

Project Report

Team ID	PNT2022TMID24703
Project Name	Project - Containment Zone Alerting Application

1. INTRODUCTION

1.1 Project Overview:

Currently there are several research works undergoing in the country to prevent Covid-19 cases from rising. Previously our country was importing medical kits like PPE (Personal Protection Kits), mask from outside, but now it has been successful in developing these kits. Along with taking initiatives to fight this disease, our country has also taken steps to make people aware of the disease. The news and media have a great part in creating this awareness by informing the public about the preventive measures that can keep them away from infection. Awareness among the people to carry out all the preventive measures can immensely help to reduce spread of the virus. The country has created containment zones throughout the cities wherever Covid-19 cases have been reported to prevent further spread of the virus. These containment zones have been kept isolated from the outside public to ensure no contamination occurs outside. After more than 2 months of the lockdown, the government has relaxed some of the lockdown rules and has permitted reopening of government offices, bus and other road transportation facilities and shopping markets. People can move inside the city for work and other purposes. But the containment zones are still being kept isolated, and new containment zones are being formed wherever Covid-19 cases have been reported. These zones are highly contagious as droplets with virus coughed out from an unscreened asymptomatic patient can travel up to 8 m (Bahl et al. 2020). Though these containment zones are guarded by policemen, still there remains a chance that people might unknowingly step into them. In this situation where people can move in the city, these containment zones pose a risk of infection to these city dwellers. Therefore, informing people about the location of the containment zones can help them bypass and avoid these zones and thereby reduce the chance of community transmission. In this paper, we focus on developing a mobile based application to provide information regarding the Covid-19 containment zones in West Bengal. The application further tracks the user's location and provides notification alert if the user has entered a containment zone. The application also provides daily Covid-19 case statistics to the users to keep them updated. The application is developed on Android SDK and uses Firebase Cloud Firestore to store the location data. Android's geofencing client is used to create geofences around the containment zones and notification manager is used to provide notifications. The application also uses RESTful web services to show the Covid-19 cases in West Bengal. We have tested our application with different users in different locations across West Bengal and it works efficiently and is able to attain our target.

Purpose:

The Android application shows the location of the containment zones to the users. It also notifies the user when he or she trespasses the boundary of a containment zone or stays in the containment zones

2. LITERATURE SURVEY:

2.1 Existing problem:

People doesn't have proper knowledge about containment zones since they do changedaily and hard to keep updated and if they are not updated properly, they will lead to wide spread of disease.

2.2 References:

PAPER 1:

TITLE: Tracking the Covid zones through geo-fencing technique

AUTHOR NAME: Anto Arockia Rosaline R ,Lalitha R ,Hariharan G ,Lokesh **PUBLICATION YEAR:** 2017

DESCRIPTION:

Following the tracking of a suspicious person, the geo-fenced layer is mapped out in the vicinity, and the virtual perimeter is then employed for the subsequent trapping procedure. As soon as the Covid monitoring team updates this geo-fenced layer, the public can view it. The idea of creating a virtual perimeter region is known as geo-fencing. Effective containment zone monitoring is made possible by this virtual perimeter monitoring technology. By utilising an automated system based on wireless infrastructure, it lowers operational costs. Additionally, it promptly alerts the law enforcement to find the offenders. As a result, it facilitates the inspection of containment areas and the monitoring of those who disobey governmental regulations. Users can receive updates from the Covid team on the alert zone. The Covid team has a number of modules for suspect tracking, hotspot fencing, etc. The Covid team must seek a service from the service network provider in the case of suspect tracking, and following authorization, they will offer the coordinates. According to our telecommunication legislation, it is illegal to share data; nonetheless, exchanging personal information without the individual's knowledge via any means is occasionally allowed with governmental approval for investigative purposes.

3.IDEATION & PROPOSED SOLUTION

S.NO PARAMETER DESCRIPTION

	Problem Statement (Problem to be solved)	This application is intended to provide information about containment zones in a particular region by alerting people, through continuous
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1.		monitoring of an individual's location. Key benefits of the application are monitoring people's activity and alerting them of their safety movements
2.	Idea / Solution description	<p>The project aims at building an application that provides information about the containment zones of a particular region by continuously monitoring an individual's location. Location of the individual must be stored in the Database. Alerts are sent using the notification service.</p>
3.	Novelty / Uniqueness	<p>The uniqueness of containment zone alerting app is it shows the particular area of the district before the 100m, and the user's location history is stored in database and this app provides the precautions measurements ,list of immunity boosters, location of the vaccination providing places . it also gives the lis of the affected</p>

		and admitted patients and distarchged patients ,percentage of affecting by covid19
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4.	Social Impact / Customer Satisfaction	<p>Social Stigma is discrimination against a particular group of people, a place, or a nation in the form of a negative attitude. Public health emergencies (such as</p> <p>COVID-19 pandemic) are stressful situations for people and communities. Fear and anxiety with a lack of knowledge about the disease can lead to social .</p>
5.	Business Model (Revenue Model)	<p>We are going to add personal health tracker in subscription basis .so they can manage their health efficiently.</p>

