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CHAPTER 1

INTRODUCTION

A containment zone alerting application is a mobile application that sends alerts to users when they enter or exit a containment zone. The app uses GPS to track the user's location and sends an alert if the user enters or leaves a containment zone. The app also allows users to setup alerts for specific containment zones.

1.1 PROJECT OVERVIEW:

The World Health Organization has declared the outbreak of the novel coronavirus, COVID-19 as pandemic across the world. With its alarming surge of affected cases throughout the world, lockdown and awareness (social distancing, use of masks etc) among people are found to be the only means for restricting the community transmission.

In a densely populated country like India, it is very difficult to prevent the community transmission even during lockdown without social awareness and precautionary measures taken by the people. Recently, several containment zones had been identified throughout the country and divided into red, orange and green zones, respectively. The red zones indicate the infection hotspot, orange zones denote some infection and green zones indicate an area with no infection. This paper mainly focuses on development of an Android application which can inform people of the COVID-19 containment zones and prevent trespassing into these zones.

1.2 PURPOSE:

Provide information about containment zones in a particular region by alerting people, through continuous monitoring of an individual's location. This Android application updates the locations of the areas in a Google map which are identified to be the containment zones. The application also notifies the users if they have entered a containment zone and uploads the user's info to the online database. To achieve all these functionalities, many tools and APIs from Google like Firebase and Geofence are used in this app. Therefore, this application can be used as a tool for creating further social awareness about the arising need of precautionary measures to be taken by the people of India.

CHAPTER 2

LITERATURE SURVEY

Introduction:

cloud application is software that runs its processing logic and data storage between 2 different systems: client-side and server-side.

The cloud also processing to create a containment zone alerting application to preventive the people from COVID -19 cases.

To informing people about the location of the containment zones can help them bypass and avoid these zones and thereby reduce the chance of spreading.

The application also provides daily Covid-19 case statistics to the users to keep them updated.

Problem Statement:

Containment Zone Alerting Application is the process that alert a people of the Covid-19 containment zones and prevent trespassing into these zones. This application updates the locations of the areas in a Google map which are identified to be the containment zones. Recently, several containment zones had been identified throughout the country and divided into red, orange and green zones. The red zones indicate the infection hotspots, orange zones denote some infection and green zones indicate an area with no infection. The application also notifies the users if they have entered a containment zone and uploads the user's IMEI number to the online database. So, people can get awareness about a current containment zone throughout the notification.

Serial no:	Application name:	Details from play store:	Comments:
1.	Aarogya Setu	<p>Aarogya Setu is a mobile application developed by the Government of India to connect essential health services with the people of India in our combined fight against COVID-19. The app is aimed at augmenting the initiatives of the Government of India, particularly the Department of Health, in proactively reaching out to and informing the users of the app regarding risks, best practices and relevant advisories pertaining to the containment of COVID-19 (Aarogya Setu 2020)</p>	<p>The application is developed by the government of India. It uses contact tracing technology with the help of bluetooth to check if a user comes near a Covid-19 patient</p>
2.	Corona watch	<p>This app is for showing the locations of Corona Affected Patients and their movement history of 14 days. General Public can use this to identify their movements in those areas. If found to be in such locations, they are requested to call help line numbers 104, 0846848600, 080 66692000. The app also facilitates citizens to identify the nearest hospitals which can treat for coronavirus including the sample collection centres and testing labs.</p> <p>Please visit: https://kgis.ksrsac.in/covid/ for other information (Corona watch 2020)</p>	<p>The application presents the locations of Covid-19 active and cured cases Karnataka in a map emergency helpline numbers, helps in locating medicinal facilities, home quarantined locations and spots visited by Covid-19 positive patients in the last 14 days</p>

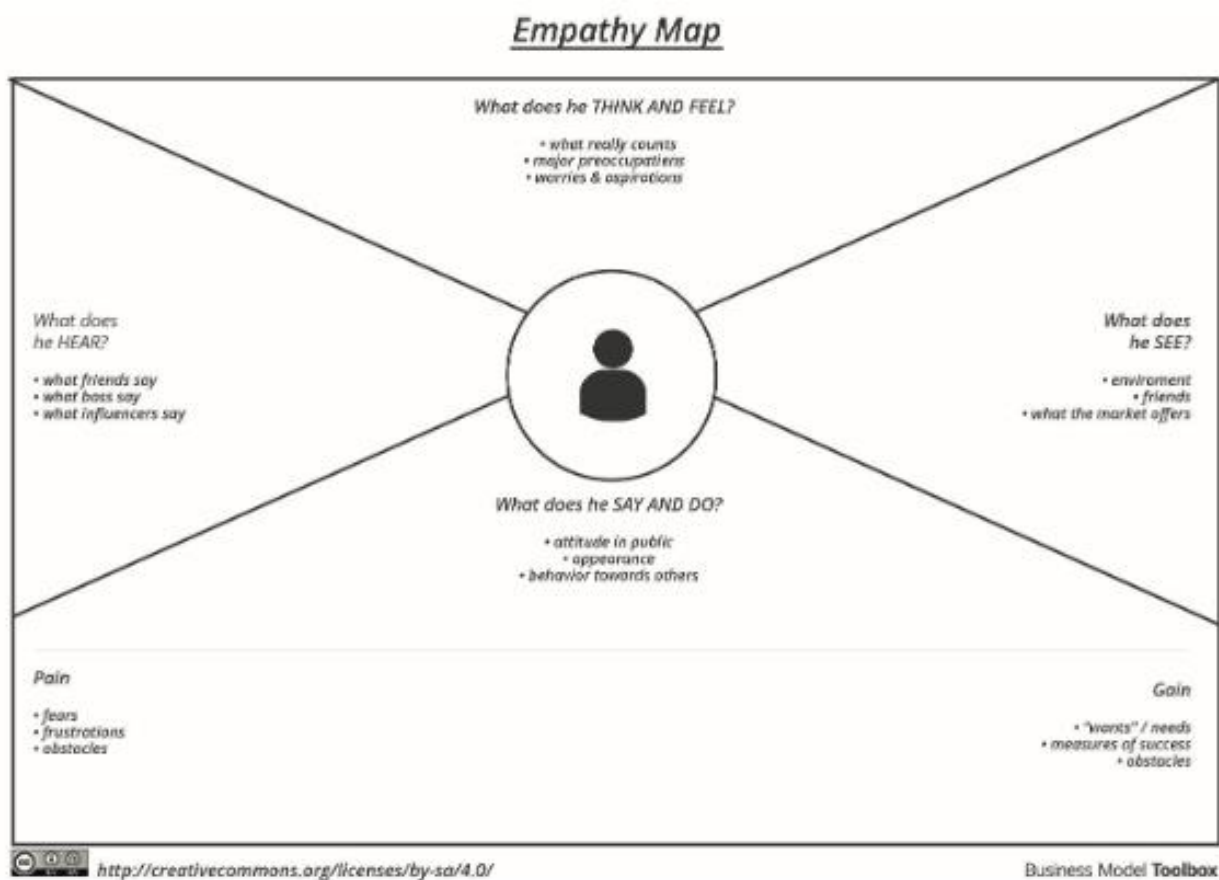
3.	COVID CARE	COVID CARE-Quarantine and Contact Health Tracing for Covid Suspects in Arunachal Pradesh (COVID CARE 2020)	The application provides means of self-updating body temperature and Covid-19 symptoms by people of Arunachal Pradesh, thereby helping to monitor them remotely
4.	COVID-19 Care Tamil Nadu- (Official)	COVID-19 Care is a mobile application developed by Bhishma Technology Private Limited for the Government of Tamil Nadu to connect essential health services with the people of Tamil Nadu in our combined fight against COVID-19. This app is aimed to reach out to people informing about the best practices and official updates pertaining to the containment of COVID-19 (COVID-19 Care Tamil Nadu-(Official) 2020)	The application shows the district wise COVID-19 cases in Tamil Nadu. It also shows the containment zones of the state. It provides help line numbers and bed availability of Covid-19 hospitals in all the districts
5.	COVID19 feedback	This app has been made in public interest to give information and capture feedback on any treatment undergone by individuals. The data will be used to highlight efficiencies, issues and process related changes that need to be undertaken (COVID19 feedback 2020)	The application provides a platform for getting feedback regarding Covid-19 tests and medical treatment from people who have undergone it

