahim and Engku Mohammad Nazreen B. Engku Azman. To solve the demand on the development and awareness of social affairs concerning locating missing person and location experiment of incorporating the GPS & GSM network our system can alert in case of blood pressure is higher not caused by corona while this study focuses on COVID-19 disease. These mobile phone types act as receivers may reflect the test result, hence in the future the type and model of the mobile device should be identified and tested trouble they might not have so much time, all that they have to do is press the volume key. They focus on the proposed model that can be used to deal with the problem of security issues of women using GPS and GSM-based tracking systems.

3. Methodology

The development of the monitoring system is carried out using the Waterfall Model Methodology. The research stages for the development of a personnel monitoring system during the COVID-19 pandemic using the Waterfall model are as follows

Development and Research

The personnel monitoring system using a mobile operation and real-time database with pall computing technology was developed during the COVID-19 epidemic to help the spread of COVID-19 more extensively, especially in Indonesia. The development is divided into 3 corridors, videlicet the Android- grounded mobile operation, back end operation, and real-time database system with cloud computing technology. This system will be developed with the following exploration and development procedures.

System and Software Design

Grounded on the development description that has been made preliminarily, the system and software design stage will produce a home display, a menu of the number of victims in an area, a position tracking menu, a tone-

status menu, a commerce menu, an information menu in the form of appeals and instructions. While the software design will development of this monitoring system.

GPS location tracking

We define "mobile location data" as relocation and proximity information from mobile phones and other devices. Governments view mobile location data as a key component of measures to contain the spread of COVID-19. They are presenting individualized tracking as a reliable way to track the movement of people who are infected and identify individuals with whom they came into contact during the period in which they are contagious. Individualized tracking can also be used to ascertain whether people are complying with social distancing and quarantine measures. Analysis of aggregate location data, on the other hand, might provide insight into the effectiveness of social distancing measures, model the potential for transmission, and identify potential "hot spots" of transmission.

4. Implementation and unit testing

At this stage, the consummation of the system design that has been defined at the design stage is carried out. Mobile operation development is carried out in an intertwined development terrain (IDE) operation development program with applicable programming languages similar to Java, C#, and others. Mobile operation development results will be tested on the Android Emulator and also tested on smart phones. The back-end Operation was developed using web programming languages including JSON, HTML5, and others. This operation and the database were developed on a web server in cloud computing.

Data analysis

The data analysis was carried out as follows. System response when several users use the system contemporaneously. The responses recorded include error and bug data, response speed, system stability, detention, quiescence in the data transfer process, and power consumption on smart phones. Data attained is grounded on variations in the number of users and variations in user activity. The position of user satisfaction is anatomized grounded on the prospects of the users and the position of the fulfilment of these prospects by the system.

5. Proposed System

Proposed system's main objective is personnel Visitors Management System during COVID. The system has three main features COVID tracking, vaccination availability and contact tracing. Although sensitive data about ones' location are the core of our app, strong principles of assuring privacy and security for our users. The goal of this is to assess the effectiveness of contact tracing for the containment of COVID-19 spreading in the different movement levels of a rural organization. The application identifies the user's location based on GPS and proximity tracking. The app can be a useful tool for epidemiologists fighting to diminish the virus spread and also for every person fighting to protect oneself and one's community, thus the app can be easily extended to stopping the spread of other diseases as well. Although sensitive data about ones' location are the core of our app, strong principles of assuring privacy and security for our use. Thus the proposed system has no chance of failure and easily modifiable. It will provide real time data about infected zone and protect user identity. IT also limit sharing of personal information.

