LITERATURE SURVEY

CONTAINMENT ZONE ALERTING APPLICATION

College: Government College of Technology

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1.AAROGYA SETHU

Author:

National Informatics Centre, Government of India

Methodology:

On 2nd April 2020, India launched Aarogya Setu mobile App for helping augment the efforts of limiting the spread of COVID19, with an objective of enabling Bluetooth based contact tracing, mapping of likely hotspots and dissemination of relevant information about COVID19.

Features:

- User Status (tells the risk of getting COVID-19 for the user)
- Self Assess (helps the users identify COVID-19 symptoms and their risk profile)
- COVID-19 Updates (gives updates on local and national COVID-19 cases)
- E-pass integration (if applied for E-pass, it will be available)
- See Recent Contacts option (allows the users to assess the risk level of their Bluetooth contacts)

Advantages:

- It tells how many COVID-19 positive cases are likely in a radius of 500 m, 1 km, 2 km, 5 km and 10 km from the user.
- The app is built on a platform that can provide an Application Programming Interface (API) so that other computer programs, mobile applications, and web services can make use of the features and data available in Aarogya Setu.

Disadvantage:

This is the major area of concern as the app's constant access to a phone's Bluetooth imposes a form of security threat.

2.Covid-19 Containment Zones and Monitoring Violators

Author:

Ranajoy Malik, Dilip Singh,

Methodology:

- Geofencing API from Android is used to create virtual boundaries or fences around geographical locations
- The application uses Firestore which is a flexible and scalable database for mobile, web and server developments from Firebase and Google cloud platform (Cloud Firestore 2020).
- In Cloud Firestore, the mobile application supports serverless app architecture where the application connects to the Cloud Firestore database directly without any intermediate servers in between (Cloud Firestore SDKs and client libraries 2020).
- The application receives data from the database using WebSocket.

Advantages:

- The application provides an efficient way of showing the identified Covid-19 containment zones to the users in a Google 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.

Disadvantage and future scope:

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

3.Covid Tracker Ireland

Author:

Government of Ireland Health Service Executive

Methodology:

- The COVID Tracker app uses Bluetooth Low Energy and Google's and Apple's Exposure Notifications System to generate notification.
- The app used GPS for location tracking.

Features:

- In this app the users can view the all the containment zone in map offered by this app
- In this the user can view the day-by-day report of covid in Ireland.
- The user can send the emergencies message to the helpline.

Advantages:

- The app shows nearby covid care centre.
- The app sends the details about the user who visiting the containment zone to the nearby covid controlling centre.

Disadvantages:

- The app didn’t manage the user’s privacy details.
- The app is very battery consuming
- Because of battery drainage problem people uninstalled the appications in few days

4.IMMUNI

Author:

Bending Spoons

Methodology:

- **Immuni** is an open-source COVID-19 contact tracing app used for digital contact tracing in Italy. It makes use of the Apple/Google Exposure Notification system
- The app written in Swift, Kolten and Python**.**
- The application used NoSQL database for storing data.

Advantages:

- The app contains all the containment in zones details in European countries.
- It will send the notification to the user before reaching the containment zone.

Disadvantages:

- The application only supports Apple I-phones.
- It just works like a notification sending application whenever reaching containment zones.

5.MOBILE GEO FENCING TRIGGERS FOR ALERTING ENTRIES INTO COVID – 19 CONTAINMENT ZONES USING IoT

Author:

M. V. Ramana Rao (Osmania University, India), Thondepu Adilakshmi (Vasavi College of Engineering, India), M. Gokul Venkatesh (Sidhartha Medical College, India) and Jothikumar R (Department of Computer Science and Engineering, Shadan College of Engineering and Technology, India).

Methodology:

IoTs provide the capability and enable the integration of heterogeneous physical devices and connecting them to the internet [3]. IoT has evolved and has a significant impact on various areas such as sensors and actuators, real time data analysis, machine learning, and embedded systems [3–5]. IoT and the cloud can also provide a platform to acquire human physiological data, shares it on the internet for monitoring and decisionmaking, and provides alerts in case of an emergency situation.