CHAPTER 3

IDEATION & PROPOSED SOLUTION

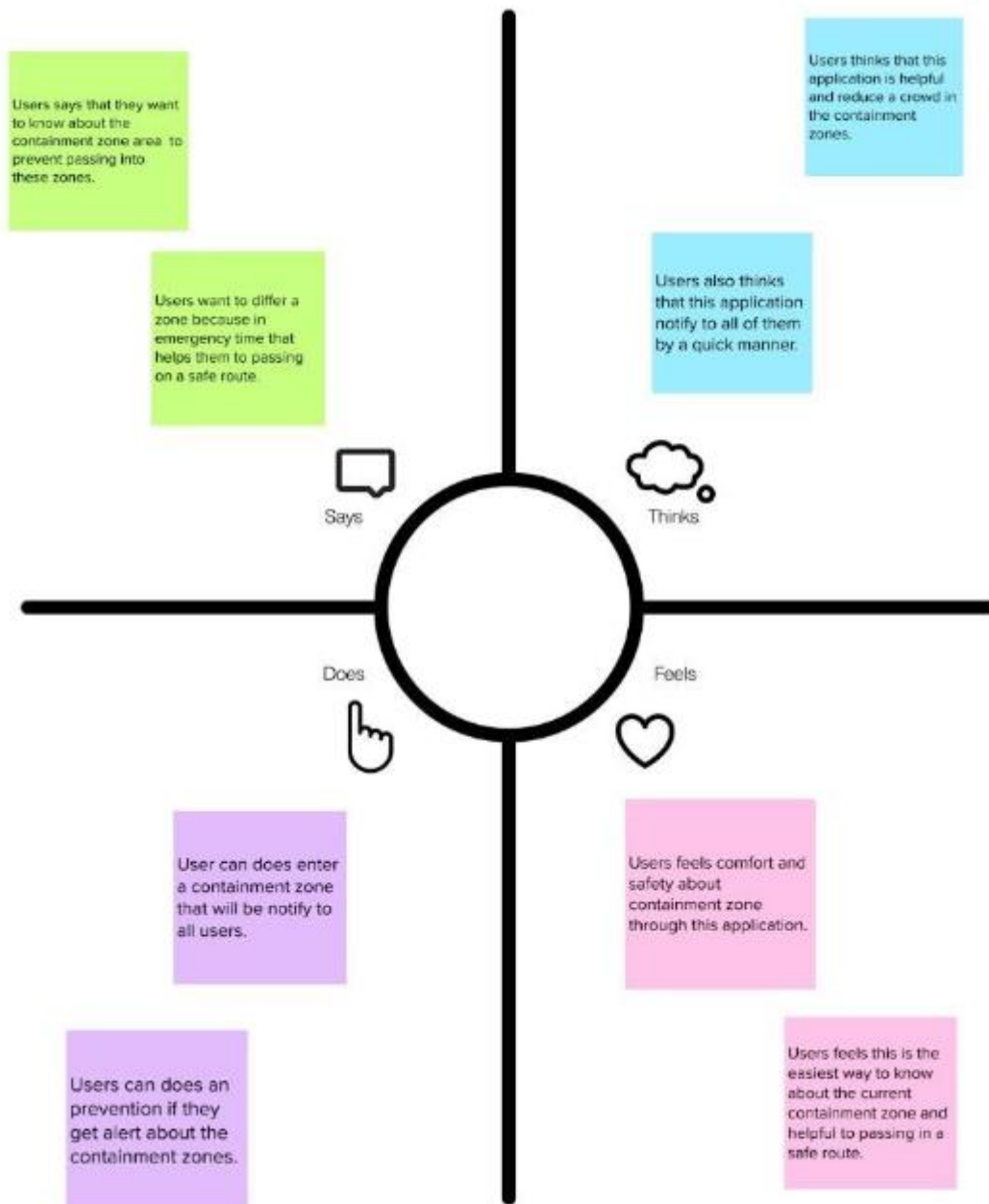
3.1 EMPATHY MAP CANVAS:

An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviours and attitudes. It is a useful tool to help teams better understand their users. Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges.



Reference: <https://www.mural.co/templates/empathy-map-canvas>


Containment zone alerting application



3.2 IDEATION & BRAINSTORMING:

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich Amount of creative solutions. Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room

Step-1: Team Gathering, Collaboration and Select the Problem Statement



Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

- 10 minutes to prepare
- 1 hour to collaborate
- 2-8 people recommended

Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

10 minutes

A Team gathering
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

B Set the goal
Think about the problem you'll be focusing on solving in the brainstorming session.

C Learn how to use the facilitation tools
Use the Facilitation Superpowers to run a happy and productive session.

[Open article](#)

1 Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

5 minutes

PROBLEM

How might we [your problem statement]?

Key rules of brainstorming

To run a smooth and productive session

- Stay in topic.
- Encourage wild ideas.
- Defer judgment.
- Listen to others.
- Go for volume.
- If possible, be visual.

Step-2: Brainstorm, Idea Listing and Grouping

2

Brainstorm

Write down any ideas that come to mind that address your problem statement.

🕒 10 minutes

TIP
You can select a sticky note and hit the pencil (switch to sketch) icon to start drawing!

Shyam Chander SP

Alert using location	Lifesaver	People health
Vaccination	Import medicine	Lockdown
Financial Loss	Quarantine	No Job

Veera Kishore P

Analysis	Update zone	Covaxin
Pandemic	Wear mask	Safety App
Update Spreaded zone	User Information	Vaccination Place and Time

Tharmarajan S

Saftey	Easy to use	Hospital Bed Allocation
Lockdown	No Job	Vaccination Place and Time
New Covid Updates	Helps easily to find the Corona ward	Treatment

Vigneshwaran S

First Aid Treatmetn	e pass	Sanitizer
Alert Spreaded zone	Un safe zone	New Covid Updates
Use app to find an alertment zone	Safe and Secure	Location

3

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

🕒 20 minutes

TIP

Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.

Zone Identification

Finding the containment zone based on the location

Using information from hospital and take data analysis and allocate zone

Containment zone shown in Google Map

Notify on visited zones removed from containment

Decentralized zone information

To make the user to easily access we can provide Covid Statistics on a bottom sheet in Google Map

Alert User

Containment zone shown in Google Map

By using other user information weather he have corona or not and depends on zone

Closest 50 containment zone to the user are set with geofences

Provides notification alert if the user has entered a containment zone

24/7 Monitoring of affected zone and alerting it

By sending SMS the user can be alerted

User Tracking

Android's geofencing client is used to create geofences around the containment zones.