6. Working

The main objective of the proposed system is the development of contact tracing approaches is currently considered as one of the main weapons to confront the spread of the COVID-19 worldwide. An Electronic Visitor register App for storing Host & Guest Records, Picture Attendance with GPS Locations using user's mobile phone Privacy is a key idea of contact tracing prompts some concerns regarding medical privacy, and public health officials take those concerns seriously. They are ethically and, in most states, legally bound to protect the information and use it only for public health purposes. Admin Panel Access Paperless Records for Visitors, Contact Tree, and Host. Save Visits with Pictures and GPS Locations Online and/or Offline App One App for multiple platforms (iOS, Android, Desktop, Cloud V, etc.) Instant access to ALL guest/host historical records at guest check-in No Thumb expressions or card punching to verify identity. Auto Face Recognition (Pro version only).Live Contact instant Notifications (Pro version) Social Authentication. This Application, using Java as the programming language and Firebase for Database Connectivity COVID 19 vaccination app is developed using the API provided by govt. to Check where the vaccination drive is going on date wise. Corona virus vaccine module will provide you data on the basis pin code entered by you and the date. COVID vaccination API used with Volley REST API library in Android Studio with JAVA. Corona virus (COVID-19) Tracker using REST API and Volley Library in Android Studio. This will show you various fundamental COVID-19 details Such as Global COVID-19 Stats, Number of Cases in India, Number of Patients Recovered, number of deaths, total no. Of cases etc. Even though data on COVID-19 seems straightforward—a matter of collecting information on cases, deaths, and hospitalizations—it's much more complicated than the that-The definition of a positive case can vary from one confirmed by a laboratory test to one that's probable based on symptoms and exposure. Some states won't count death as COVID -related if the person did not have a laboratory-confirmed test. And because hospital systems all report their data, it can be difficult to collect a full picture.