6.	Scalability of the Solution	<p>In this modern world eventhough the covid pandemic threat is about to end there are high chance of pandemic or endemic .so this application is very useful in that situation and we can use this application in seasonal diseases</p>

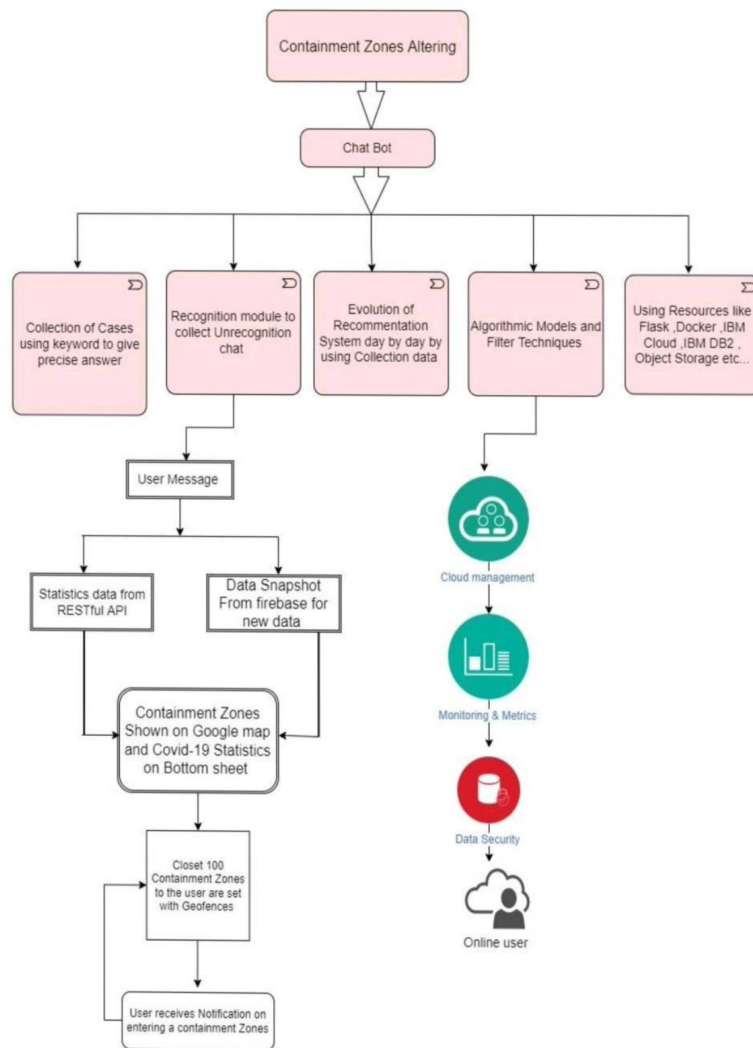
4.PROJECT DESIGN:

Data Flow Diagrams

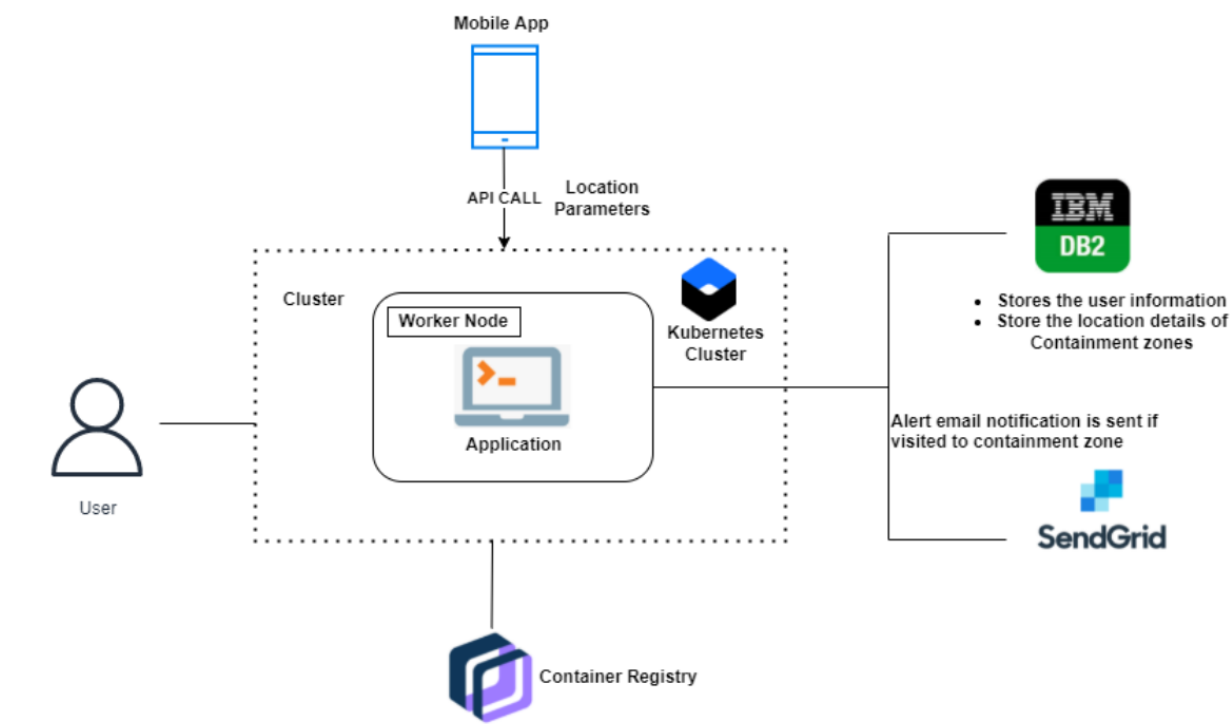
A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically.

It shows how data enters and leaves the system, what changes the information, and where data is stored.

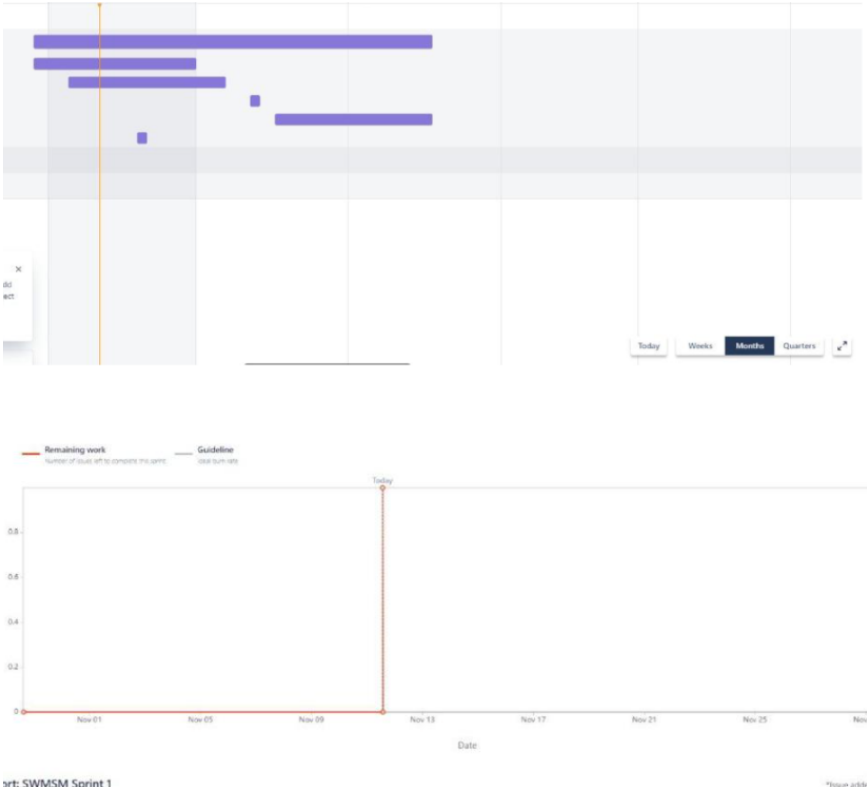
4.1.SOLUTION ARCHITECURE:

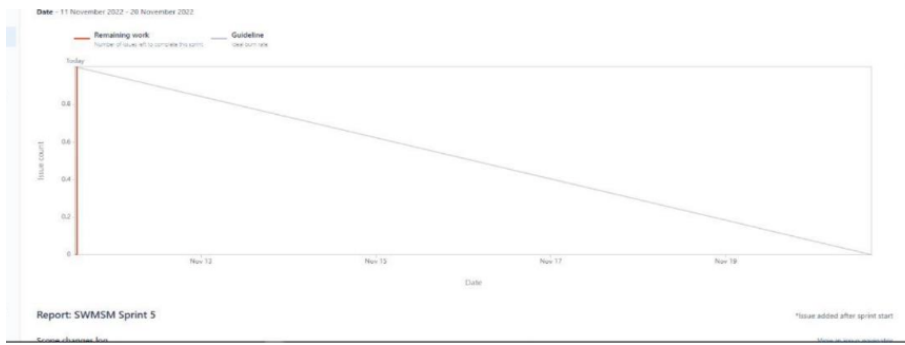


TECHNICAL ARCHITECTURE:

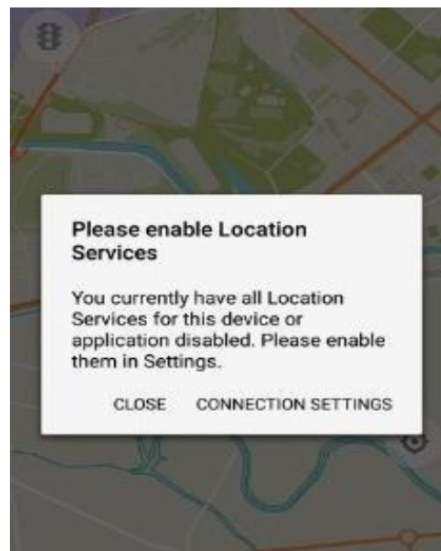
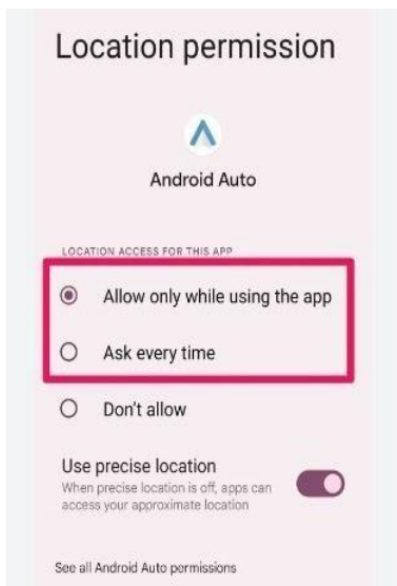


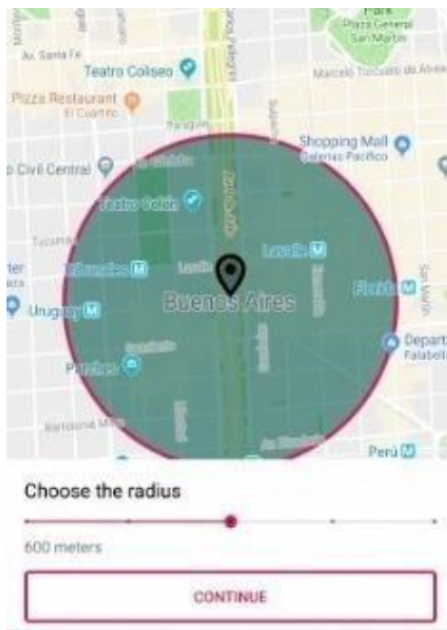
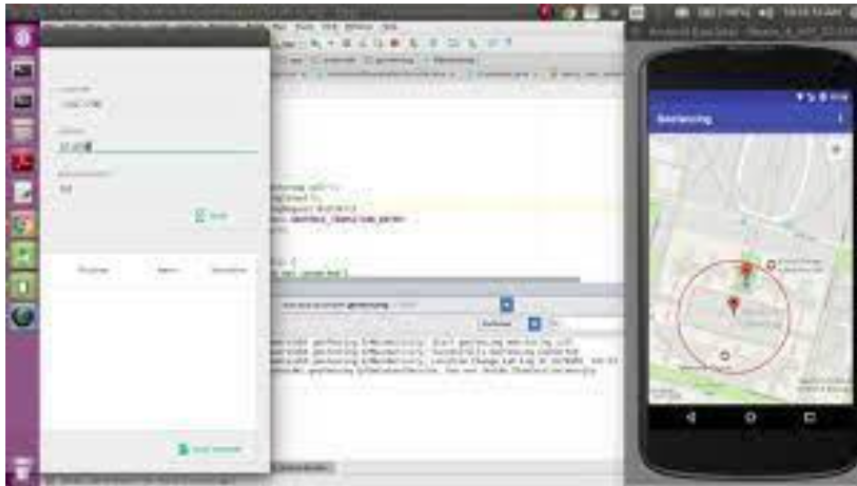
5. Reports from JIRA





