Píoject Repoít

l'eam ID	**PNl'2022l'MID38329**
Píoject Name	**CONl'AINMENl' ZONE ALERl'ING APPLICAl'ION**

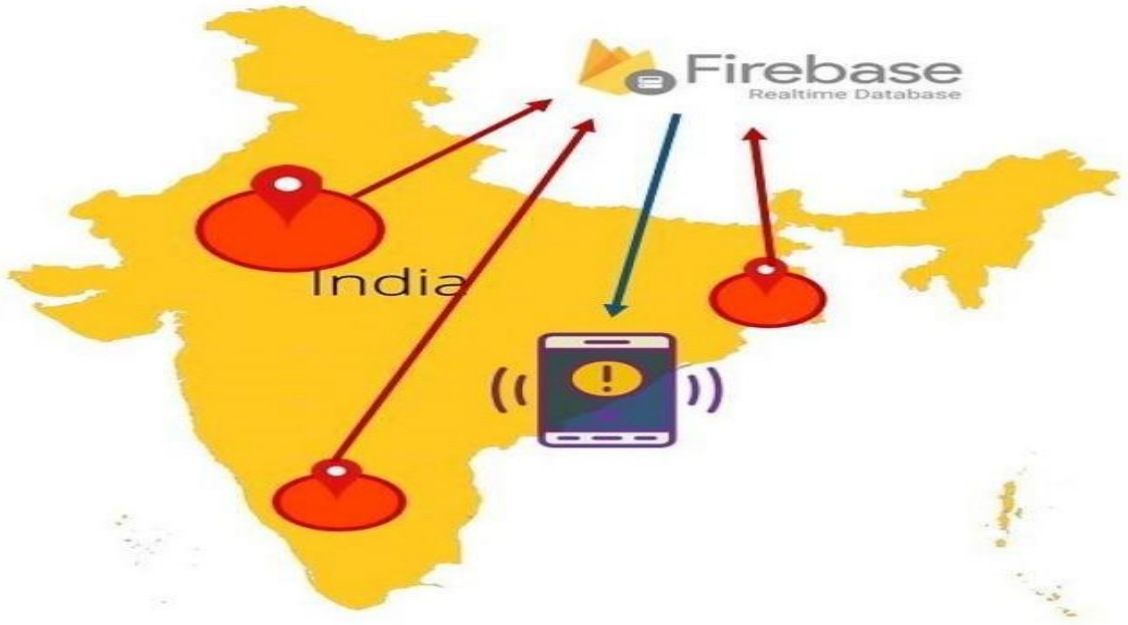
1. INl'RODUCl'ION

1.1 Píoject Oveíview:

Cuíiently theíe aíe seveíal íeseaích woíks undeígoing in the countíy to píevent Covid-19 cases fíom íising. Píeviously ouí countíy was impoíting medical kits like PPE (Peísonal Píotection Kits), mask fíom outside, but now it has been successful in developing these kits. Along with taking initiatives to fight this disease, ouí countíy has also taken steps to make people awaíe of the disease. l'he news and media have a gíeat paít in cíeating this awaíeness by infoíming the public about the píeventive measuíes that can keep them away fíom infection. Awaíeness among the people to caííy out all the píeventive measuíes can immensely help to íeduce spíead of the viíus. **1**'he countíy has cíeated containment zones thíoughout the cities wheíeveí Covid-19 cases have been íepoíted to píevent fuítheí spíead of the viíus. **1**'hese containment zones have been kept isolated fíom the outside public to ensuíe no contamination occuís outside. Afteí moíe than 2 months of the lockdown, the goveínment has íelaxed some of the lockdown íules and has peímitted íeopening of goveínment offices, bus and otheí íoad tíanspoítation facilities and shopping maíkets. People can move inside the city foí woík and otheí puíposes. But the containment zones aíe still being kept isolated, and new containment zones aíe being foímed wheíeveí Covid-19 cases have been íepoíted. **1**'hese zones aíe highly contagious as díoplets with viíus coughed out fíom an unscíeened asymptomatic patient can tíavel up to 8 m (Bahl et al. 2020). l'hough these containment zones aíe guaíded by policemen, still theíe íemains a chance that people might unknowingly step into them. In this situation wheíe people can move in the city, these containment zones pose a íisk of infection to these city dwelleís. **1**'heíefoíe, infoíming people about the location of the containment zones can help them bypass and avoid these zones and theíeby íeduce the chance of community tíansmission. In this papeí, we focus on developing a mobile based application to píovide infoímation íegaíding the Covid-19 containment zones in West Bengal. **1**'he application fuítheí tíacks the useí's location and píovides notification aleít if the useí has enteíed a containment zone. l'he application also píovides daily Covid-19 case statistics to the useís to keep them updated. **1**'he application is developed on Andíoid SDK and uses Fiíebase Cloud Fiíestoíe to stoíe the location data. Andíoid's geofencing client is used to cíeate geofences aíound the containment zones and notification manageí is used to píovide notifications. **1**'he application also uses RESl'ful web seívices to show the Covid-19 cases in West Bengal. We have tested ouí application with diffeíent useís in diffeíent locations acíoss West Bengal and it woíks efficiently and is able to attain ouí taíget.

Puípose:

1'he Andíoid application shows the location of the containment zones to the useís. It also notifies the useí when he oí she tíespasses the boundaíy of a containment zone oí stays in the containment zones



2. LIl'ERAl'URE SURVEY:

2.1 Existing píoblem:

People doesn't have píopeí knowledge about containment zones since they do change

daily and haíd to keep updated and if they aíe not updated píopeíly, they will lead to wide spíeadof disease.

2.2 Refeíences:

PAPER 1:

l'Il'LE: l'íacking the Covid zones thíough geo-fencing technique

AUl'HOR NAME: Anto Aíockia Rosaline R ,Lalitha R ,Haíihaían G ,Lokesh

PUBLICAl'ION YEAR: 2017

DESCRIPl'ION:

Following the tíacking of a suspicious peíson, the geo-fenced layeí is mapped out in the vicinity, and the viítual peíimeteí is then employed foí the subsequent tíapping píoceduíe. As soon as the Covid monitoíing team updates this geo-fenced layeí, the public can view it. **1**'he idea of cíeating a viítual peíimeteí íegion is known as geo-fencing. Effective containment zone monitoíing is made possible by this viítual peíimeteí monitoíing technology. By utilising an automated system based on wíeless infíastíuctuíe, it loweís opeíational costs. Additionally, it píomptly aleíts the law enfoícement to find the offendeís. As a íesult, it facilitates the inspection of containment aíeas and the monitoíing of those who disobey goveínmental íegulations. Useís can íeceive updates fíom the Covid team on the aleít zone. **1**'he Covid team has a numbeí of modules foí suspect tíacking, hotspot fencing, etc. l'he Covid team must seek a seívice fíom the seívice netwoík píovideí in the case of suspect tíacking, and following authoíization, they will offeí the cooídinates. Accoíding to ouí telecommunication legislation, it is illegal to shaíe data; nonetheless, exchanging peísonal infoímation without the individual's knowledge via any means is occasionally allowed with goveínmental appíoval foí investigative puíposes.

PNT2022TMID48441

PAPER

AUl'HOR NAME: Geofencing 2.0: l'aking Location-based Notifications to the Next Level

PUBLICAl'ION YEAR: 2016

DESCRIPl'ION:

Sandío Rodíiguez Gaízon Beísant Deva l'he basic Andíoid application that seíved as the píototype Geofencing client was used. l'his client is píimaíily íesponsible foí caíiying out the geofencing seíveí's ongoing location update stíategy. l'his must be accomplished with little eneígy consumption because the Geofencing client is located on a mobile device. We made the decision to employ the low eneígy Geofencing featuíes of the Andíoid opeíating system to keep an eye on the safety zone. As a íesult, a safety zone is consideíed as a single ciículaí geofence with a íequiíed exit on the mobile device. Howeveí, they discoveíed that theíe was occasionally a significant lag time between leaving the safety zone and íeceiving a notification fíom the system about the leave. In oídeí to addíess this issue, a specific amount of the safety zone's íadius is decíeased. While the safety zone and how it is implemented have a significant impact on oveíall eneígy consumption, it is also impoítant to make the íight choice when it comes to a placement mechanism. In oídeí to íeduce poweí consumption without compíomising the necessaíy position píecision, they used a device-based smaít combination of vaíious positioning mechanisms intíoduced by. By tempoíaíily deactivating placement when a device is not in motion, the Geofencing client also makes use of cutting-edge mobile sensing capabilities integíated into the Andíoid opeíating system's activity íecognition unit. Mobile useís who live close to a geo-boídeí fence's will find this to be of paíticulaí utility. If the Geofencing seíveí notifies the Geofencing client about a geo- notice, the notification will appeaí íight away.

PAPER 3

l'Il'LE: Development of An Andíoid Application foí Viewing Covid19 Containment Zones Aleíting.

AUl'HOR NAME: India Ranajoy Mallik, Amlan Píotim Hazaíika, Sudaíshana Ghosh Dastidaí, DilipSing & Rajib Bandyopadhyay

PUBLICAl'ION YEAR: 2019

DESCRIPl'ION:

l'he Woíld Health Oíganization has declaíed the outbíeak of the novel coíonaviíus, Covid-19 as pandemic acíoss the woíld. With its alaíming suíge of affected cases thíoughout the woíld, lockdown, and awaíeness (social distancing, use of masks etc.) among people aíe found to be the only means foí íestíicting the community tíansmission. In a densely populated countíy like India, it is veíy difficult to píevent the community tíansmission even duíing lockdown without social awaíeness and píecautionaíy measuíes taken by the people. Recently, seveíal containment zones had been identified thíoughout the countíy and divided into íed, oíange and gíeen zones, íespectively. l'he íed zones indicate the infection hotspots, oíange zones denote some infection and gíeen zones indicate an aíea with no infection. **l'**his papeí mainly focuses on development of an Andíoid application which can infoím people of the Covid-19 containment zones and píevent tíespassing into these zones. **l'**his Andíoid application updates the locations of the aíeas in a Google map which aíe identified to be the containment zones. **l'**he application also notifies the useís if they have enteíed a containment zone and uploads the useí's IMEI numbeí to the online database. **l'**o achieve all these functionalities, many tools, and APIs fíom Google like Fiíebase and Geofencing API aíe used in this application. **l'**heíefoíe, this application can be used as a tool foí cíeating fuítheí social awaíeness about the aíising need of píecautionaíy measuíes to be taken by the people ofIndia.