By GPS

Cellular triangulation for tracking

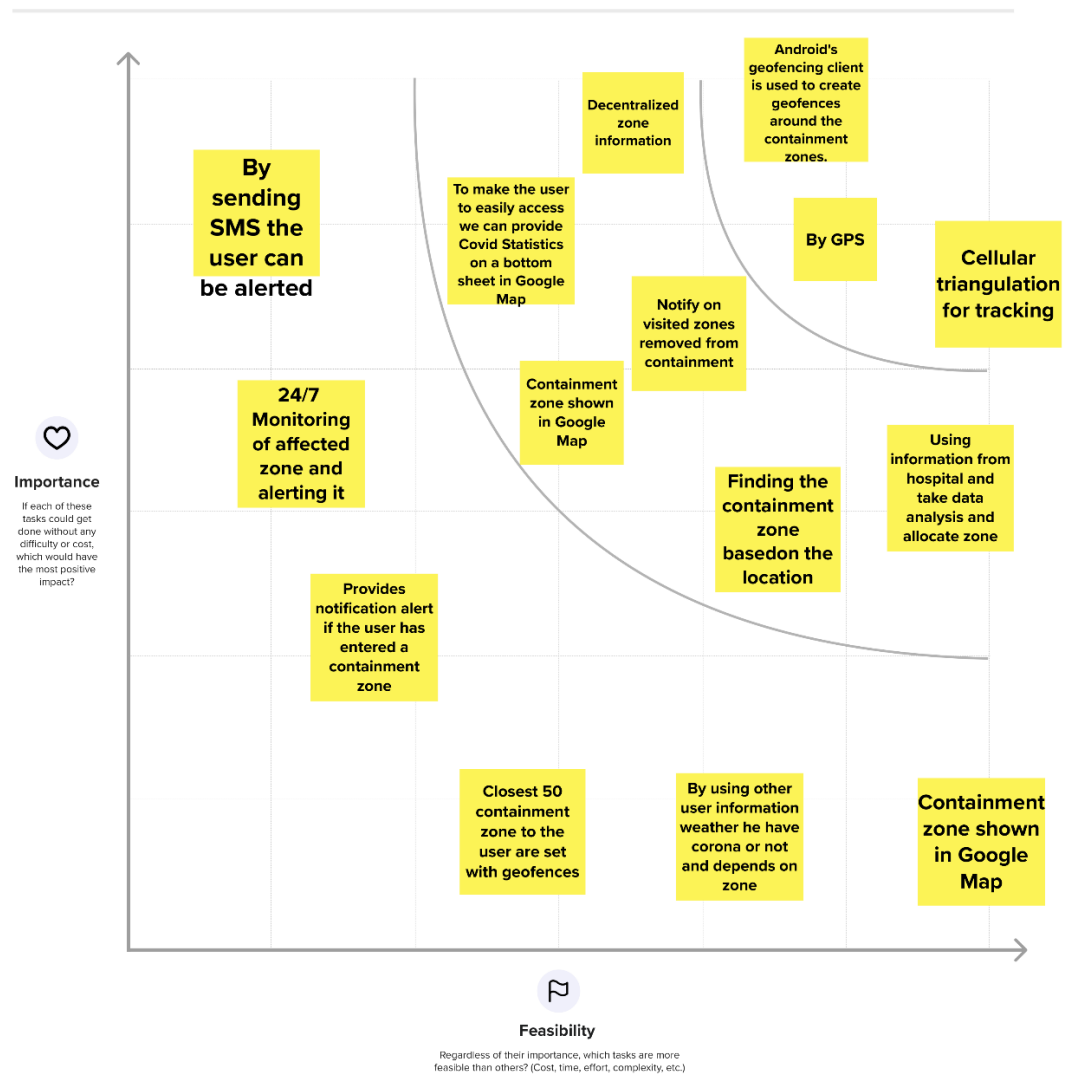
Step-3: Idea Prioritization

4

Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

🕒 20 minutes



3.3 PROPOSED SOLUTION:

Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

Parameter Description:

1. Problem Statement (Problem to be solved)

To Provide information about the containment zones in a particular region by alerting the people trespassing the region through continuous monitoring of their location.

2. Idea / Solution description

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 of the individual must be stored in the Database Alerts are sent using the notification service.

3. Novelty / Uniqueness

The uniqueness of containment zone alerting app is it shows the particular area of the district before the 100 meter, 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 list of the affected and admitted patients and discharged patients percentage of affecting by covid19.

4. Social Impact / Customer Satisfaction

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 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 stigma. The containment zone alerting app users are 100% satisfied because of its immediate notification of a particular area it provides the precautions and awareness about COVID-19.

5. Business Model (Revenue Model)

When User enters some other region which is not the user's home region, user has to subscribe in order to view the containment zones in the new region, in addition subscribing to personal health tracker allows the user to manage his health efficiently.

6. Scalability of the Solution

In this modern world even though the COVID pandemic threat is about to end there are high chances of pandemic or endemic. So, this application is very useful in that situation and we can use this application in seasonal diseases.

3.4 PROBLEM SOLUTION FIT:

Define CS, Fit in CC	1. CUSTOMER SEGMENT(S) CS Product user is our customer	6. CUSTOMER CONSTRAINT. CC What constraints prevent your customer from taking action or limit their choice? Solution Available devices Budget Network connection Power usability	5. AVAILABLE SOLUTION AS Which solutions are available to the customers when they face the problem or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? i.e pen and paper is an alternative to digital notetaking	Explore AS, Differentiate
	2. JOBS-TO-BE-DONE/PROBLEMS J&P Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one; explore different sides.	9. PROBLEM ROOT CAUSE. RC What is the real reason that their problem exists? A failure situation on the network usually generates multiple alerts, because a failure condition on one device may render other devices inaccessible.	7. BEHAVIOR BE Find the right containment zone app installer.	
Focus on J&P, Tap into BE, Understand RC	3. TRIGGERS ER In automated system, presence of people were entered into the containment zone. Then the app identified location and will notification then will in turn triggers the containment zone.	10. YOUR SOLUTION RC Identified the containment zone and alerts the people through the message in your mobile phone from anywhere and anyplace.	8. CHANNELS OF BEHAVIOR CH In automated system, presence of people were entered into the containment zone. Then the app identified location and will notification then will in turn triggers the containment zone.	Identify string TR & ME
	4. EMOTIONS: BEFORE/AFTER TM Product user feel when they face a problem or error? Data lost Insecure Network error Connectivity issues.			

CHAPTER 4

REQUIREMENT ANALYSIS

Project Description:

Project Idea:

This application is intended to provide information about containment zones in a particular region by alerting people, through continuous monitoring of an individual's location. Key benefits of the application are monitoring people's activity and alerting them of their safety movements.

Solution Requirements:

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.

4.1 FUNCTIONAL REQUIREMENTS:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story/Sub-Task)
FR-1	User Registration	Registration through Mobile number. Registration through Gmail.
FR-2	User Confirmation	Confirmation via Email. Confirmation via OTP.
FR-3	App Permissions	Enabling location Access (Mandatory) Permission to Media Access Permission to Camera.
FR-4	Connectivity	The user and server were connected through the Internet.
FR-5	Data fetching	The Users Personal data and a result of self analysis updated with app server.
FR-6	Support functions	The Users gets teleconsultation using helpline and supports by chatbot.
FR-7	End user benefits	To protect the people from the diseases spread by knowing containment zones using contact tracing.

4.2 NON-FUNCTIONAL REQUIREMENT:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	It is an effective way to find a containment zone. It can be easily accessed by everyone.
NFR-2	Security	It is secured because confirmation through User own Email or OTP and also the data were stored in encrypted format to maintain anonymity.
NFR-3	Reliability	It is a high reliability based on development and deployment.
NFR-4	Performance	High efficiency outcomes with respect to simple user interface.
NFR-5	Availability	Anyone from anywhere can access it through internet.
NFR-6	Scalability	It has ability to handle a growing user base without affecting the user experience and app performance.