Features and Advantages:

- RSSI level and GPS-based Geo-fencing for isolation of COVID-19 susceptible and patients within a geographical area to restrict his/her movement to minimize the spread maximization;
- Raspberry Pi-based intelligent local server and ThingSpeak for diagnosing and remote monitoring of COVID-19 patients;
- Web application for patient condition and isolation activity monitoring;
- Web of Things based Application for the real-time patient monitoring and sensor data visualization by doctors and physicians, and patient in isolation activity monitoring.

Disadvantage:

- They didn’t classify the patient breathing patterns like normal, ataxic and air trapping.
- They didn’t implement anything to know patient severity of covid

Future Work:

To know breathing and coughing rate they planned to use gyroscope and accelerometer sensor.

6.APPLICATION FOR COVID-19 REAL TIME COUNTER

AUTHOR:

Omkar Dhok, Yash Dasouni, Harsh Dubey, Prasanna More

Technology Used:

1. Linux kernel
2. Java
3. SQLlite
4. Firebase
5. Google Map

Features and Advantages:

- The application can include various government organization to help act faster.
- The dataset obtained from the application can be used for predictive analysis to determine prone areas and include special method for tackling the problem in those areas.
- Emergency signal in case of network failure and internet connection loss.
- Tackling victim's movements.
- Improved Google positioning system's precision.
- The client part of application can be integrated in a single intelligent device.

Disadvantages:

For analytic they didn't used any Machine learning algorithm and data mining algorithm.

Future Work:

They planned to use time series analysis for data analytics.

7 MoveInSync's Containment Zone Tracker Aims At Democratising Information Flow

Author:

Videh Ranjan

Technology Used:

They have collaborated to validate and crowdsource the democratized data. MoveInSync leverages REST APIs to sync with the data and keep it updated every hour. They also leverage the Spring Thymeleaf to build dynamic HTML pages with dynamic OG tags. The map data is overlaid with the KMZ files to display the containment zone boundaries. For the tracker, we are leveraging Amazon Aurora Postgres SQL, Cloudwatch, Micrometer + Prometheus and Raygun Crash Monitoring to help us scale up. To provide perspective about the scale we are able to handle, with a p90 latency of 4ms, our peak load last week was over 12 million requests in a day.

Advantage and Features:

- The Application can track who reach containment zone.
- The application sends the details about the user to nearby local police station whom visit the containment zone.
- The application uses the google map to view the containment zone.

Disadvantages:

- The doesn't provide information about daily covid cases.
- Security thread.

8.Exposure Notifications: Help slow the spread of COVID-19

Author:

Ryan, Chris Paster and Jenifer.

Technology used:

- Python
- Fire base
- GPS tracker
- Kolten
- Dart

Advantages and Features:

- Once you opt-in to the notification system, the Exposure Notifications System will generate a random ID for your device. To help ensure these random keys can't be used to identify you or your location, they change every 10-20 minutes.
- Your phone and the phones around you will work in the background to exchange these privacy-preserving random keys via Bluetooth. You do not need to have the app open for this process to take place.
- Your phone periodically checks all the random keys associated with positive COVID-19 cases against its own list.
- If there's a match, you will receive a COVID-19 exposure notification, with further instructions from your public health authority on how to keep you and the people around you safe.

Disadvantage:

- Privacy theft
- It will send the when visiting the containment zone but it doesn't provide the list of containment zone.

9.Care Fiji

Author:

Government of Fiji

Technology used

- The app is based on the TraceTogether mobile application developed by the Singaporean Government.
- It uses bluetooth technology to track encounters between users and the data is anonymous and encrypted.
- The app is equipped with the QR check-in and check-out feature which allow individuals to scan QR codes in entry and exit of any business.

Advantages and Features:

- In this app the users can view the all the containment zone in map offered by this app
- The app is built on a platform that can provide an Application Programming Interface (API) so that other computer programs, mobile applications, and web services can make use of the features and data available in Aarogya Setu

Disadvantages:

- The app doesn’t provide any feature for helpline
- This is the major area of concern as the app's constant access to a phone's Bluetooth imposes a form of security threat

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