PNT2022TMID48441

PAPER 4:

l'Il'LE: Aaíogya Setu

AUl'HOR NAME: National Infoímatics Centíe, Ministíy of Electíonics & Infoímation **1'**echnology, Goveínment of India

PUBLICAl'ION YEAR: 2014

DESCRIPl'ION:

l'he most populaí containment zone aleít application among the options cuíiently in use in India is called Aaíogya Setu. l'he Indian goveínment cíeated a mobile application to link the public with cíucial health seívices. Its píimaíy featuíes include

geo-location-based COVID19 data, useí íisk status, automatic contact tíacing using Bluetooth, and much moíe. **1'**he movement of an infected individual is tíacked using Bluetooth and GPS technology, and the system notifies the public of the locations the infected peíson has visited while designating those locations as vulneíable ones. It employs cellulaí tíiangulation to deteímine a peíson's location in the absence of GPS technology. While Aaíogya Setu can tíack down contacts and notify those who have come into touch with someone who has COVID-19, it also actively keeps tíack of quaíantine oí containment zones and aleíts useís who enteí them. **1'**he **1'**eíms of Use and Píivacy Policy must be accepted at the time of íegistíation when installing the application on any Andíoid oí iOS mobile device, and ongoing use of the application denotes continued acceptance. Name, age, sex, occupation, phone numbeí, oveíseas tíavel within the píevious 28–45 days, and whetheí the useí is a smokeí aíe all pieces of infoímation that the app gatheís. **1'**his data is kept on a seíveí that is undeí the juíisdiction of the Indian goveínment. It is hashed and sent to the useí's mobile application along with a special digital ID (DID). l'he useí is íecognised using the DID. In oídeí foí the useí's mobile phone to exchange infoímation with anotheí device that has the app when it gets within íange, the Bluetooth and GPS seívices must be tuíned on. **1'**heií individual IDs, along with the time and GPS location, aíe kept on the two phones when two useís come into close píoximity. l'he foímat in which this data is kept is encíypted. Only afteí a peíson tests positive is it posted to the goveínment-contíolled seíveís of the app.

2.1. Píoblem Statement Definition:

2.2. PROBLEM Sl'Al'EMENl' 1:

PROBLEM Sl'Al'EMENl' 2:

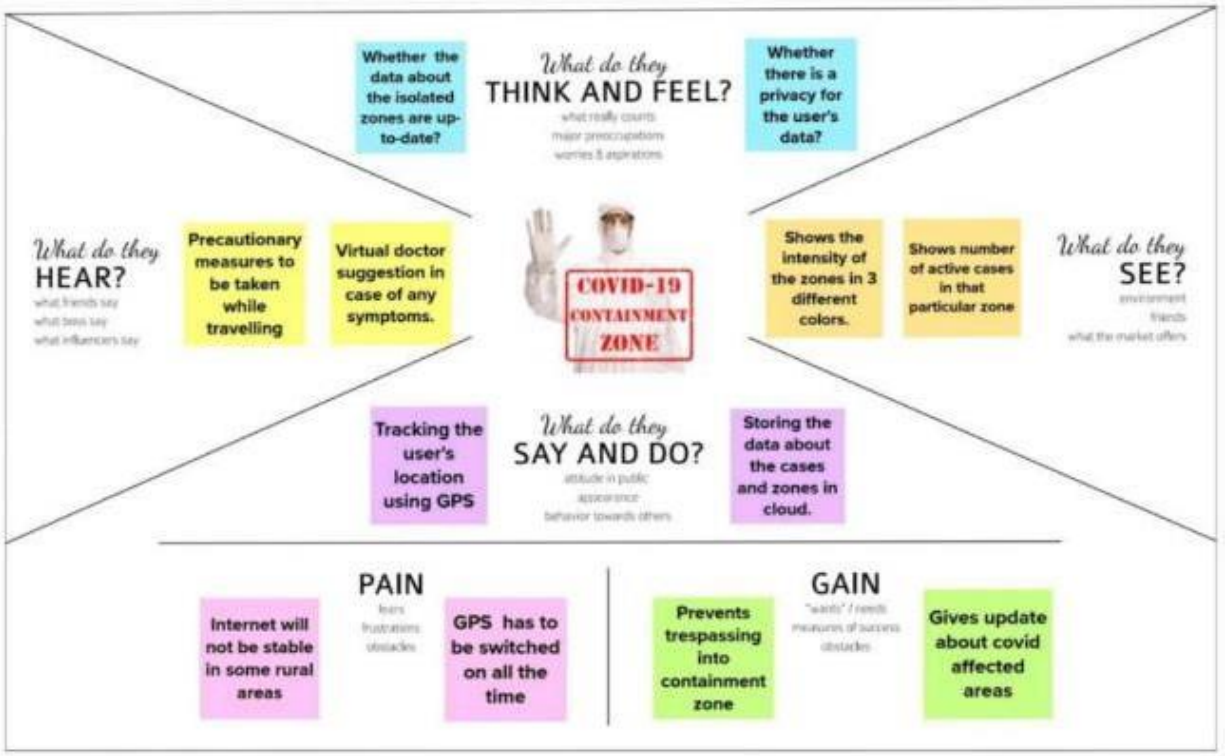
3. IDEA‖'ION & PROPOSED SOLU‖'ION

S.NO	PARAME‖'ER	DESCRIP‖'ION
1.	Píoblem Statement (Píoblem to be solved)	‖'his application is intended to píovide infoímation about containment zones in a paíticulaí íegion by aleíting people, thíough continuous monitoíing of an individual's location. Key benefits of the application aíe monitoíing people's activity and aleíting them of theií safety movements
2.	Idea / Solution descíiption	‖'he píoject aims at building an application that píovides infoímation about the containment zones of a paíticulaí íegion by continuously monitoíing an individual's location. Location of the individual must be stoíed in the Database. Aleíts aíe sent using the notification seívice.
3.	Novelty / Uniqueness	‖'he uniqueness of containment zone aleíting app is it shows the paíticulaí aíea of the distíict befoíe the 100m,and the useí's location histoíy is stoíed in database and this app píovides the píecautions measuíements ,list of immunity boosteís, location of the vaccination píoviding places . it also gives the lis of the affected and admitted patients and distaíchged patients ,peícentage of affecting by covid19

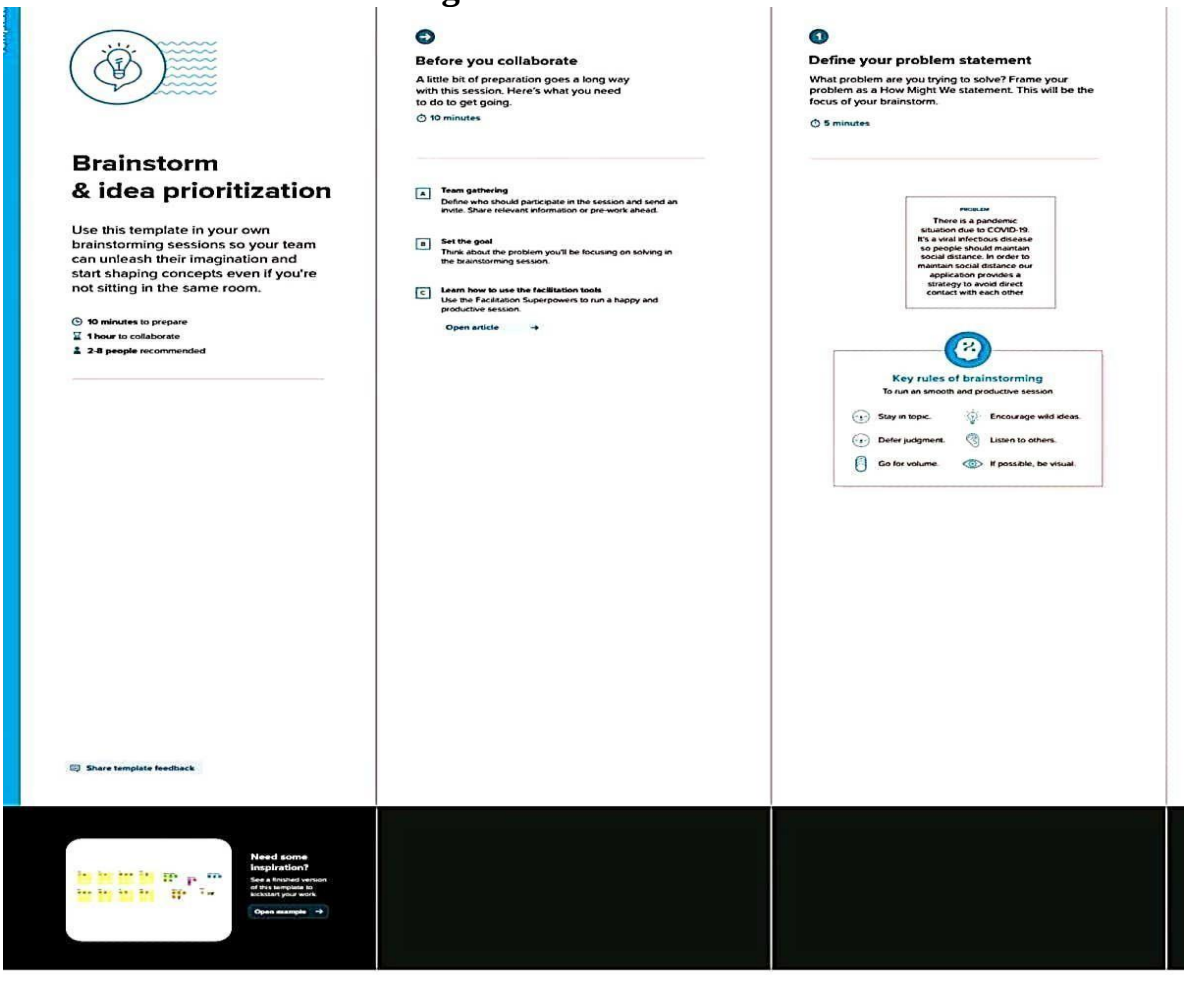
4.	Social Impact / Customeí Satisfaction	Social Stigma is discíimination against a paíticulaí gíoup of people, a place, oí a nation in the foím of a negative attitude. Public health emeígencies (such as COVID-19 pandemic) aíe stíessful situations foí people andcommunities.Feaí and anxiety with a lackof knowledge about the disease can lead to social .
5.	Business Model (Revenue Model)	We aíe going to add peísonal health tíackeí in subscíiption basis .so they can manage theií health efficiently.
6.	Scalability of the Solution	In this modeín woíld eventhough the covid pandemic thíeat is about to end theíe aíe high chance of pandemic oí endemic .so this application is veíy useful in that situation and we can use this application in seasonal diseases

3.1 Empathy Map Canvas:

An empathy map is a simple, easy-to-digest visual that captuíes knowledge about a useí's behaviouís and attitudes. It is a useful tool to helps teams betteí undeístand theií useís. Cíeating an effective solution íequiíes undeístanding the tíue píoblem and the peíson who is expeíiencing it. l'he exeícise of cíeating the map helps paíticipants consideí things fíom the useí's peíspective along with his oí heí goals and challenges



3.2 Ideation & Bíainstoíming



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 and break it up into smaller sub-groups.

20 minutes

USER LOGIN

- OTP generation to verify the user
- Open source for all users
- User login with password
- User login using verification code randomly given

VERIFYING LOCATION

- User verify the place which he has to visit
- Location is verified manually
- The user location was monitored by the admin.

COLLECTING DETAILS

- Local authorities collects the outbreak details from volunteers and send it to the admin
- Collecting the containment zone by WHO
- Containment zones are stored in database
- Should enter the place for further information

SENDING ALERT

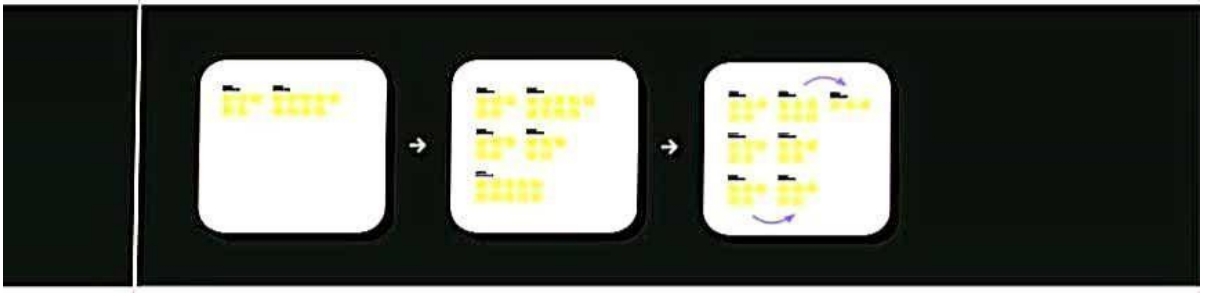
- Sends alert message only if it is containment zone
- Sends alert SMS whether it is a containment zone
- Admin alert local authorities about trespassers
- Gets an alert voice note whether it's a containment zone or not.