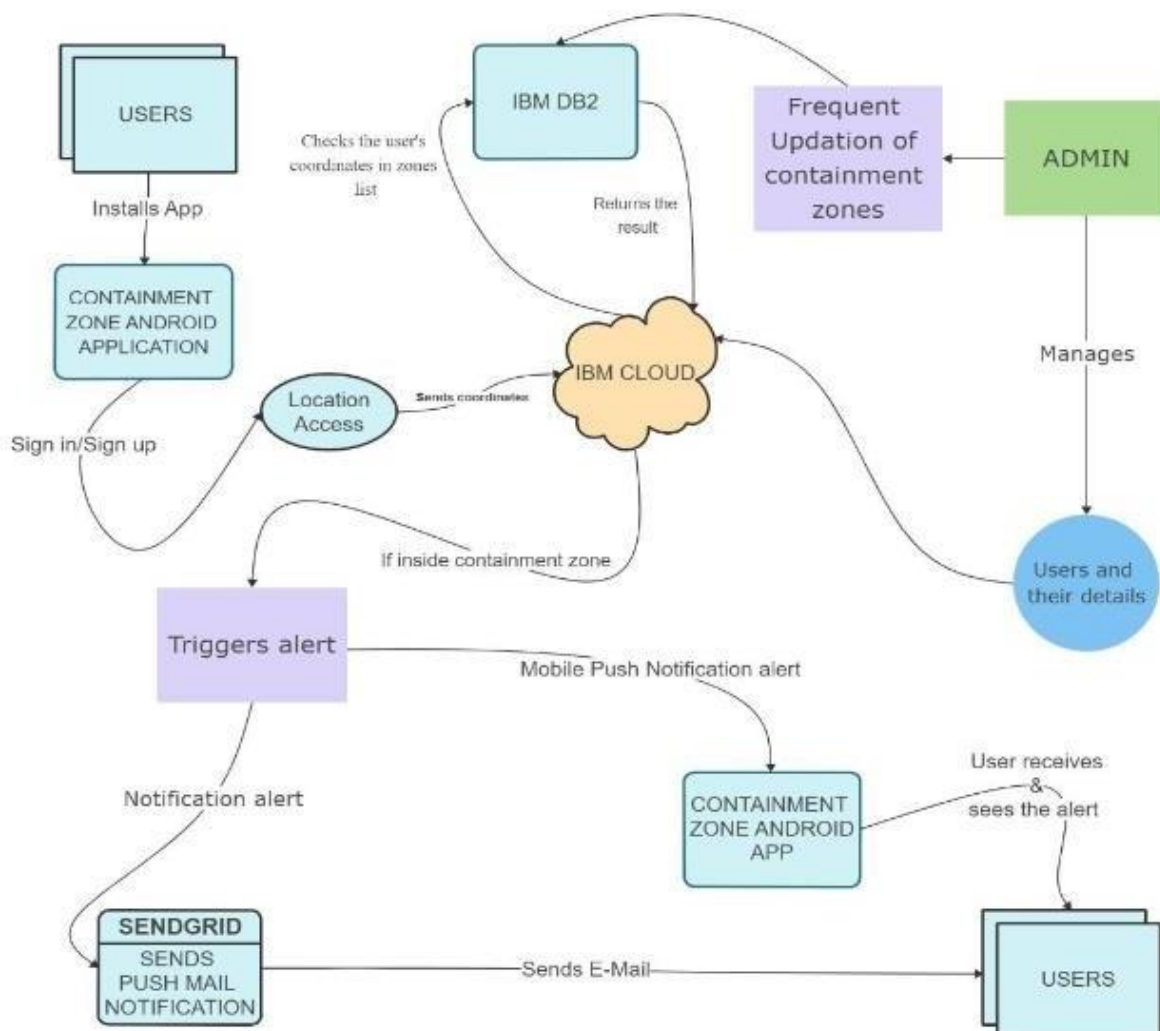
CHAPTER 5

PROJECT DESIGN

5.1 DATA FLOW DIAGRAMS:

DataFlowDiagrams:

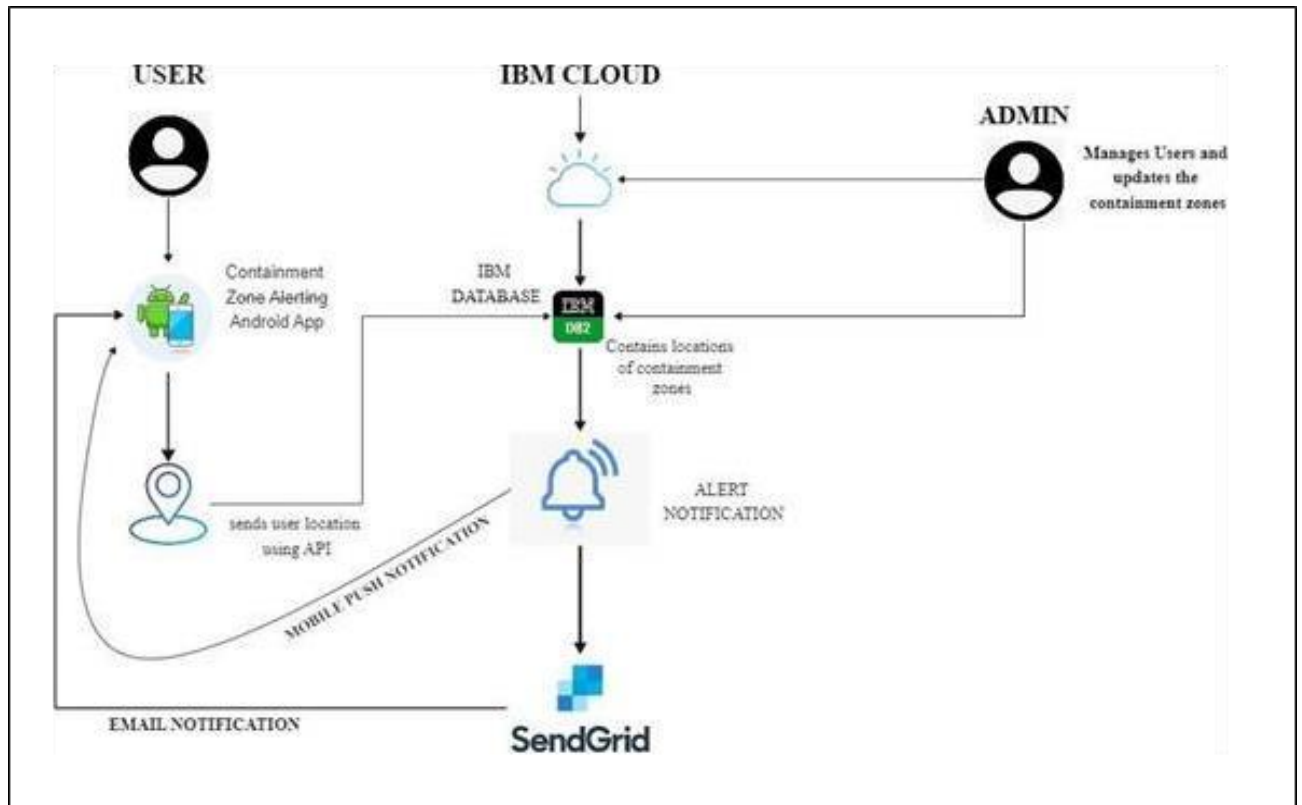
A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.



5.2 SOLUTION & TECHNICAL ARCHITECTURE

Technical Architecture:

The Deliverables shall include the architectural diagrams as below and the information as per the table 1 & table



Guidelines:

1. Include all the processes (As an application logic/Technology Block)
2. Provide infrastructural demarcation (Local/Cloud)
3. Indicate external interfaces (third party API's etc.)
4. Indicate Data Storage components/services
5. Indicate interface to machine learning models (if applicable)

Table-1:Components&Technologies:

S.No	Component	Description	Technology
1.	UserInterface	The user can interacts with our application with the help of Chatbot, etc.	HTML, CSS, JavaScript
2.	ApplicationLogic	The user can login with application, by previously registered in our web app.	Java/Python
3.	CloudDatabase	The user data will be stored and retrieved with the help of this database.	IBM DB2
4.	FileStorage	The user documents like personal details, tracking documents and much more will be stored in cloud bucket etc.,	IBM Block Storage or Other Storage Service or Local File system
5.	ExternalAPI	With the help of API, the user can track the location	IBM API, etc.
6.	Infrastructure(Server/Cloud)	Application Deployment on Local System/ Cloud	Local, Cloud Foundry, Kubernetes, etc.