7. Architecture Diagram

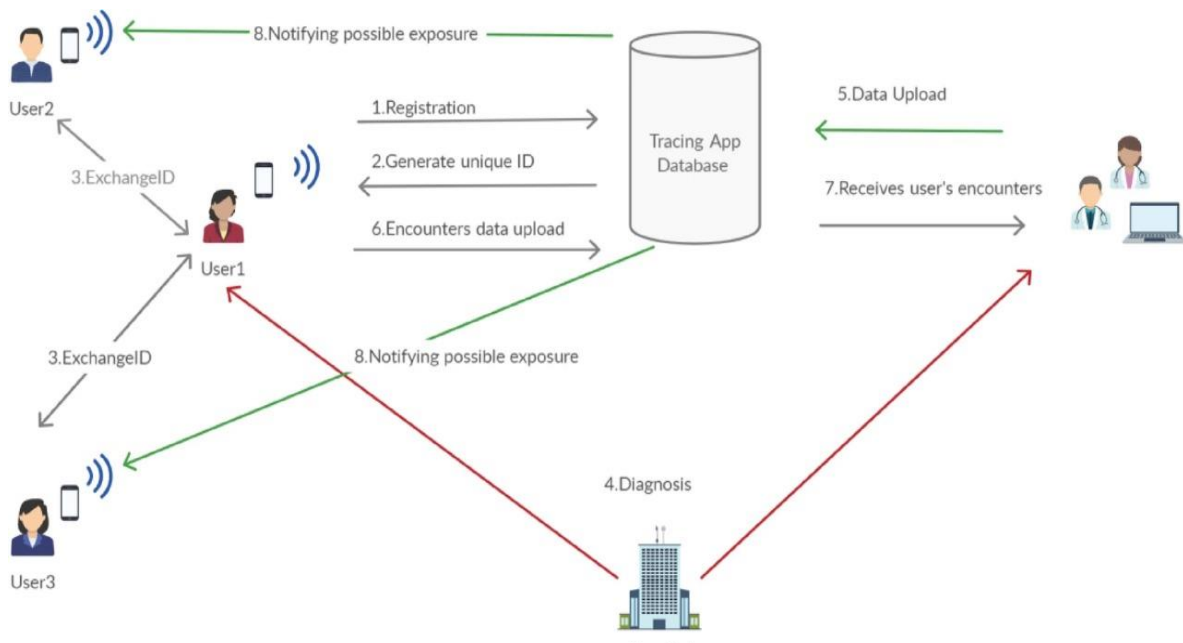


Figure 1: Proposed System Model

8. Existing System

COVID-19 has impacted all areas of human life so efforts to prevent its spread are very important in addition to efforts to find a cure. The preventive efforts undertaken by the Indonesian government are outlined in the COVID-19 Prevention Protocol adopted from WHO, namely maintaining physical distance, reducing interactions, using masks when doing activities outside the home, washing hands with soap, and maintaining environmental hygiene. The COVID-19 mobile monitoring application has been launched by the government under the name Peduli Lindungi. The application displays the location of sufferers of COVID-19 and provides a status level alert for an area. This application also monitors the movement of users. The main disadvantages are Level of accuracy is very low and even the error rate is very high. and Data updates are carried out weekly so that the actual data is not monitored by the application.