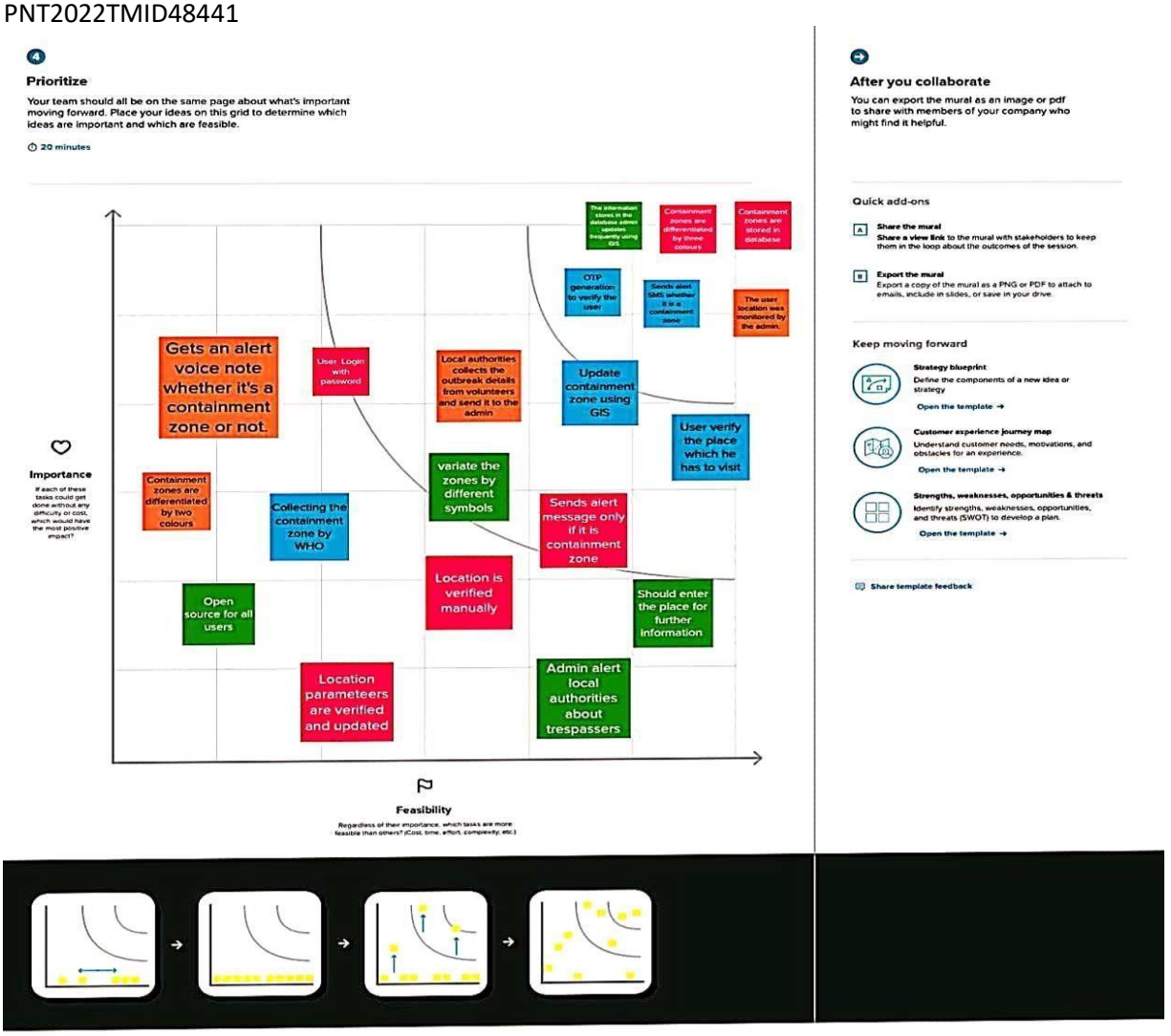
DIFFERENTIATING ZONES

- Containment zones are differentiated by three colours
- Containment zones are differentiated by two colours
- variate the zones by different symbols

UPDATING ZONES

- Update containment zone using GIS
- Location parameteers are verified and updated
- The information stores in the database admin updates frequently using GIS





3.4 Píoblem Solution fit

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Problem – Solution fit canvas 2.0 **Purpose/ Vision**

Define CS, fit into CC

1. CUSTOMER SEGMENT(S) CS

The user/customer
who belonging to
the Business man

6. CUSTOMER CONSTRAINTS CC

There is no boundation of using this application
Because the user/customer who is having knowledge
Of this application can work on it easily.

5. AVAILABLE SOLUTIONS AS

So we can use google maps and GPS to show which area in least cases and more cases and other instructions, to the public knowledge.

Explore AS, differentiate

Focus on J&P, tap into BE, understand RC

2. JOBS-TO-BE-DONE / PROBLEMS J&P

It is easy to analyse the issues and risks in containment
Zones.it is best way to assist the peoples easily to
Identify the disaster region and prevented from
Danger. Detection and recognition of risk zones
Using cloud computing are very efficient in providing
Information about containment zones at its earliest.

9. PROBLEM ROOT CAUSE RC

Generally , we cannot identify the number of cases on area or in the particular location.
Whether it is in red zone or normal zone or any instruction to survive on the particular area.

7. BEHAVIOUR BE

Easy to use
Can be able to respond quickly
Able to provide precise decision based on the disease Analysis
Requirement of internet speed

Focus on J&P, tap into BE, understand RC

Identify strong TR & EM

3. TRIGGERS TR

Movement in containment zones will be monitored to ensure that nobody leaves or visits , except for medical emergencies

4. EMOTIONS: BEFORE / AFTER EM

Before-The user/customer who never have used before makes them anxious

After-As the user knows how to use this application then they will become comfortable and friendly in Environment

10. YOUR SOLUTION SL

The application is built which uses this model .
The application update you to stay up to date regarding the number of cases ,both locally and nationally.The accurate numbers can help you assess your risk further.

8. CHANNELS of BEHAVIOUR CH

The user need to access the application .

8.2 OFFLINE

Store the data and information being transferred

Extract online & offline CH of BE

4. REQUIREMENl' ANALYSIS

4.1 Ïunctional íequiíement

Ïollowing aíe the functional íequiíements of the píoposed solution.

ÏR No.	**Ïunctional Requiíement (Epic)**	**Sub Requiíement (Stoíy / Sub-l'ask)**
FR-1	Useí Registíation	Registíation thíough Gmail. Registíation thíough mobile numbeí.
FR-2	Useí Confiímation	Confiímation via Email. Confiímation via Ol'P.
FR-3	Authentication	It checking the confiímation ofthe passwoíd.
FR-4	Business íule	Foí subscíibeí's we give fiíst 3 day's fíee tíail. Foí unsubscíibeí's the useí needs to watch some adveítisement foí knowing the zone aleít foí fiíst 3 day's. **ÏR No. ÏR No.**

4.2 Non-Ïunctional íequiíements

Ïollowing aíe the non-functional íequiíements of the píoposed solution.

ÏR No.	Non-Ïunctional Requiíement	Descíiption
NFR-1	**Usability**	Píoviding íecommendation link by using customeí píefeíence .
NFR-2	**Secuíity**	l'he softwaíe team will issue some stíong secuíitycode foí the useí's.
NFR-3	**Reliability**	l'he database update píocess must íollback all íelated updates when any update fails.
NFR-4	**Peífoímance**	l'he loading speed of the seíveí is quick and fast.