UserStories:

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN - 1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint – 1
		USN - 2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint – 1
		USN – 3	As a user, I can register for the application through Gmail.	I can register & access the dashboard with Google	Medium	Sprint – 1
	Login	USN – 4	As a user, I can log into the application by entering email & password.	I can see the homepage	High	Sprint – 1
	Dashboard	USN – 5	As a user, I can see the options available for User account.	I can see the dashboard	Medium	Sprint – 2
	Background running	USN – 6	As a user, I allow the app to run in background.	I should change the app settings to run app in background	High	Sprint – 2
	GPS	USN – 7	As a user, I allow the app to access my location.	I should accept the permission to access my location.	High	Sprint - 2
	Google Maps	USN – 8	As a user, I can see the containment zones using the maps via Google Maps.	I should accept location permission	High	Sprint – 3
	Notification	USN – 9	As a user, I allow notification access for the application.	I should allow notification access	High	Sprint – 3
Administrator	Login	USN - 1	As admin, I log into the administrator portal.	I can access the admin account.	High	Sprint – 1
	Cloud	USN – 2	As admin, I use the cloud services to maintain users and the contaminated zones data.	I work with cloud services	High	Sprint – 2
	Cloud Database	USN – 3	As admin, I store the user details in the cloud database.	I get the details of the user and store in the cloud database.	High	Sprint – 2
	Maps	USN – 4	As admin, I will enter the containment zone's location.	I should enter correct co-ordinates of containment zones	High	Sprint – 3
	Mail	USN – 5	As admin, I set up a mail system to alert users when they enter a containment zone.	I use online mail system to send mail to users	High	Sprint – 3
	Updating	USN – 6	As admin, I should frequently update the details and the location of the containment zones.	I fetch data from internet and update the zones and the relevant details.	High	Sprint – 4

CHAPTER 6

PROJECT PLANNING & SCHEDULING

6.1 SPRINT PLANNING & ESTIMATION:

Product Backlog, Sprint Schedule, and Estimation

Use the below template to create product backlog and sprint schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story/Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	User I can register for the application by entering my email and password	3	Medium	Tharmarajan SShyamChander SP Veera Kishore PVigneshwaranS
		USN-2	User I will receive a confirmation email once I have registered for the application	3	Medium	Tharmarajan SShyamChander SP Veera Kishore PVigneshwaranS
	Login	USN-3	User I can log into the application by entering my email & password	2	Low	Veera Kishore PVigneshwaranS
Sprint-2	Dashboard	USN-4	User I need to give permission to access my location	5	High	Tharmarajan SShyamChander SP Veera Kishore PVigneshwaranS
		USN-5	User I can view the map with the containment zones	5	High	Tharmarajan SShyamChander SP
	Service	USN-6	Admin I need to update the containment zones	5	High	Tharmarajan SShyamChander SP

Sprint	Functional Requirement(Epic)	User Story Number	UserStory/Task	Story Points	Priority	TeamMembers
Sprint-3	Service	USN-7	Admin I need to differentiate the containment zones based on the intensity of infection	3	Medium	Tharmarajan SShyamChanderSP Veera Kishore PVigneshwaran S
		USN-8	Admin I need to provide precautionary measures when they travel	3	Medium	TharmarajanSShyamChanderSP
		USN-9	Admin I need to provide information about the nearby hospitals	2	Low	Veera Kishore PVigneshwaran S
Sprint-4	Service	USN-10	Admin I need to alert the user when they enter the containment zone through email or SMS	5	High	Tharmarajan SShyamChanderSP Veera Kishore PVigneshwaran S
		USN-11	Admin I need to provide medical recommendations by collaborating with hospitals	2	Low	Veera Kishore PVigneshwaran S
	Data Collection	USN-12	Admin I need to store user details on the cloud	5	High	Tharmarajan SShyamChanderSP Veera Kishore PVigneshwaran S
		USN-13	Admin I need to collect details about covid-19 cases from verified sources	5	High	Tharmarajan SShyamChanderSP

ProjectTracker, Velocity&Burndown Chart:

Sprint	Total Story Points	Duration	Sprint StartDate	Sprint End Date(Planned)	Story Points Completed (as onPlannedEndDate)	Sprint Release Date(Actual)
Sprint-1	20	6 Days	24Oct2022	29Oct2022	20	29OCT2022
Sprint-2	20	6 Days	31Oct2022	05Nov2022	20	05NOV2022
Sprint-3	20	6 Days	07Nov2022	12Nov2022	20	12NOV2022
Sprint-4	20	6 Days	14Nov2022	19Nov2022	20	10NOV2022

Velocity:

Imagine we have a 10-days sprint duration, and the velocity of the team is 20

(points per sprint). Let's calculate the team's average velocity (AV) per iteration unit (story points per day).

$$AV = \frac{\text{sprint duration}}{\text{velocity}} = \frac{20}{10} = 2$$

Burndown Chart:

A burn down chart is a graphical representation of work left to do versus time. It is often used in agile software development methodologies such as Scrum. However, burndown charts can be applied to any project containing measurable progress overtime.

<https://www.visual-paradigm.com/scrum/scrum-burndown-chart/>

<https://www.atlassian.com/agile/tutorials/burndown-charts>

Reference:

<https://www.atlassian.com/agile/project-management>

<https://www.atlassian.com/agile/tutorials/how-to-do-scrum-with-jira-software>

<https://www.atlassian.com/agile/tutorials/epics>

<https://www.atlassian.com/agile/tutorials/sprints>

<https://www.atlassian.com/agile/project-management/estimation>

<https://www.atlassian.com/agile/tutorials/burndown-charts>

CHAPTER 7

CODING & SOLUTIONING

7.1 FEATURE-1

In this page, the user can add the zone list, remove zone and add zone.

CODING:

```
<!DOCTYPEhtml>
<html lang="en">
<head>
</head>
<body>
  <style>html
, body{
  overflow-x:
  hidden; overflow-y:
  hidden; height: 100
  %;
  width:
  100%; position: ab
  solute;
  background-color: black;
  background-image:
  url('https://wallpapercave.com/wp/5KLTq1z.jpg'); background-
  repeat: no-repeat;
  background-size:
  cover; background-
  position: top; z-index: -2;
}

#display{
```

```
        color:
        white;font-size:
        2.9em;top:10px;
        border-bottom:thin solid;
padding-bottom:
20px;opacity:0.80;
        filter:alpha(opacity=80);/*ForIE8andearlier*/
    }
```

```
#date{
    color:
    white;font-
    size:1.3em;
    font-
    family:Georgia,"TimesNewRoman",Times,serif;font-
    weight:normal;
    letter-spacing:
    0.2em;opacity:0.6;
    filter:alpha(opacity=60);/*ForIE8andearlier*/
}
```

```
#footer{ width:
    100%;height:
    40px;
    position:
    fixed;bottom:-
    1px;
    background-color:
    white;text-
    align:center;opacity:0.5;
    filter:alpha(opacity=50);/*ForIE8andearlier*/
}
```

```
#line{
  width:
  100%;bottom:
  4em;position:fi
  xed;
  border-bottom:solidwhite;
```

```
padding:
15px;opacity: 0.5;
  filter:alpha(opacity=50);/*ForIE8andearlier*/
}
```

```
.navbar{position
:
fixed;width:10
0%;
opacity:0.6;
filter:alpha(opacity=60);/*ForIE8andearlier*/
}
```

```
.wrapper{
  background-color:red;
}
```

```
span{
  border-radius:
  100px;opacity:0.75;
  filter:alpha(opacity=75);/*ForIE8andearlier*/
}
```

```
#content{height:
```

```
45em;
}p{
max-width:
30em;color:
white;
font-
family:"AdobeCaslonPro","HoeflerText",Georgia,Garamond,Times,serif;letter-
spacing:0.1em;
text-
align:center;margi
n:40pxauto;

text-transform:
lowercase;line-
height:145%;
font-size:2em;
font-variant:small-caps;
}

p :hover{
text-decoration:none;
}

.container{padding
-top: 6em;text-
align:center;
}

#b-nav{
padding-bottom:
5em;position:fixed;
width:
```

```
100%;bottom
```

```
:2em;
```

```
}
```

```
#b-nav
```

```
ul{ margin:
```

```
0;padding:0.5em
```

```
;
```

```
list-style-type:
```

```
none;text-align:
```

```
center;
```

```
}
```

```
#b-nav ul li {display:inline;
```

```
}
```

```
#b-navullia{
```

```
text-decoration:
```

```
none;padding: .2em
```

```
1em;background-color:
```

```
black;opacity:0.4;
```

```
filter:alpha(opacity=40);/*ForIE8andearlier*/
```

```
}
```

```
.hold{
```

```
width:
```

```
100%;text-
```

```
align:left;
```

```
}
```

```
#gen{
```

```
outline:none;padding
```

```
-top: 5px;text-
```

```
decoration:
none;opacity:0.6;
background-color:
black;color:white;
border:thinsolidwhite;h
eight:40px;
width:
100px;border-
radius:
2px;transition:
0.5s;
padding-bottom:5px;
}
```

```
#gen:hover{
```

```
background-color:
white;color:black;
border: thin solid
black;opacity:0.8;
}
```

```
#gena{
text-decoration:none;
}
```

```
#date{
color:white;
}
```

```
@mediascreen
and(max-device-width:800px)and
```

```
(max-device-height: 640px)and (-
webkit-device-pixel-ratio: 2)and
(orientation:portrait){
  p{
    font-size:1em;
  }
}
```

```
.fa-twitter{
  font-size: 30px
  !important;margin-
  left:20px;
}
```

```
</style>
```

```
<linkrel="stylesheet"type="text/css"href="https://cdnjs.cloudflare.com/ajax/libs/font-
awesome/4.7.0/css/font-awesome.min.css">
```

```
<bodyonload="startTime();startDate()">
```

```
<divclass="container">
```

```
<divid="date"></div>
```

```
<divid="display"></div>
```

```
<divid="content">
```

```
<divclass="logged"></div></p>
```

```
<pid="quote">"SUCCESSFUL!"</p>
```

```
<a href="\table"><buttontype="button">ZONELIST</button></a>
```

```
<a href="\addzone"><buttontype="button">ADDZONE</button></a>
```

```
<a href="\removezone"><buttontype="button">REMOVEZONE</button></a>
```

```
</div>
```

```
</div>
```

```
</body>
```