9. Result



Figure 2: Home page



Figure 3: COVID tracker

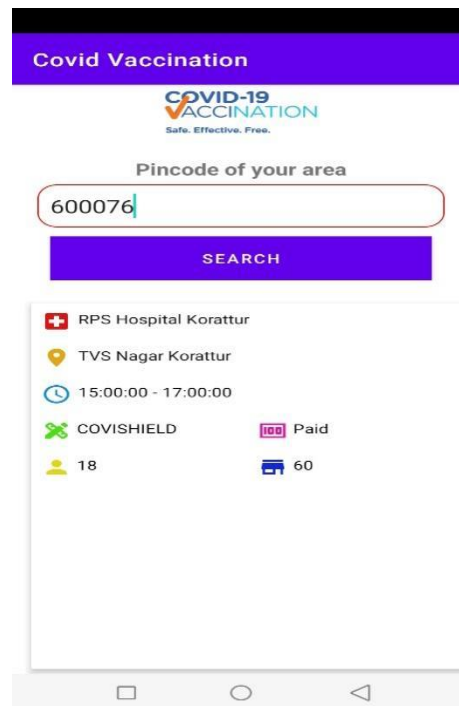


Figure 4: Vaccination availability

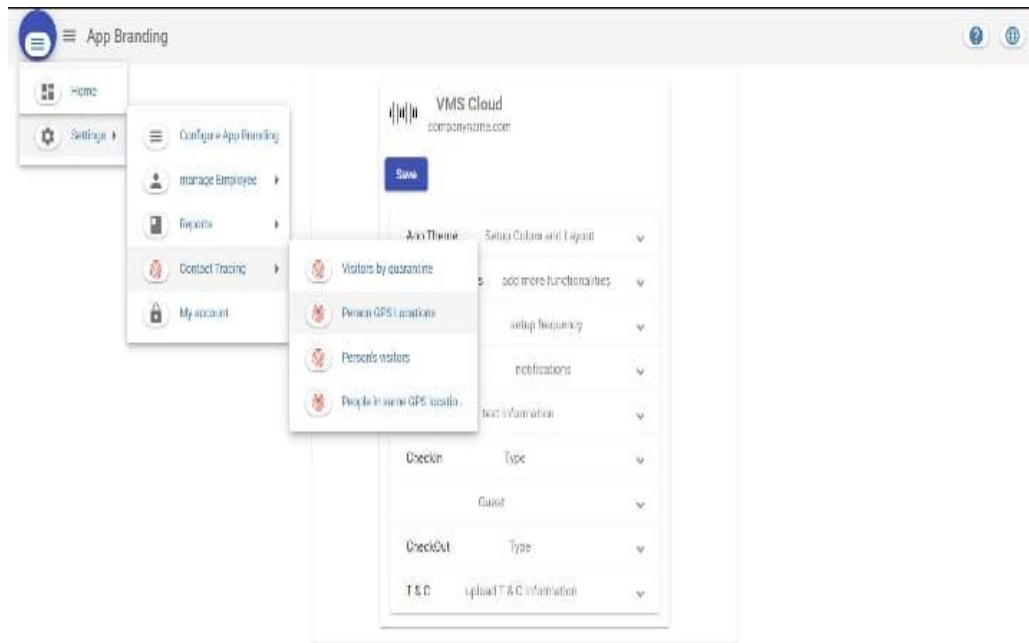


Figure 5: Contact Tracing

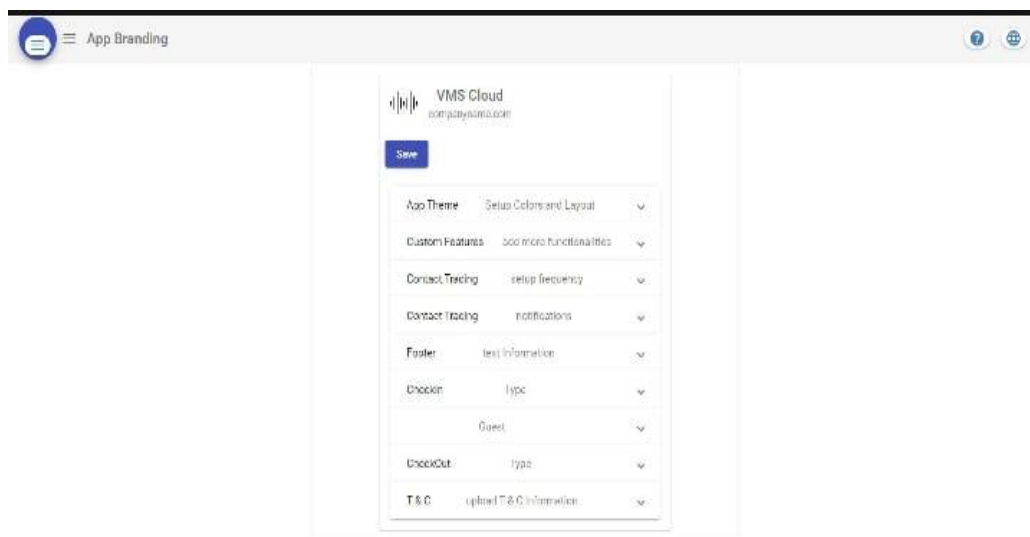


Figure 6: Save



Figure 7: Accessing VMS

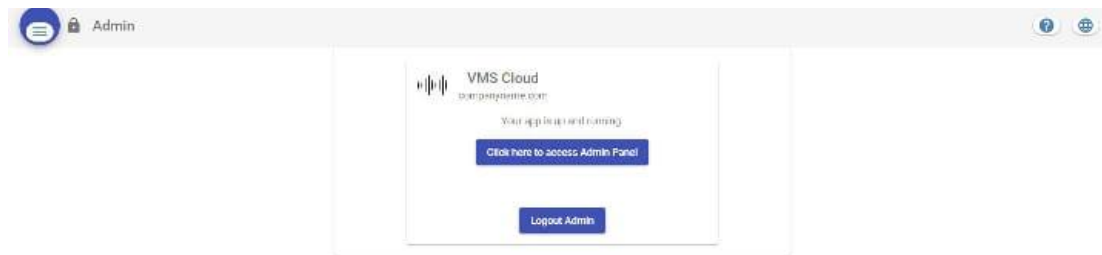


Figure 8: Login credential

10. Conclusion

The personnel monitoring application during the COVID-19 pandemic has been developed and can detect the user's location. The development and implementation obstacles faced at this time are the difficulties in obtaining map data of the location of the distribution of COVID-19 sufferers. The results of monitoring can be used for various purposes of personnel monitoring in dealing with and solving problems during the COVID-19 pandemic. Some

important points that will be carried out are a refinement of smartphone applications, improvement of database systems, updating of data on the distribution of COVID-19. This application proposed here aims at automating the process of contact tracing by using Bluetooth & GPS tracking. Once a person is detected positive, this app will trace the infected person's movements to find out the people with whom they might have made a contact & notify them about the risk of getting infected so they can self-isolate themselves..

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