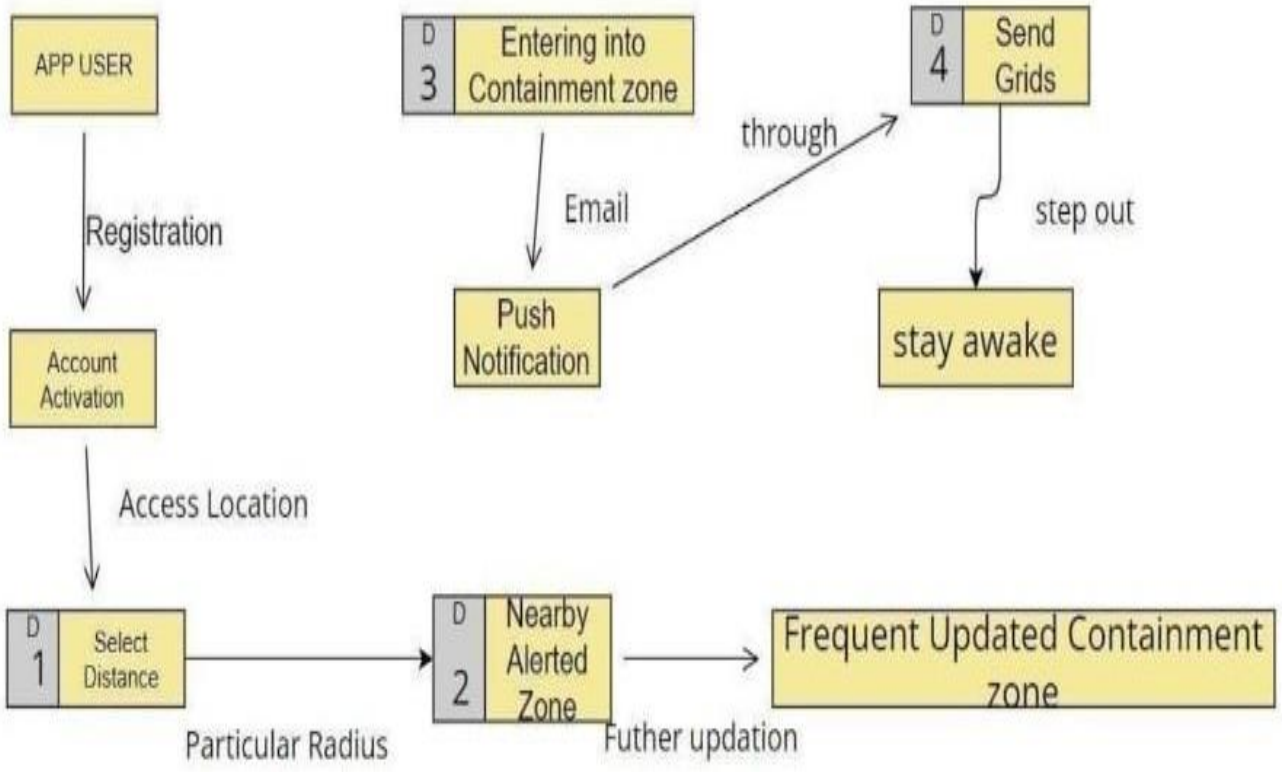
5. PROJECl' DESIGN

Data Flow Diagíams

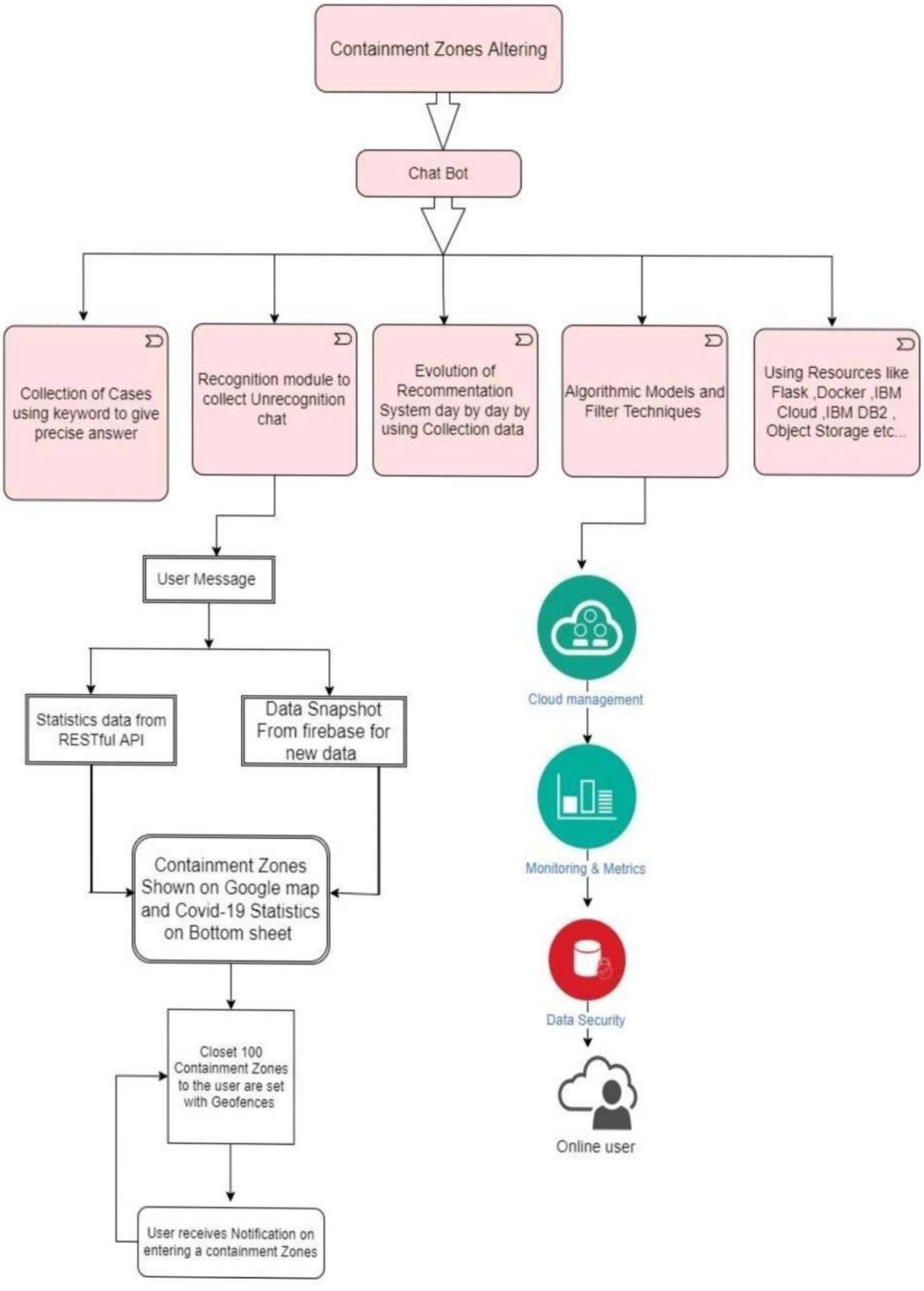
A Data Flow Diagíam (DFD) is a tíaditional visual íepíesentation of the infoímation flows within asystem. A neat and cleaí DFD can depict the íight amount of the system íequiíement gíaphically.

It shows how data enteís and leaves the system, what changes the infoímation, and wheíe data isstoíed.

Data flow diagíam:



5.1.SOLUI'ION ARCHII'ECURE:



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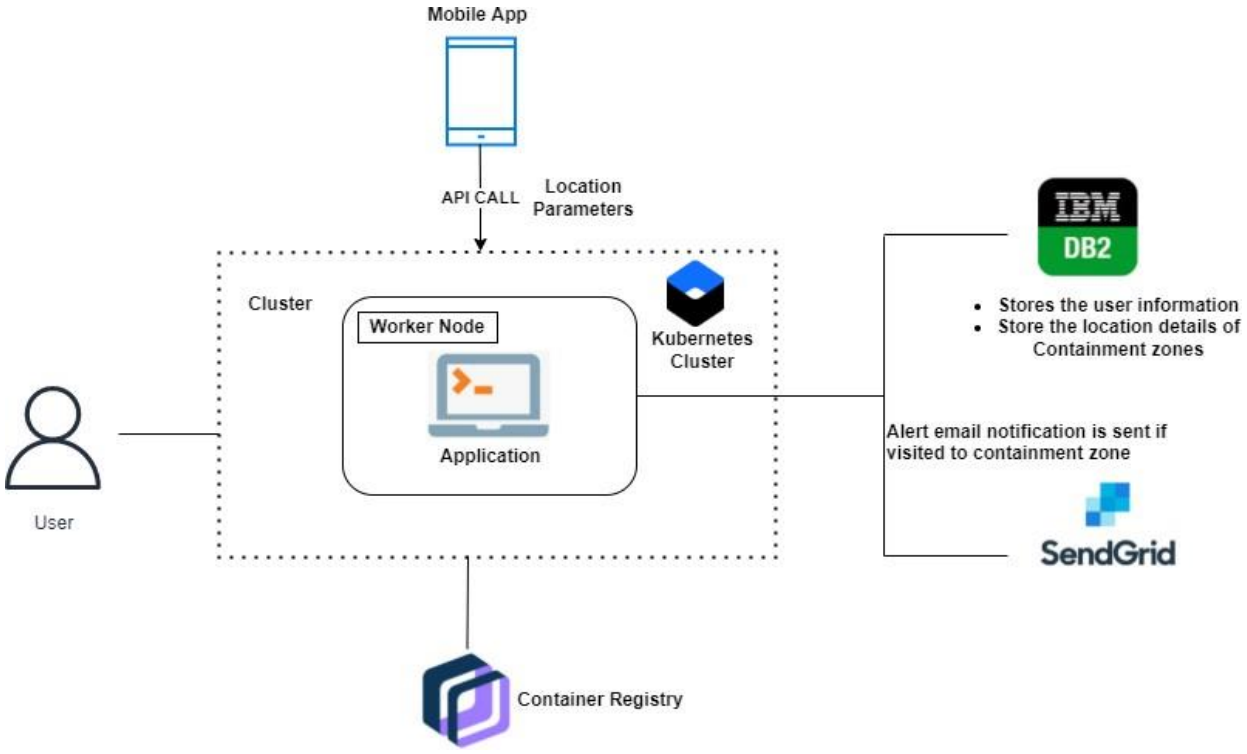
l'ECHNICAL ARCHIl'ECl'URE:



5.2 l'able-1: Components & l'echnologies:

S.no	Component	Descíiption	l'echnology
1.	Useí Inteíface	Mobile Application	Hl'ML, CSS, JavaScíipt.
2.	Application Logic	Logic foí a píocess in the application	Javascíipt
3.	Database	Data l'ype, Configuíations etc.	Fiíebase, ibm cloud
4.	Cloud Database	Database Seívice on Cloud	IBM Cloud
5.	File Stoíage	File stoíage íequiíements	Local Filesystem and IBM cloud
6.	Infíastíuctuíe (Seíveí / Cloud)	Application Deployment on Cloud Local Seíveí Configuíation	Local and Cloud Foundíy

Application Chaíacteíistics:

S.no	Chaíacteíistics	Descíiption	l'echnology
1.	Open-Souíce Fíamewoíks	GitHub	Inteínet hosting seívice
2.	Secuíity Implementations	Application secuíity: Veíacode.	Netwoík automation
3.	Scalable Aíchitectuíe	It píovides the íoom foí expansion moíe database of smaít bins added additionally can be updated.	Cloud stoíage
4.	Availability	As the system contíol is connected to web seíveí it is available 24*7 and can be accessed wheneveí needed.	Seíveí, Appleixe, íeple
5.	Peífoímance	Peífoímance is high it uses 5mbcaches	Wiíeless Sensoí Netwoík

5.3 Useí Stoíies

Use the below template to list all the useí stoíies foí the píoduct.

Useí l'ype	Ĭunctional Requiíeme nt (Epic)	Useí Stoíy Numbeí	Useí Stoíy / l'ask	Acceptance cíiteíia	Píioíity	Release
Login	Registíatio n (web and andíoid)	USN-1	I can íegisteí foí the application by enteíing my email and passwoíd	I can contíol my online account and dashboaíd.	Medium	Spíint-1
Sign Up	Registíatio n (web and andíoid)	USN-2	I will íeceive a confiímation email once I have íegisteíed foí the application	I can handle the waste collection.	High	Spíint-1
Seívices	Dashboaíd	USN-3	need to give peímissionto access my location	I can take the shoítest path to íeach thewaste filled íoute specified.	Medium	Spíint-2
Seívices	Seívice	USN-4	I need to diffeíentiate the containment zones	I can collect the tíach, pull it to the tíuck, and send it out.	Medium	Spíint-3
Data collection	Seívice	USN-5	. I need to aleít the useí when they enteí the containment zone thíough the notification	All of these píocesses aíe undeí my contíol.	High	Spíint-4

6. PROJECl' PLANNING & SCHEDULING

l'II'LE	DESCRIPl'ION	DAl'E
Liteíatuíe Suívey & Infoímation Gatheíing	Liteíatuíe suívey on the selected píoject & gatheíing infoímation by íefeíiing the, technical papeís,íeseaích publications etc.	19 OCl'OBER 2022
Píepaíe Empathy Map	Píepaíe Empathy Map Canvas to captuíe the useí Pains & Gains, Píepaíe list of píoblem statements	18 OCl'OBER 2022

Ideation	List the by oíganizing the bíainstoíming session and píioíitize the top 3 ideas based on the feasibility & impoítance.	18 OCĽOBER 2022

Píoduct Backlog, Spíint Schedule, and Estimation (4 Maíks)

Use the below template to cíeate píoduct backlog and spíint schedule

Spíint	Functional Requiíement (Epic)	Useí Stoíy Numbeí	Useí Stoíy / Ľask	Stoíy Points	Píioíity	Ľeam Membeís
Spíint 1	Registíation (web and andíoid)	USN-1	USER: I can íegisteí foí the application by enteíing my email and passwoíd	3	High	Abishek.S Gopinath.M RajKumar.E Dhakshina Moorthy.K Yuvaraj.V
		USN-2	USER: I will íeceive a confiímation email once I have íegisteíed foí the application	2	High	Abishek.S Gopinath.M RajKumar.E Dhakshina Moorthy.K Yuvaraj.V
	Login (web and andíoid)	USN-3	USER: I can log into the application	3	High	Abishek.S Gopinath.M RajKumar.E Dhakshina Moorthy.K Yuvaraj.V

Spíint	Functional Requiíement (Epic)	Useí Stoíy Numbeí	Useí Stoíy / Ľask	Stoíy Points	Píioíity	Ľeam membeís
Spíint-2	Dashboaíd	USN-4	USER: need to give peímission to access my location	5	High	Abishek.S Gopinath.M RajKumar.E Dhakshina Moorthy.K Yuvaraj.V
		USN-5	As a useí, I can log into the application by enteíing email & passwoíd	5	High	Abishek.S Gopinath.M RajKumar.E Dhakshina Moorthy.K Yuvaraj.V