</html>

7.1 FEATURE-2

The users get alerted from entering the contaminated zone by geofencing the location and sending it as notification.

CODING:

```
<!DOCTYPEhtml>
```

```
<html lang="en">
```

```
<head>
```

```
</head>
```

```
<body>
```

```
<style>html,
```

```
body{
```

```
background:
```

```
#333;
```

```
height:100%;ove
```

```
rflow:
```

```
hidden;text-
```

```
align:center;
```

```
}
```

```
.svg-wrapper
```

```
{height:60px;
```

```
margin: 0
```

```
auto;position:relative
```


;

```
transform: translateY(-
50%);width:320px;
}
```

```
.shape{
fill:transparent;
stroke-dasharray:140540;
stroke-dashoffset: -
474;stroke-width:
8px;stroke:#19f6e8;
}
```

```
.text{
color:#fff00;
font-
family:'RobotoCondensed';font-
size:22px;
letter-spacing:
8px;line-height:
32px;position:
relative;top:300px;
}
```

```
@keyframes draw
```

```
{0%{
```

```
stroke-dasharray:140540;
```

```
stroke-dashoffset: -
```

```
474;stroke-width: 8px;
```

```
}100%
```

```
{
```

```
stroke-dasharray:760;
```

```
stroke-dashoffset:
```

```
0;stroke-width:2px;
```

```
}
```

```
}
```

```
.svg-wrapper:hover.shape{
```

```
-webkit-animation:0.5sdrawlinearforwards;
```

```
animation:0.5sdrawlinearforwards;
```

```
}
```

```
</style>
```

```
<formaction="/loc"method="POST">
```

```
<br>
```

```
<br>
```

```
<input type="text" name="mail" class="input" id="mail" style="position: absolute;
left:20%; margin-left: 180px; width: 400px; height: 25px; background:grey ; border: 8px
solidblack;top:250px" placeholder="Enteremail-id" required>
```

```
<divclass="svg-wrapper">
```

```
<div>
```

```
<button type="submit" id="button" class="text"
style="color:yellow;top:300px;background-
color:#99ffff"><a href="/loc">Notifyme</a></button>
```

```
<pstyle="color:yellow;font-size:18px;top:300px">EnteremailaddresstobenotifiedonandClick
onNotifymetogetalertmessageifyou are inContainmentZone</p>
```

```
</div>
```

```
</form>
```

```
</div>
```

```
</body>
```

```
</html>
```

7.2 DATABASE SCHEMA



CHAPTER 8

TESTING

8.1 TESTCASES

1. Loginbuttonclick withwrong credentialsentered.
2. SignupwithalreadyregisteredmailID.
3. Signupwithwrongformdataentered.
4. Entering homepagewithloggedoutsession.
5. Clickinghomepagebuttonswithloggedoutsession.
6. Invaliddataenteredinchangepasswordpageandrequestedfor changein password.

8.2 USERACCEPTANCETESTING

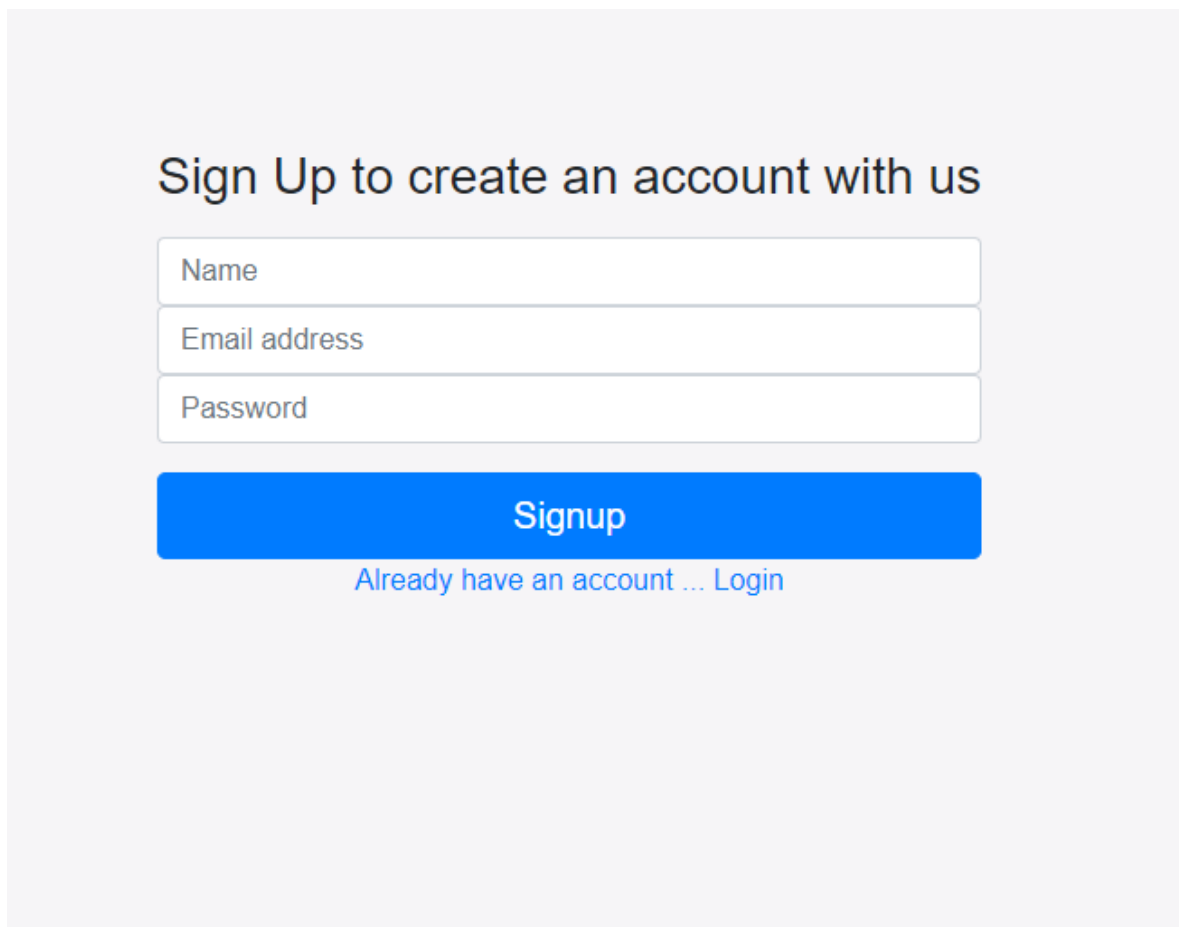
S.NO	TEST CASE	REQUIRED OUTPUT	RESULT OUTPUT	STATUS
1	Login button click with wrong credentials	Wrong credentials entered notification	Wrong credentials entered notification	ACCEPTED
2	Signup with already registered mail ID.	Email already registered notification	Email already registered notification	ACCEPTED
3	Signup with wrong form data entered.	Wrong credentials entered notification	Wrong credentials entered notification	ACCEPTED
4	Entering home page with logged out session.	Take user to login page	Take user to login page	ACCEPTED
5	Clicking home page buttons with logged out session.	Take user to login page	Take user to login page	ACCEPTED
6	Invalid data entered in change password page and requested for change in password.	Wrong form data entered notification	Wrong form data entered notification	ACCEPTED