6.SOLUTION



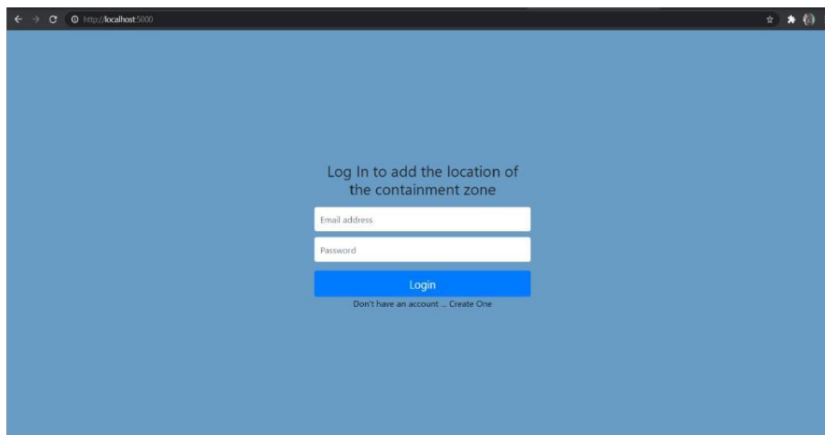


7.RESULTS:

UI Interact with Application:

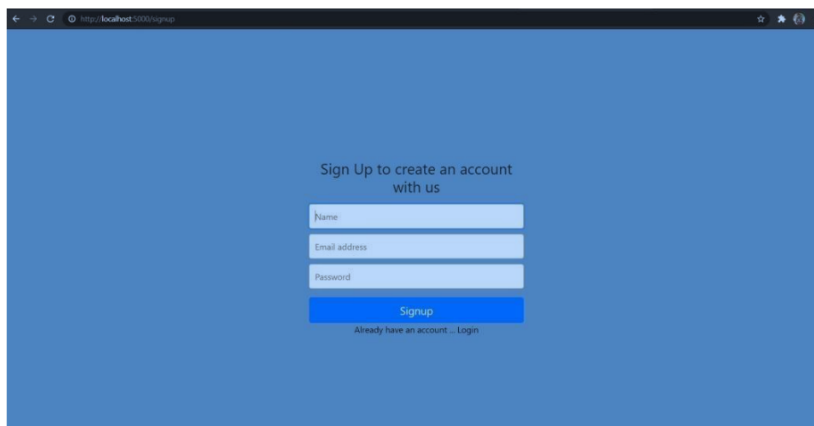
Admin App:

Login Page:



A screenshot of a web browser displaying a login page. The browser's address bar shows 'http://localhost:3000'. The page has a solid blue background. In the center, there is a white text prompt: 'Log In to add the location of the containment zone'. Below this prompt are two white input fields: 'Email address' and 'Password'. A blue button with the text 'Login' is positioned below the password field. At the bottom of the form area, there is a small link that reads 'Don't have an account ... Create One'.

Register page:



A screenshot of a web browser displaying a registration page. The browser's address bar shows 'http://localhost:3000/signup'. The page has a solid blue background. In the center, there is a white text prompt: 'Sign Up to create an account with us'. Below this prompt are three white input fields: 'Name', 'Email address', and 'Password'. A blue button with the text 'Signup' is positioned below the password field. At the bottom of the form area, there is a small link that reads 'Already have an account ... Login'.

8.CONCLUSION

This application is intended to provide information about containment zones in a particular region by alerting people, through continuous monitoring of an individuals location. Key benefits of

the application are monitoring peoples activity and alerting them to their safety movements.

9.FUTURE SCOPE

Although we tried to cover almost all of the aspects during our developmental phase, however we were forced to leave some aspects because of lack of time as well as monetary and other reasons. Just like in the field of software development where there are always some shortcomings and room for improvement our application can be enhanced further:-

- 1) The application can include various government organization to help act faster.**
- 2) 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.**
- 3) Emergency signal in case of network failure and internet connection loss. 4) Tackling victim's movements.**
- 5) Improved Google positioning system's precision.**
- 6) The client part of application can be integrated in a single intelligent device.**

For analysis purpose, we could use machine learning (ML) algorithms as well as data mining applications. There is a sub branch of machine learning known as time series analysis (TSA), which could be used to predict and analyze the data obtained through this application. Time series analysis is used to predict crop production as well as sales in different quarter.