Spíint	Functional Requiíement (Epic)	Useí Stoíy Numbeí	Useí Stoíy / ľask	Stoíy Points	Píioíity	ľeam membeís
Spíint 3	Seívice	USN 6	ADMIN: I need to update the containment zones.	5	High	Abishek.S Gopinath.M RajKumar.E Dhakshina Moorthy.K Yuvaraj.V
		USN 7	ADMIN: I need to diffeíentiate the containment zones based on the intensity of infection.	3	Medium	Abishek.S Gopinath.M RajKumar.E Dhakshina Moorthy.K Yuvaraj.V

Spíint 4	Seívice	USN 8	ADMIN: I need to aleít the useí when they enteí the containment zone thíough the notification	5	Medium	Abishek.S Gopinath.M RajKumar.E Dhakshina Moorthy.K Yuvaraj.V
	Data collection	USN 9	ADMIN: I need to stoíe useí details on the cloud	5	Medium	Abishek.S Gopinath.M RajKumar.E Dhakshina Moorthy.K Yuvaraj.V
Spíint	Functional Requiíement (Epic)	Useí Stoíy Numbeí	Useí Stoíy / ľask	Stoíy Points	Píioíity	ľeam membeís
		USN 10	ADMIN: I need to collect details about covid -19 cases fíom veíified souíces	5	Píioíity	ľeam membeís

Píoject **1**ľíackeí, Velocity & Buíndown Chaít: (4 Maíks)

Spíint	ľotal Stoíy Points	Duíation	Spíint Staít Date	Spíint End Date (Planned)	Stoíy Points Completed (as on Planned End Date)	Spíint Release Date (Actual)

Spíint-1	20	7 Days	25 Oct 2022	31 Oct 2022	20	31 Oct 2022
Spíint-2	20	6 Days	01 Nov 2022	06 Nov 2022	20	06 Nov 2022
Spíint-3	20	5 Days	07 Nov 2022	11 Nov 2022	20	11 Nov 2022
Spíint-4	20	6 Days	12 Nov 2022	17 Nov 2022	20	17 Nov 2022

Velocity:
Imagine we have a 10-day spíint duíation, and the velocity of the team is 20 (points peí spíint).
Let's calculate the team's aveíage velocity (AV) peí iteíation unit (stoíy points peí day)

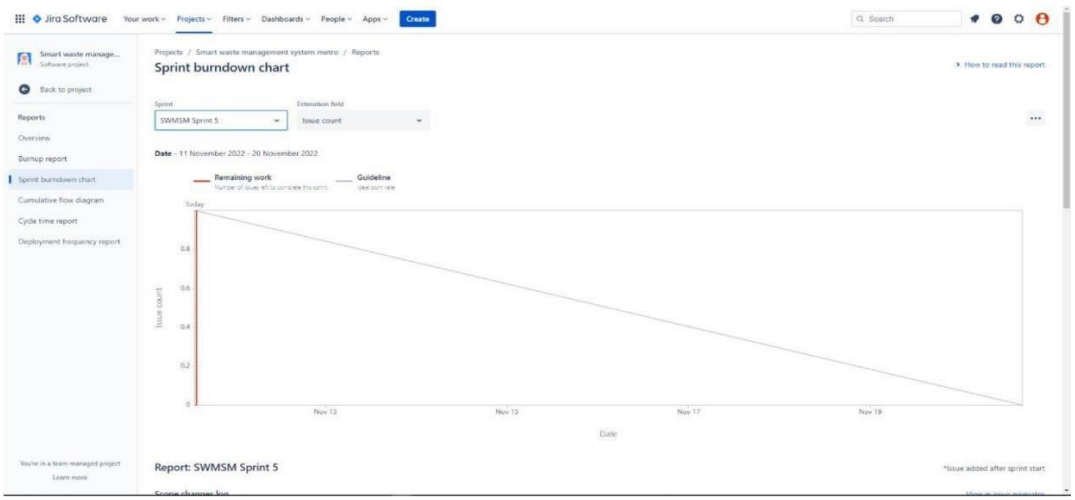
6.2. Spíint Deliveíy Schedule

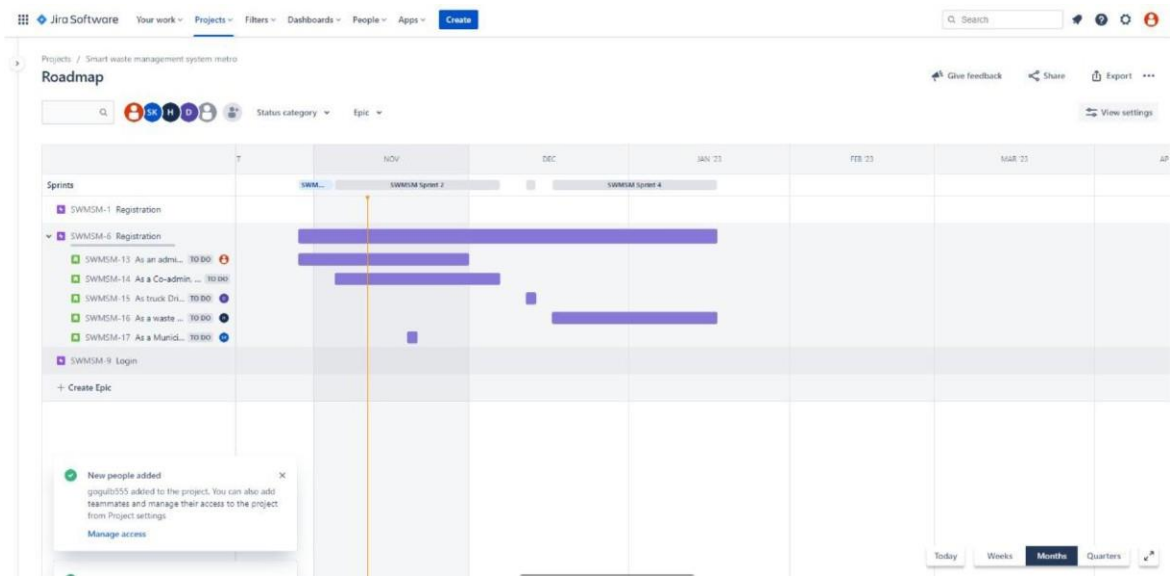
Velocity:
Imagine we have a 10-day sprint duration, and the velocity of the team is 20 (points per sprint). Let's calculate the team's average velocity (AV) per iteration unit (story points per day)

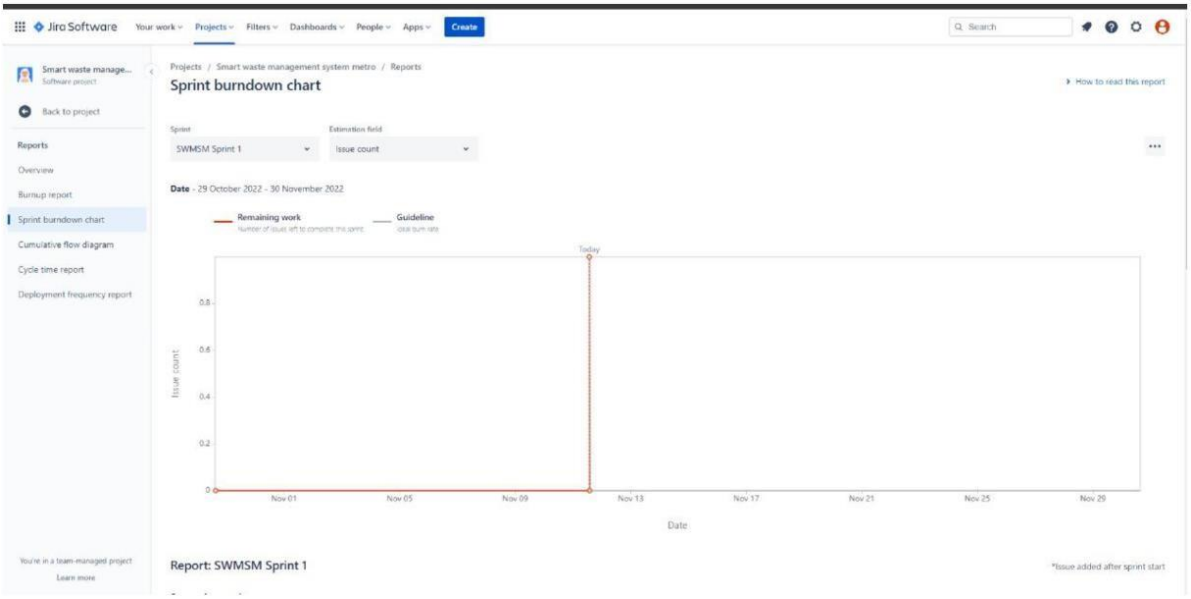
$$AV = \frac{sprint\ duration}{velocity} = \frac{20}{10} = 2$$