CHAPTER 9

RESULTS

9.1 PERFORMANCE METRICS

This app service monitors the location and provides information about the contaminated zones near a particular user and sends notification to the user. It displays the contaminated zone area by geofencing the particular location.



Sign Up to create an account with us

Name

Email address

Password

Signup

[Already have an account ... Login](#)

REGISTRATION FORM

Log In to add the location of the containment zone

Login

[Don't have an account ... Create One](#)

LOGIN FORM

Declare Containment Zone

welcome: admin

Lat.: Long.:

Get current Location: Current Location (Click this first)

Declare Containment Zone

Tutorial

1. Select The Location By Clicking the Current Location Button
2. Drag the Pin to change the location

ADD CONTAINMENT ZONE

http://localhost:5000/data

Location data and Visited People

S.No	Latitude	Longitude	No_Visited
1	13.069148883848849	80.17551259999999	0
2	13.068498821079215	80.1704513893799	0
3	12.979174795975714	77.59973092596437	0
4	14.469858338289407	75.91959519903565	0
5	13.062359612480321	77.5638966135254	0
6	15.840542738858232	76.64209647695924	0
7	15.3172775	75.7138884	0

Go to location update Page

DISPLAY THE CONTAINMENT ZONE UPDATION DATA

9:06

Client_Containment

Sign Up

Name

Email

Password

SIGN UP

9:07

Client_Containment

13.06816/80.17039

USER SIGNUP AND CURRENT LATITUDE IN ANDROID APPLICATION



NOTIFY THE CONTAINMENT ZONE TO THE USER

CHAPTER 10

ADVANTAGES&DISADVANTAGES

10.1ADVANTAGES&DISADVANTAGES

The main advantage of containment zone alerting applications is that they can help to prevent the spread of diseases by alerting people to areas where there is a risk of infection. However, there are also some disadvantages to these applications, including the potential for false alarms and the possibility that people may ignore the warnings. This application is intended to provide information about containment zones in a particular region by alerting people, through continuous monitoring of an individual's location. Key benefits of the application are monitoring people's activity and alerting them of their safety movements.

CHAPTER 11

CONCLUSION

We proposed a framework for identifying the contaminated zone areas and store it in database for future use. Then using the database, information is provided to the user about contaminated zone areas and alerting them by sending notification and geofencing the location. From the above information, it can be concluded that the Containment zone Alerting Application, in which we have successfully developed is a mobile application that sends alerts to users when they enter or exit a containment zone. The app uses GPS to track the user's location and sends an alert if the user enters or leaves a containment zone. The app also allows users to set up alerts for specific containment zones. It has successfully demonstrated the application. In this project, we alert users about the containment zone nearby that they are aware and realize of high containment zone area.

CHAPTER 12

UTURESCOPE

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 and exiting the containment areas. 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. Thereby this application identifies the containment zones and highlights the need for taking further precautionary measures for combating COVID-19. The application has been tested in various locations and has been found to yield accurate results. The application can be further used for many purposes like maritime and forest safety to prevent users from entering restricted areas.

CHAPTER13

APPENDIX

The Containment zone alerting application is a mobile application that sends alerts to users when they are in close proximity to a containment zone. The app uses the user's location to determine if they are in close proximity to a containment zone, and if so, sends an alert to the user. The app also allows users to view a map of containment zones in their area, and provides information on how to avoid contracting the virus.

HOME.HTML

```
<!DOCTYPEhtml>

<htmllang="en">

<style>

body{

    background-image:

    url('E:/background.jpg');background-repeat:no-

    repeat;

    background-attachment:

    fixed;background-size: cover;

}

a:link{ color:gr

    een;

}

</style>

<head>

    <metacharset="UTF-8">

    <metahttp-equiv="X-UA-Compatible"content="IE=edge">

    <metaname="viewport"content="width=device-width,initial-scale=1.0">
```

```

<title>CZAA|HOME</title>
<metacharset="UTF-8">

<!--favicon-->

<!--<linkrel="shortcuticon"href="/assets/img/favicon.ico"type="image/x-icon">-->

<!--<linkrel="icon"href="/assets/img/favicon.ico"type="image/x-icon">-->

<linkrel="icon"type="image/jpg"sizes="16x16"href="E:\nature.jpg">

<!--bootstrapcsscdn-->

<link
                                                                    rel="stylesheet"
href="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css"integrity="sha38
4-
JcKb8q3iqJ61gNV9KGb8thSsNjpSL0n8PARn9HuZOnIxN0hoP+VmmDGMN5t9UJ0Z"crossori
gin="anonymous">

<link
        rel="stylesheet"
        href="https://cdnjs.cloudflare.com/ajax/libs/font-
awesome/4.7.0/css/font-awesome.css">

<!--cssstylesheet-->

<linkrel="stylesheet"href="css/style.css">

<!--fontstylescdn-->

<linkrel="preconnect"href="https://fonts.gstatic.com">

<link
        href="https://fonts.googleapis.com/css2?family=Alegreya&display=swap"rel="st
ylesheet">

<linkhref="https://fonts.googleapis.com/css2?family=Alegreya:wght@600&display=swap"rel="s
tylesheet">

</head>

<body>

<!-- bootstrapnavbar-->

<navclass="navbarsticky-topnavbar-expand-lgnavbar-dark">

    <divclass="container-fluid">

```

```
<aclass="main-logo-imgmt-3"href="#"><imgsrc="E:/smartintern.jpg"alt="sheep-  
logo"height="50px" width="180px">
```

```
<!--<aclass="navbar-brand"href="index.html">JobPortal</a-->
```

```
</a>
```

```
<divclass="rowdonate-sponsor">
```

```
<a      type="button"      class="btn      btn-success      mr-1 "  
id="donate"href="login.html">LOGIN</a>
```

```
      <atype="button"class="btnbtn-successmr-1 "id="donate"href="medreg.html">MED  
LOGIN</a>
```

```
<a      type="button"      class="btn      btn-warning      mr-1 "  
id="sponsor"href="register.html">REGISTER</a>
```

```
<a      type="button"      class="btn      btn-primary      mr-1 "  
id="sponsor"href="contact.html">CONTACTUS</a>
```

```
</div>
```

```
</div>
```

```
</nav>
```

```
<!-- navbarends-->
```

```
<!--what wefocuson-->
```

```
<sectionclass="our-focus">
```

```
<divclass="container">
```

```
<h2class="text-centermt-3">Aboutus</h2>
```

```
<divclass="rowml-3mt-3">
```

```
<divclass="col-lg-3mr-5"id="focus-first">
```

```
<divclass="card"style="width:19rem;">
```

```
<div class="card-body">
```

```
<h5 class="card-title">Mission</h5>
```

```
<p class="card-text"><i>The mission of the containment zone alerting application is to provide alerts to users in containment zones in order to prevent the spread of COVID-19.</i></p>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
<div class="col-lg-3 mr-5" id="focus-second">
```

```
<div class="card" style="width: 20rem;">
```

```
<div class="card-body">
```

```
<h5 class="card-title">Vision</h5>
```

```
<p class="card-text"><i>The Containment Zone Alerting Application is designed to help authorities alert the public about areas that have been designated as containment zones. The app will allow users to see a map of the containment zone and receive alerts when they are near one. The app will also provide information on how to avoid contracting and spreading the disease.</i></p>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
<div class="col-lg-3 ml-5" id="focus-third">
```

```
<div class="card" style="width: 20rem;">
```

```
<div class="card-body">
```

```
<h5 class="card-title">Objective</h5>
```

```
<p class="card-text"><i>The objective of the containment zone alerting application is to alert the residents of the containment zone about the outbreak of a disease. It will help them to take preventive measures to avoid the disease.</i></p>
```

</div>

</div>

</div>

</div>

</div>

</section>

<footer>

<center>

<divclass="col-xs-2col-md-4">

<h3>GetinTouch</h3>

<ulclass="footer-links">

<h5>E-mail:ibm@gmail.com</h5>

<h5>Mobile:+919304050989</h5>

</div>

</center>

</footer>

</body>

</html>

LOGIN.HTML

```
<!DOCTYPEhtml>

<html>

<head>

<metaname="viewport"content="width=device-width, initial-scale=1">

<link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-
awesome/4.7.0/css/font-awesome.min.css">

<style>

body{

    font-family:Arial,Helvetica,sans-serif;

}

*{

    box-sizing:border-box;

}

/*stylethecontainer */

.container{position:

relative;border-

radius:5px;

background-color:

#f2f2f2;padding:20px030px0

;

}

/* style inputs and link buttons

*/input,

.btn{

width:100%;padding

: 12px;border:

none;border-

radius:4px;
```



```
margin:5px0;
opacity:0.85;display:
inline-block;font-size:
17px;
line-height:20px;
text-decoration:none;/*removeunderlinefromanchors*/
}
```

```
input:hover,
.btn:hover
{opacity:1;
}
```

```
/*addappropriatecolorstofb, twitter andgooglebuttons*/
.fb{
background-color:
#3B5998;color:white;
}
```

```
.twitter{
background-color:
#55ACEE;color:white;
}
```

```
.google{
background-color:
#dd4b39;color:white;
}
```

```
/*stylethesubmitbutton*/
```

```
input[type=submit]{ background-  
    color: #04AA6D;color:white;  
    cursor:pointer;  
}
```

```
input[type=submit]:hover  
    { background-color:#45a049;  
}
```

```
/*Two-columnlayout*/
```

```
.col{float:left;  
    width:  
    50%;margin:  
    auto;padding: 0  
    50px;margin-  
    top:6px;  
}
```

```
/*Clearfloatsafterthecolumns*/
```

```
.row:after{ conte  
    nt: "";display:  
    table;clear:bot  
    h;  
}
```

```
/*verticalline*/
```

```
.vl{  
    position:absolute;left  
    50%;
```

```
transform: translate(-
50%);border: 2px solid
#ddd;height:175px;
}
```

```
/*textinsidetheverticalline*/
```

```
.vl-
innertext{ position:
absolute;top:50%;
transform: translate(-50%, -
50%);background-color:
#f1f1f1;border:1pxsolid#ccc;
border-radius:
50%;padding:8px10p
x;
}
```

```
/*hidesometextonmediumandlargescreens*/
```

```
.hide-md-lg
{ display:none;
}
```

```
/* bottomcontainer*/
```

```
.bottom-container
{ text-align:center;
background-color:#666;
border-radius: 0px0px4px4px;
}
```

```
/*Responsivelayout-whenthescreeenis
lessthan650pxwide,makethetwocolumnsstackontopofeachotherinsteadofnexttoeachother*/
```

```
@mediascreenand(max-width:650px) {
```

```

.col{
    width:100%;
    margin-top:0;
}
/*hidetheverticalline*/
.vl{
    display:none;
}
/*showthehiddentext onsmallscreens*/
.hide-md-
lg{ display:block;te
xt-align:center;
}
}
</style>
</head>
<body>

<h2><b>LoginForm<b></h2>

<divclass="container">
    <formaction="/action_page.php">
        <divclass="row">
            <h2style="text-align:center">LoginwithSocialMediaorManually</h2>
            <divclass="vl">
                <spanclass="vl-innertext">or</span>
            </div>

            <divclass="col">
                <a href="#" class="fbbtn">

```

```
        <iclass="fafa-facebookfa-fw"></i>LoginwithFacebook
    </a>
    <ahref="#"class="twitterbtn">
        <iclass="fafa-twitterfa-fw"></i> LoginwithTwitter
    </a>
    <ahref="#"class="googlebtn"><iclass="fafa-googlefa-fw">
        </i>LoginwithGoogle+
    </a>
</div>
```

```
<divclass="col">
    <divclass="hide-md-lg">
        <p>Orsigninmanually:</p>
    </div>

    <inputtype="text"name="username"placeholder="Username"required>
    <inputtype="password"name="password"placeholder="Password"required>
    <inputtype="submit"value="Login">
</div>
```

```
</div>
</form>
</div>
```

```
<divclass="bottom-container">
    <divclass="row">
        <divclass="col">
            <ahref="#"style="color:white"class="btn">Signup</a>
        </div>
        <divclass="col">
```

```
        <a href="#" style="color:white" class="btn">Forgot password?</a>
    </div>
</div>
</div>
```

```
</body>
```

```
</html>
```

REGISTER.HTML

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<meta name="viewport" content="width=device-width, initial-scale=1">
```

```
<style>
```

```
body{
```

```
    font-family: Arial, Helvetica, sans-
    serif; background-color: black;
```

```
}
```

```
*{
```

```
    box-sizing: border-box;
```

```
}
```

```
/* Add padding to containers */
```

```
.container{padding
```

```
    : 16px;
```

```
    background-color: white;
```

```
}
```

```
/* Full-width input fields
```

```
*/input[type="text"], input[type="password"]{
```

```

width:100%;padding:15
px;margin:5px022px0;d
isplay: inline-
block;border:none;back
ground:#f1f1f1;
}

input[type=text]:focus,input[type=password]:focus{ backg
round-color:#ddd;
outline:none;
}

/*Overwritedefaultstylesofhr */hr{
border:1pxsolid#f1f1f1;mar
gin-bottom:25px;
}

/*Setastyleforthesubmitbutton*/
.registerbtn{
background-color:
#04AA6D;color:white;
padding: 16px
20px;margin: 8px
0;border:none;cursor:
pointer;width:100%;
opacity:0.9;
}

```

```
.registerbtn:hover
```

```
{opacity:1;
```

```
}
```

```
/* Add a blue text color to links */a{
```

```
color:dodgerblue;
```

```
}
```

```
/* Setagreybackground colorand centerthetext ofthe "sign in"section*/
```

```
.signin{
```

```
background-color:
```

```
#f1f1f1;text-align:center;
```

```
}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<formaction="/action_page.php">
```

```
<divclass="container">
```

```
<h1>Register</h1>
```

```
<p>Pleasefillinthisformtcreateanaccount.</p>
```

```
<hr>
```

```
<labelfor="email"><b>Email</b></label>
```

```
<inputtype="text"placeholder="EnterEmail"name="email"id="email"required>
```

```
<labelfor="psw"><b>Password</b></label>
```

```
<inputtype="password"placeholder="EnterPassword"name="psw"id="psw"required>
```



```
<label for="psw-repeat"><b>Repeat Password</b></label>

<input type="password" placeholder="Repeat Password" name="psw-
repeat" id="psw-repeat" required>

<hr>

<p>By creating an account you agree to our <a href="#">Terms & Privacy</a>.</p>

<button type="submit" class="registerbtn">Register</button>

</div>

<div class="container signin">

  <p>Already have an account? <a href="#">Sign in</a>.</p>

</div>

</form>

</body>

</html>
```

GITHUB ACCOUNT

<https://github.com/IBM-EPBL/IBM-Project-8464-1658920205>