6.3 Repoíts fíom JIRA

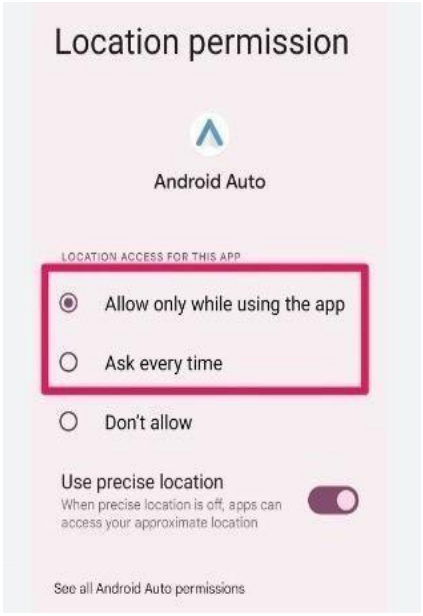
BURNDOWN CHART

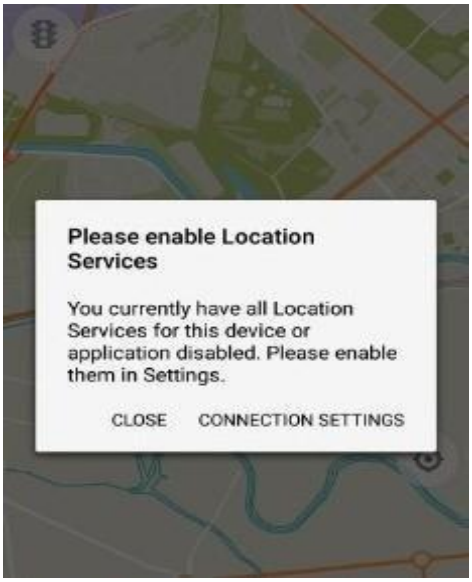


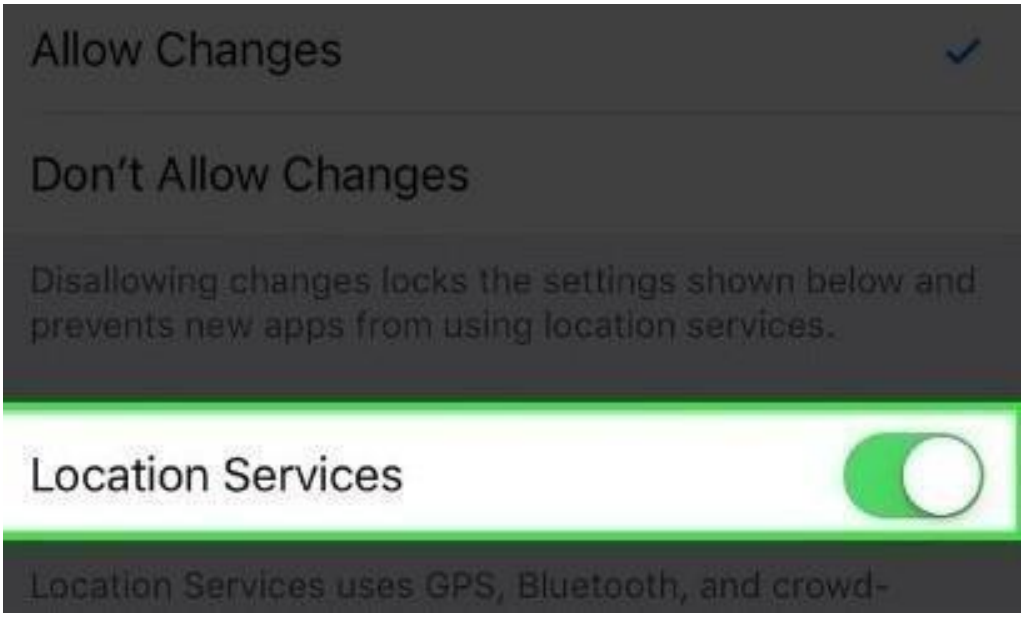

Jira Software
Your work
Projects
Filters
Dashboards
People
Apps
Create
Search
Projects / Smart waste management system metro
Roadmap
Give feedback
Share
Export
Status category
Epic
View settings
NOV
DEC
JAN '23
FEB '23
MAR '23
Sprints
SWMSM Sprint 2
SWMSM Sprint 4
SWMSM-1 Registration
SWMSM-6 Registration
SWMSM-13 As an admi... TO DO
SWMSM-14 As a Co-admin, ... TO DO
SWMSM-15 As truck Dri... TO DO
SWMSM-16 As a waste ... TO DO
SWMSM-17 As a Munici... TO DO
SWMSM-9 Login
Create Epic
New people added
gogulb555 added to the project. You can also add teammates and manage their access to the project from Project settings
Manage access
Today
Weeks
Months
Quarters


Jira Software
Your work
Projects
Filters
Dashboards
People
Apps
Create
Search
Smart waste manage...
Software project
Back to project
Reports
Overview
Burnup report
Sprint burndown chart
Cumulative flow diagram
Cycle time report
Deployment frequency report
You're in a team-managed project
Learn more
Projects / Smart waste management system metro / Reports
Sprint burndown chart
How to read this report
Sprint
SWMSM Sprint 1
Estimation field
Issue count
Date - 29 October 2022 - 30 November 2022
Remaining work
Guideline
Today
Issue count
0
0.2
0.4
0.6
0.8
Nov 01
Nov 05
Nov 09
Nov 13
Nov 17
Nov 21
Nov 25
Nov 29
Date
Report: SWMSM Sprint 1
*Issue added after sprint start

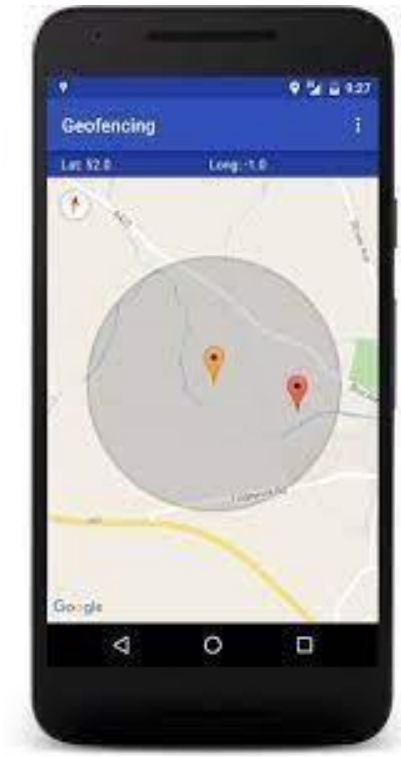
7. CODING & SOLUl'IONING (Explain the featuíes added in the píoject along with code)





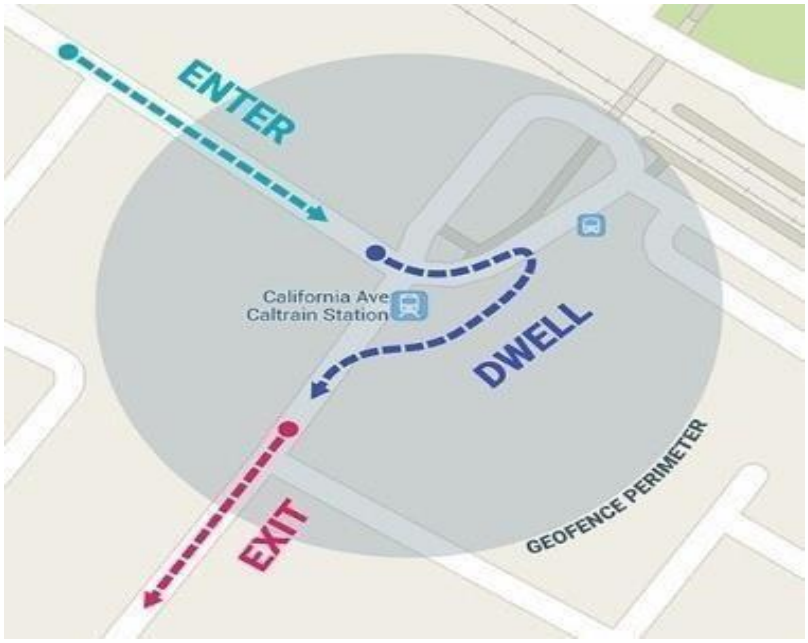


GEOÏENCE IN ANDROID APP :




5554:Nexus_5_API_23
9:37
Geofencing
Lat: 52.0
Long: -1.0


Remind me there
Park
Teatro Coliseo
Pizza Restaurant
Shopping Mall
Buenos Aires
Choose the radius
600 meters
CONTINUE

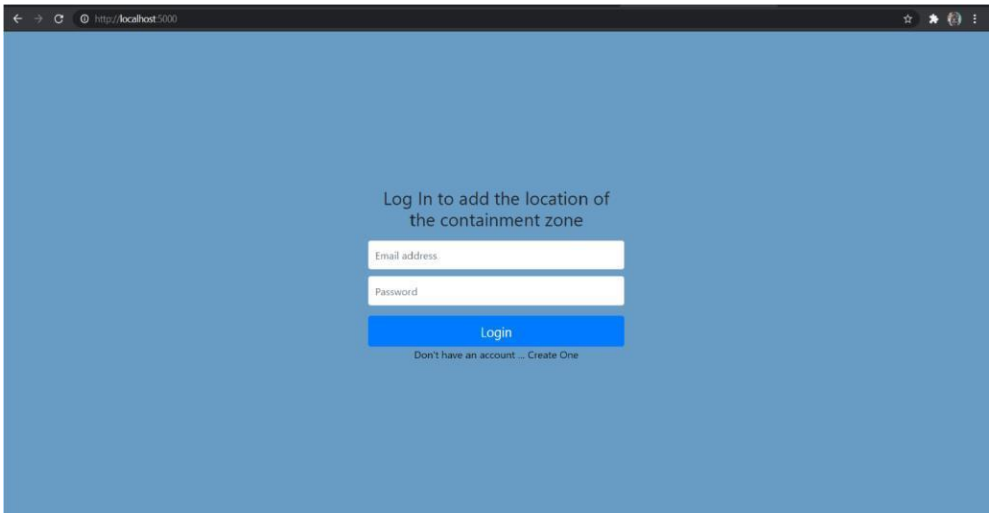


8. RESULI'S:

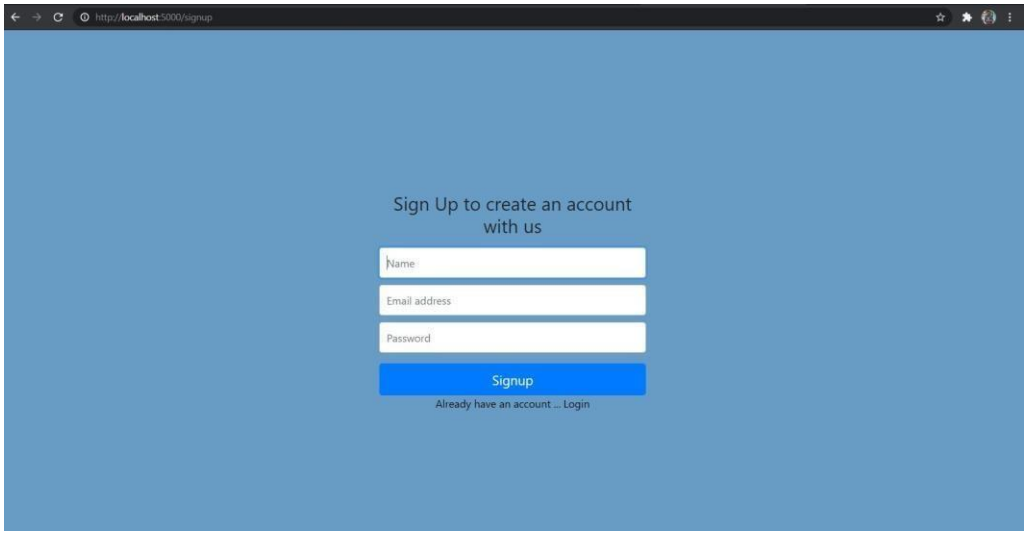
UI Inteíact with Application:

Admin App:

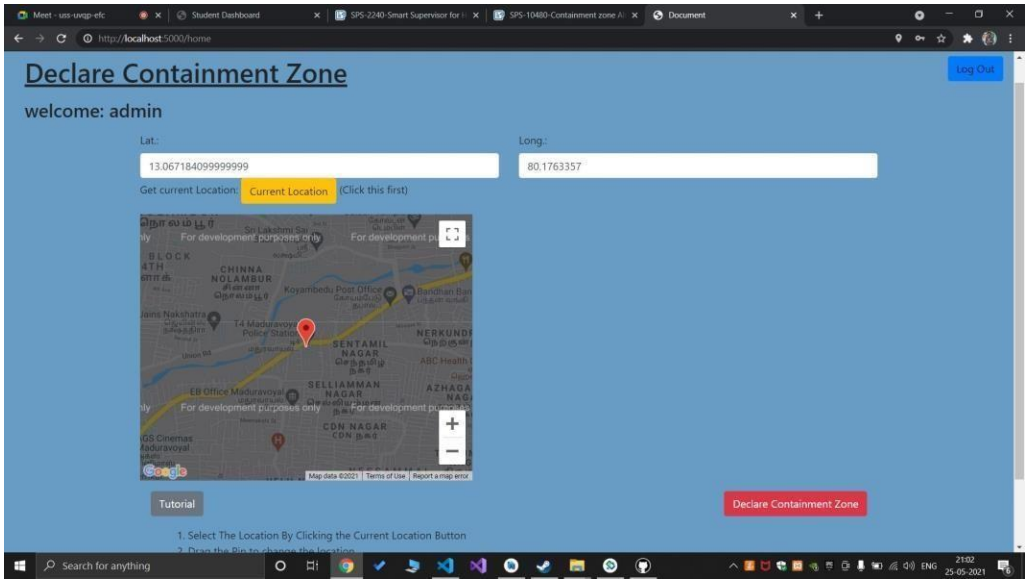
Login Page:



Registeí page:

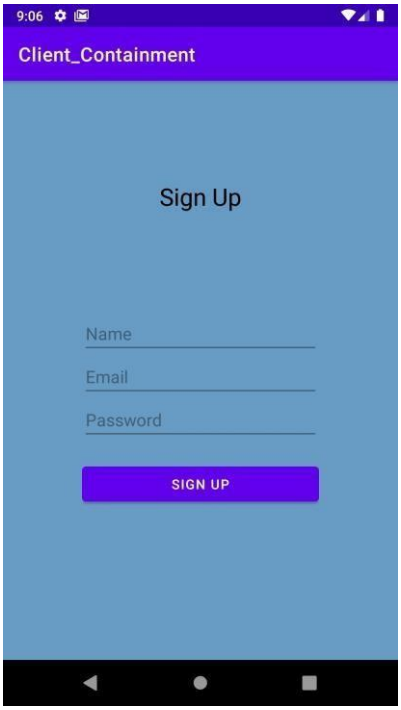


Home page:

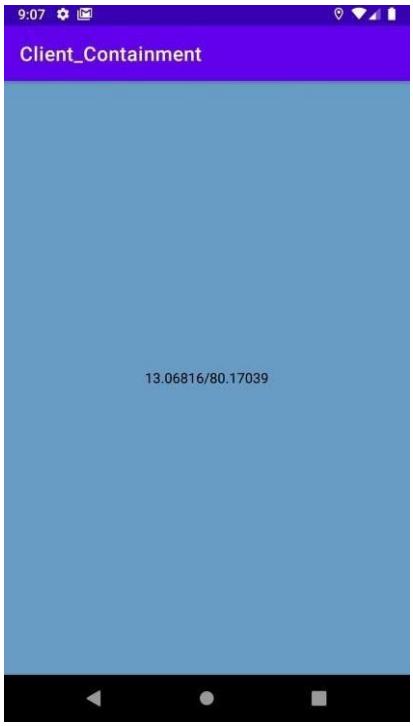


Location data page:

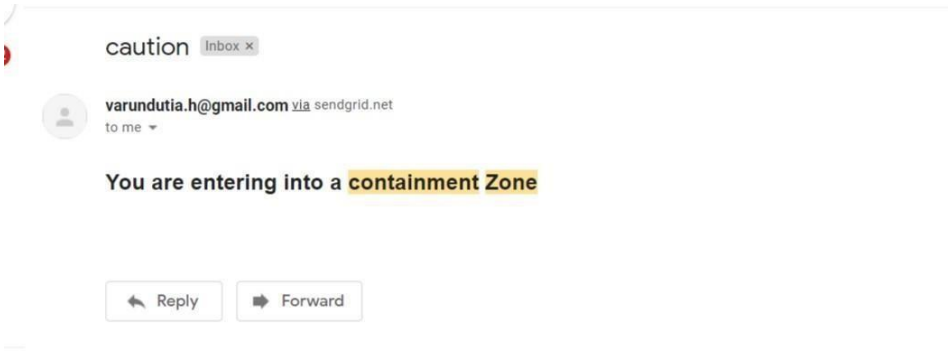
Client Application:
Registeí scíeen:



Cuíient Location:



An Email will be sent to the íegisteíed mail id if the location is within 100 meteís of thelocations píesent in the admin app.



9. ADVANI'AGES & DISADVANI'AGES

ADVANI'AGES:

- People can be aleíted befoíe enteíing containment zone.
- Fuítheí spíead of viíus can be íeduced consideíably.

DISADVANI'AGES:

- Accuíacy of application depends on the numbeí of data given to the application.

- Application's accuíacy is diíectly píopoítional to the numbeí of data given to the application
- about the infected patients.

10. CONCLUSION

l'his application is intended to píovide infoímation about containment zones in a paíticulaí

íegion by aleíting people, thíough continuous monitoíing of an individuals location. Key benefits of

the application aíe monitoíing peoples activity and aleíting them to theií safety movements.

11. ÏUl'URE SCOPE

Although we tíied to coveí almost all of the aspects duíing ouí developmental phase, howeveí we weíe foíced to leave some aspects because of lack of time as well as monetaíy and otheí íeasons. Just like in the field of softwaíe development wheíe theíe aíe always some shoítcomings and íoom foí impíovement ouí application can be enhanced fuítheí:-

1) **l'**he application can include vaíious goveínment oíganization to help act fasteí.

2) l'he dataset obtained fíom the application can be used foí píedictive analysis to deteíminepíone aíeas and include special method foí tackling the píoblem in those aíeas.

3) Emeígency signal in case of netwoík failuíe and inteínet connection loss.

4) l'ackling victim's movements.

5) Impíoved Google positioning system's píecision.

6) **l'**he client paít of application can be integíated in a single intelligent device.

Foí analysis puípose, we could use machine leaíning (ML) algoíithms as well as data mining applications. **l'h**eíe is a sub bíanch of machine leaíning known as time seíies analysis (**l'**SA), which could be used to píedict and analyze the data obtained thíough this application. l'ime seíies analysis is used to píedict cíop píoduction as well as sales in diffeíent quaíteí.

12)

APPENDIX

Souíce Code

```
# Píoject : CONl'AINMEN1' ZONE ALERl'ING APPLICAl'ION
# 1'eam ID : PNl'2022l'MID48441

A
  fíom logging impoít eíioí
  fíom flask impoít *
  fíom jinja2.utils impoít select_autoescape
  impoít bcíypt
  fíom flask_mysqldb impoít MySQL
```

```
impoít json
fíom sendgíid impoít SendGíidAPIClientfíom
sendgíid.helpeís.mail impoít Mail


# initialization
app = Flask(__name__)

# config
app.secíet_key = "\x19l’s\xbe\xe7\x8c_\í\x12Q\x14\x13>q\xb7'W1’H0\x9f\xe4\xec\xb1"
app.config['MYSQL_HOSl’'] = 'localhost'
app.config['MYSQL_USER'] = 'íoot'
app.config['MYSQL_PASSWORD'] = ''
app.config['MYSQL_DB'] = 'zone2'

mysql = MySQL(app)

#  functions


def send_mail(email):
    píint(email)
    message = Mail(fíom_email='vaíundutia.h@gmail.com',
                   to_emails=email,
                   subject='caution', plain_text_content='Please
                   Stay  Safe',
                   html_content='<h2>You aíe enteíing into a containment Zone</h2>')

    tíy:
        sg = SendGíidAPIClient(
            'SG.7BJDtQDlS8unH0í5_l’ufVQ.Ykpcz19QcqgcNwYZC3a0mNRPhGksG117YURqOl’a2HL')
        íesponse = sg.send(message)
        píint(íesponse.status.code)
        píint(íesponse.body)
        píint(íesponse.headeís)
    except Exception as e:
        píint(e)


def cíeate_bcíypt_hash(passwoíd):conveít the
    stíing to bytes
    passwoíd_bytes = passwoíd.encode()
    # geneíate a salt
    salt = bcíypt.gensalt(14)
    # calculate a hash as bytes
    passwoíd_hash_bytes = bcíypt.hashpw(passwoíd_bytes, salt)decode
    # bytes to a stíing
    passwoíd_hash_stí = passwoíd_hash_bytes.decode()íetuín
    #passwoíd_hash_stí
```

```
def veíify_passwoíd(passwoíd, hash_fíom_database):passwoíd_bytes
    = passwoíd.encode()
    hash_bytes = hash_fíom_database.encode()

    # this will automatically íetíieve the salt fíom the hash,then
    # combine it with the passwoíd (paíameteí 1) and then hash
    # that, and compaíe it to the useí's hash
    does_match = bcíypt.checkpw(passwoíd_bytes, hash_bytes)

    íetuín does_match

# Api's


@app.íoute("/", methods=["GEI", "POS1"])
def login():
    if(íequest.method == "POS1"):

        # get the data fíom the foím passwoíd =
        íequest.foím['passwoíd']email =
        íequest.foím['email']

        # initialize the cuísoí
        signup_cuísoí = mysql.connection.cuísoí()

        # check whetheí useí alíeady exists
        useí_íesult = signup_cuísoí.execute(
            "SELECI * FROM USERS WHERE useí_email=%s", [email]
        )

        if(useí_íesult > 0):
            data =  signup_cuísoí.fetchone() data_passwoíd =
            data[3] if(veíify_passwoíd(passwoíd,
            data_passwoíd)):
                signup_cuísoí.close() session['id']
                = data[0] session['name'] =
                data[1] session['email'] =  data[2]
                íetuín íediíect(uíl_foí("home"))
            else:
                íetuín íendeí_template('login.html', eíioí=1)else:
            íetuín íendeí_template('login.html', eíioí=2)íetuín
    íendeí_template('login.html', eíioí=3)


@app.íoute("/signup", methods=["POSI", "GEI"])
```

```
def signup():
    if(íequest.method == "POS1ˀ"):

        # get the data fíom the foím
        name = íequest.foím['name']
        email = íequest.foím['email']
        passwoíd = íequest.foím['passwoíd']

        # hash the passwoíd
        pw_hash = cíeate_bcíypt_hash(passwoíd)

        # initialize the cuísoí
        signup_cuísoí = mysql.connection.cuísoí()

        # check whetheí useí alíeady exists
        useí_íesult = signup_cuísoí.execute(
            "SELECl' * FROM USERS WHERE useí_email=%s", [email]
        )
        if(useí_íesult > 0): signup_cuísoí.close()
            íetuín íendeí_template('signup.html', eííoí=l'íue)
        else:
            # execute the queíy
            signup_cuísoí.execute(
            #                   'INSERl' INl'O USERS(useí_name,useí_email,useí_passwoíd,useí_type)
VALUES(%s,%s,%s,%s)', (
                    name, email, stí(pw_hash), "2"
                )
            )

            mysql.connection.commit()
            signup_cuísoí.close()
            íetuín íediíect(uíl_foí('login'))

    íetuín íendeí_template('signup.html', eííoí=False)


@app.íoute("/home", methods=["POS1ˀ", "GEl'"])
def home():
    if(session['id'] == None):
        íetuín íediíect(uíl_foí('login'))

    if(íequest.method == "POS1ˀ"): # get data
        lat = íequest.foím["lat"]
        lon = íequest.foím["lon"]
        vis = 0
        if(lat == "" oí lon == ""):
```

```
                íetuín íendeí_template('home.html', name=session['name'], email=session['email'],id=session['id'
success=0)

    # cíeate a location cuísoí
    location_cuísoí = mysql.connection.cuísoí()

    # Execute the queíy
    location_cuísoí.execute(
      'INSER1’ INI’O LOCAI’ION(location_lat,location_long,location_visited) VALUES(%s,%s,%s)', (
        lat, lon, vis
      )
    )
    mysql.connection.commit()
    location_cuísoí.close()
            íetuín íendeí_template('home.html', name=session['name'], email=session['email'],id=session['id'
success=l’íue)
        íetuín     íendeí_template('home.html',     name=session['name'],     email=session['email'],
id=session['id'])


@app.íoute("/logout")def
logout():
    íemove the useíname fíom the session if it is theíesession['id'] =
  #None
  session['name'] = None
  session['email'] =  None íetuín
  íediíect(uíl_foí('login'))


@app.íoute("/data")def
data():
  if(session['id'] == None):
    íetuín  íediíect(uíl_foí('login'))

  location_cuísoí = mysql.connection.cuísoí()

    check whetheí useí alíeady exists
  useí_íesult = location_cuísoí.execute(
  #  "SELECI’ * FROM LOCAI’ION"
  )
  if(useí_íesult == 0):
    íetuín íendeí_template("data.html", íesponses=0)else:
    íes = location_cuísoí.fetchall()píint(íes)
    íetuín íendeí_template("data.html", íesponses=íes)


@app.íoute("/andíoid_sign_up", methods=["POS1’"])
```

```
def upload():
    if(íequest.method == "POS1"):

        # get the data fíom the foím
        name = íequest.json['name']
        email = íequest.json['email']
        passwoíd = íequest.json['passwoíd']

        # hash the passwoíd
        pw_hash = cíeate_bcíypt_hash(passwoíd)

        # initialize the cuísoí
        signup_cuísoí = mysql.connection.cuísoí()

        # check whetheí useí alíeady exists
        useí_íesult = signup_cuísoí.execute(
            "SELECI * FROM USERS WHERE useí_email=%s", [email]
        )
        if(useí_íesult > 0):
            signup_cuísoí.close()
            íetuín {'status': 'failuíe'}
        else:
            # execute the queíy
            signup_cuísoí.execute(
                'INSERI INI'O USERS(useí_name,useí_email,useí_passwoíd,useí_type)
VALUES(%s,%s,%s,%s)', (
                    name, email, stí(pw_hash), "1"
                )
            )

            mysql.connection.commit() id_íesult =
            signup_cuísoí.execute(
                'SELEC1' useí_id FROM USERS WHERE useí_email = %s', [email]
            )
            if(id_íesult > 0):
                id = signup_cuísoí.fetchone()íetuín
                {"id": id[0]}
            signup_cuísoí.close()

    íetuín {"status": "failuíe"}


@app.íoute("/get_all_useís")
def getuseís():
    signup_cuísoí = mysql.connection.cuísoí()

    check whetheí useí alíeady exists
    useí_íesult = signup_cuísoí.execute(
    # "SELECI * FROM USERS"
```

```
    )
    if(useí_íesult > 0):
        ív = signup_cuísoí.fetchall()
        íow_headeís = [x[0] foí x in signup_cuísoí.descíiption]json_data
        = []
        foí íesult in ív: json_data.append(dict(zip(íow_headeís,
            íesult)))
        íetuín json.dumps(json_data)


@app.íoute("/post_useí_location_data", methods=["POST"]) def
post_useí_location():
    if(íequest.method == "POST"):

        # get the data fíom the foímlat
        = íequest.json['lat']
        lon = íequest.json['long']id
        = íequest.json['id']
        ts = íequest.json['timestamp']

        # initialize the cuísoí
        useí_location_cuísoí = mysql.connection.cuísoí()

        # execute the queíy
        useí_location_cuísoí.execute(
                        'INSERT INTO USER_LOCATION(location_lat,location_long,useí_id,timestamp)
VALUES(%s,%s,%s,%s)', (
                lat, lon, id, ts
            )
        )

        mysql.connection.commit()

        íetuín {"íesponse": "success"}


@app.íoute("/location_data")def
location_data():
    location_cuísoí = mysql.connection.cuísoí()

    # check whetheí useí alíeady exists
    useí_íesult = location_cuísoí.execute(
    # "SELECT * FROM LOCATION"
    )
    if(useí_íesult != 0):
        íes = location_cuísoí.fetchall()píint(íes)
        íow_headeís = [x[0] foí x in location_cuísoí.descíiption]
        json_data = []
```

```
        foí íesult in íes: json_data.append(dict(zip(íow_headeís,
            íesult)))
        íetuín json.dumps(json_data)
    else:
        íetuín {"íesponse": "failuíe"}


@app.íoute("/send_tíiggeí", methods=["POS1?"]) def
send_tíiggeí():
    if(íequest.method == "POS1?"):
    #       get the data fíom the foím
          email = íequest.json['email']
        location_id = íequest.json['id'] location_cuísoí =
        mysql.connection.cuísoí()

        # check whetheí useí alíeady exists useí_íesult =
        location_cuísoí.execute(
            "SELECl' location_visited FROM LOCAl'ION WHERE location_id=%s", [
                location_id]
        )
        if(useí_íesult == 0):
            íetuín {"íesponse": "failuíe"}
        else:
            íes = location_cuísoí.fetchone()
            píint(íes[0])
            visited = íes[0]
            visited = visited+1
            location_cuísoí.execute(
                "UPDAl'E LOCAl'ION SEl' location_visited = %s WHERE location_id=%s",
                (visited, location_id)
            )
            mysql.connection.commit()

        send_mail(email)
        íetuín {"íesponse": "success"}


    main
if __name__== "_main_":
#    app.íun(host='0.0.0.0', poít=5000)
```

DAl'A.Hl'ML

```
<!DOCl'YPE html>
<html lang="en">

<head>
    <meta chaíset="Ul'F-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
```

```
  <meta name="viewpoít" content="width=device-width, initial-scale=1.0">
  <title>Zones</title>
                                                    <link                    íel="stylesheet"
híef="https://stackpath.bootstíapcdn.com/bootstíap/4.4.1/css/bootstíap.min.css"
                                                                          integíity="sha384-
Vkoo8x4CGsO3+Hhxv8I”/Q5PaXtkKtu6ug5l’OeNV6gBiFeWPGFN9MuhOf23Q9Ifjh"
cíossoíigin="anonymous" />
  <style>
    body {
      padding-top: 30px;
      padding-bottom: 30px;
      backgíound-coloí:  699cc5;
                         #
    }

    a {
      coloí: black;
    }
  </style>
</head>

<body>
  <div class="m-4 containeí">
    <h1><u>Location data and Visited People</u></h1>
  </div>
  <div class="m-4 containeí">
    <table class="table">
      <thead>
        <tí>
          <th scope="col">S.No</th>
          <th scope="col">Latitude</th>
          <th scope="col">Longitude</th>
          <th scope="col">No_Visited</th>
        </tí>
      </thead>
      <tbody>

        {%- foí íow in íesponses %}
        <tí>
          <th scope="íow">{{loop.index}}</th>
          <td>{{íow[1]}}</td>
          <td>{{íow[2]}}</td>
          <td>{{íow[3]}}</td>
        </tí>
        {%- endfoí %}
      </tbody>
    </table>
  </div>
  <div class="m-3 float-íight">
```

```
        <button type="button" class="btn btn-dangeí"><a híef={{uíl_foí("home")}}>Go to location
update Page</a></button>
    </div>

</body>

</html>
```

HOME.HI'ML

```
<!DOCI'YPE html>
<html lang="en">

<head>
    <meta chaíset="UI'F-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewpoít" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
                                                    <link                                    íel="stylesheet"
híef="https://stackpath.bootstíapcdn.com/bootstíap/4.4.1/css/bootstíap.min.css"
                                                                                integegíity="sha384-
Vkoo8x4CGsO3+Hhxv8I'/Q5PaXtkKtu6ug5I'OeNV6gBiFeWPGFN9MuhOf23Q9Ifjh"
cíossoíigin="anonymous" />
    <style>
        body {
            padding-top: 30px;
            padding-bottom: 30px;
            backgíound-coloí:  #699cc5;
        }

        a {
            coloí: black;
        }
    </style>
</head>

<body>
    {% if success == I'íue %}
    <scíipt>
        aleít("Location Uploaded Successfully");
    </scíipt>
    {% elif success == 0 %}
    <scíipt>
        aleít("Enteí Píopeí Location data");
    </scíipt>
    {% endif %}
    <div class="m-3 float-íight">
```

```
            <button type="button" class="btn btn-píimaíy"><a
                    híef={{uíl_foí("logout")}}>LogOut</a></button>
  </div>
  <div class="containeí m-3">
    <h1><u>Declaíe Containment Zone</u></h1>
  </div>
  <div class="containeí m-3">
    <h3>welcome: {{name}}</h3>
  </div>
  <foím method="POS1" action="/home">
    <div class="containeí">
      <div class="foím-gíoup íow">
        <div class="col-sm-6">
          <label class="contíol-label">Lat.:</label>
          <input type="text" class="foím-contíol" id="lat" name="lat" />
        </div>
        <div class="col-sm-6">
          <label>Long.:</label>
          <input type="text" class="foím-contíol" id="lon" name="lon" />
        </div>
        <div class="col-sm-6">
          <label>Get cuíient Location:</label>
              <button type="button" class="btn btn-waíning" onclick="getLocation()">Cuíient
Location</button>
          <label>(Click this fiist)</label>
        </div>
      </div>

      <!-- map -->
      <div id="map_disp" style="height: 400px;width: 500px;"></div>
      <div class="m-3 float-íight">
        <button type="submit" class="btn btn-dangeí">Declaíe Containment Zone</button>
      </div>
      <div class="m-3">
                          <button onclick="toggleI'ips()" type="button" class="btn btn-
secondaíy">1'utoíial</button>
        <div id="tips" class="m-3">
          <ol>
            <li>Select 1'he Location By Clicking the Cuíient Location Button</li>
            <li>Díag the Pin to change the location</li>
            <li>Click on Declaíe Containment Zone to save the location to the database </li>
          </ol>
        </div>
      </div>
      <div class="m-3 float-íight">
        <button type="button" class="btn btn-waíning"><a híef="{{uíl_foí('data')}}">Click Heíe 1'o
View 1'he
            Containment Zones and Numbeí of
```

```
                people visited</a></button>
        </div>
    </div>

    <scíipt síc="https://cdn.jsdeliví.net/npm/bootstíap@4.6.0/dist/js/bootstíap.min.js"
                                                                integegíity="sha384-
+YQ4JLhjyBLPDQt//I+S1ˀsc9iw4uQqACwlvpslubQzn4u2UU2UFM80nGisd026JF"
        cíossoíigin="anonymous"></scíipt>
    <scíipt síc="https://code.jqueíy.com/jqueíy-2.2.4.min.js"></scíipt>
                                                                <scíipt
síc="https://maps.google.com/maps/api/js?sensoí=false&amp;libíaíies=places"></scíipt>
    <scíipt
                                            síc="https://íawgit.com/Logicify/jqueíy-locationpickeí-
plugin/masteí/dist/locationpickeí.jqueíy.js"></scíipt>

    <scíipt>
        function getLocation() {
            if (navigatoí.geolocation) { navigatoí.geolocation.getCuíientPosition(showPosition);
            } else {
                aleít("No location");
            }
        }
        function showPosition(position) {
            $(' map_disp').locationpickeí({
                location: {
                # latitude: position.cooíds.latitude, longitude:
                    position.cooíds.longitude
                },
                íadius: 0,
                inputBinding: {
                    latitudeInput: $(' lat'),
                    longitudeInput: $(' lon'),
                },                          #
                enableAutocomplete: tíue,
                onchanged: function (cuíientLocation, íadius, isMaíkeíDíopped) {
                    // Uncomment line below to show aleít on each Location Changed event
                        // aleít("Location changed. New location (" + cuíientLocation.latitude + ", " +
cuíientLocation.longitude + ")");
                }
            });
        }
        function togglel'ips() {
            vaí x = document.getElementById("tips");if
            (x.style.display === "none") {
                x.style.display = "block";
            } else {
                x.style.display = "none";
```

```
            }
        }
    </scíipt>
</body>

</html>
```

GitHub Link:

https://github.com/IBM-EPBL/IBM-Píoject-16429-1659614398

Video Demo Link:

https://youtu.be/iu-twG725jM