

IBM PROJECT REPORT

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|--------------|--|
| Date | 12 November 2022 |
| Team ID | PNT2022TMID21935 |
| Project Name | Project - IoTBased Safety Gadgetfor Child Safety Monitoring and Notification |

1. INTRODUCTION

1.1 Project Overview

A tracker that helps parentstrack a child'slocation so that the child does not get into dangerous situations.

1.2 Purpose

Now a day's Parents have more responsibility than older about their children's. Because Crimes rates are increasing day by day in our country, Crimes such as Child Amusement, Rapes, Murders, Illegal Relationship to avoid these kind of crimes parents must watch their children every step. Eventually mobile phones cause major allegations on our society.Many teens must be noticed by their own parents, it is our duty. But sometimes children are arguing with their parents for watching their steps, to overcome these issues, we need to watch them through online

2. LITERATURE SURVEY

| JOURNAL | AUTHOR'S NAME | INFERENCE |
|---|--|--|
| Smart Wearable Device for Child Safety Using IOT. | HM SABAA FATHIMA, V. SENTHIL MURUGAN | The concept of the paper is a device to help the parents to locate their child with ease. The parent can send a text as SMS with specific keywords such as "LOCATION", "TEMPERATURE", "SOS", "BUZZ", etc., to the wearable device. The device will replay back with a text containing the real time accurate location of the child and will also provide the surrounding temperature, it has various sensors to detect child's status. |
| IoT-based Child Security Monitoring System | LAI YI HENG, INTAN FARAHANA BINTI KAMSIN | A smart band have been proposed to monitor the safety of children. By this, parents know what is happening remotely and can take actions if something goes wrong. The future improvements of this device will be adding functions and software to make it works like a phone such as messaging, gallery, Google, YouTube, meanwhile, adding more child security features so that child safety is guaranteed. |
| Implementation of IoT in Child Safety Wearable | ANGELINE REEBA KARKADA, VAISHNAVIM SHETTY, PREETHI SALIAN | The concept of the paper it uses a wearable device which help the parents to get notified if the child faces any unusual situation. It is implemented using a Raspberry Pi3 and the sensors. Sensors collect data and store in the server which can be sent to parents through android application. |

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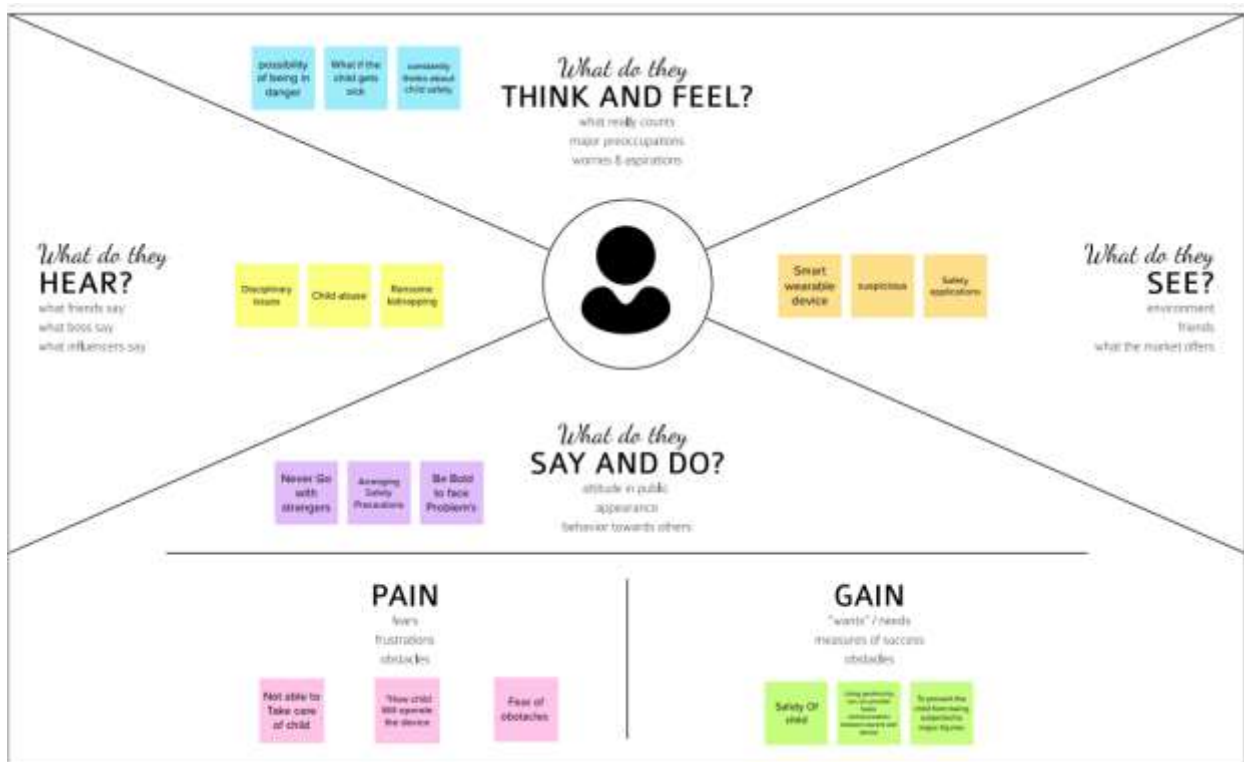
| | | |
|---|---|---|
| Low Cost Intelligent Child Safety Wearable IoT Device for India | FIROZ KHAN, YASHAS S, SHIVANGOWDA R PATIL, NANDINI G J, GREESHMA P S | The concept of the paper is a smart wearable device for low cost which can be affordable for common people. This device is designed such that it monitors the child location and alerts the parents by sending SMS or voice message when the child moves out of the boundary. This paper describes the system which comprises of an MPU 6050 gyroscope, Node MCU microcontroller and other sensors, GPS receiver for smart and safe usage. |
| IoT Based Child Localization System | W. ANTO WIN SHALINI, J.LYDIA, DR.S.LEONES, SHERWIN VIMALRAJ | The concept of the paper is SMS text enabled communication medium between the child's wearable and the parent as the environment for GSM mobile communication is almost present everywhere, the wearable device will reply back with a text containing the real time accurate location of the child which upon tapping will provide directions to the child's location on google maps, another feature added to the device is HEART BEAT SENSOR which will monitor the child's heart beat and sends an intimation message to the parents once its removed from the child. |

Problem Statement Definition

Child tracker helps the parents in continuously monitoring the child's location. They can simply leave their children in school or parks and create a geofence around the particular location. By continuously checking the child's location notifications will be generated if the child crosses the geofence. Notifications will be sent according to the child's location to their parents or caretakers.

3. IDEATION & PROPOSED SOLUTION

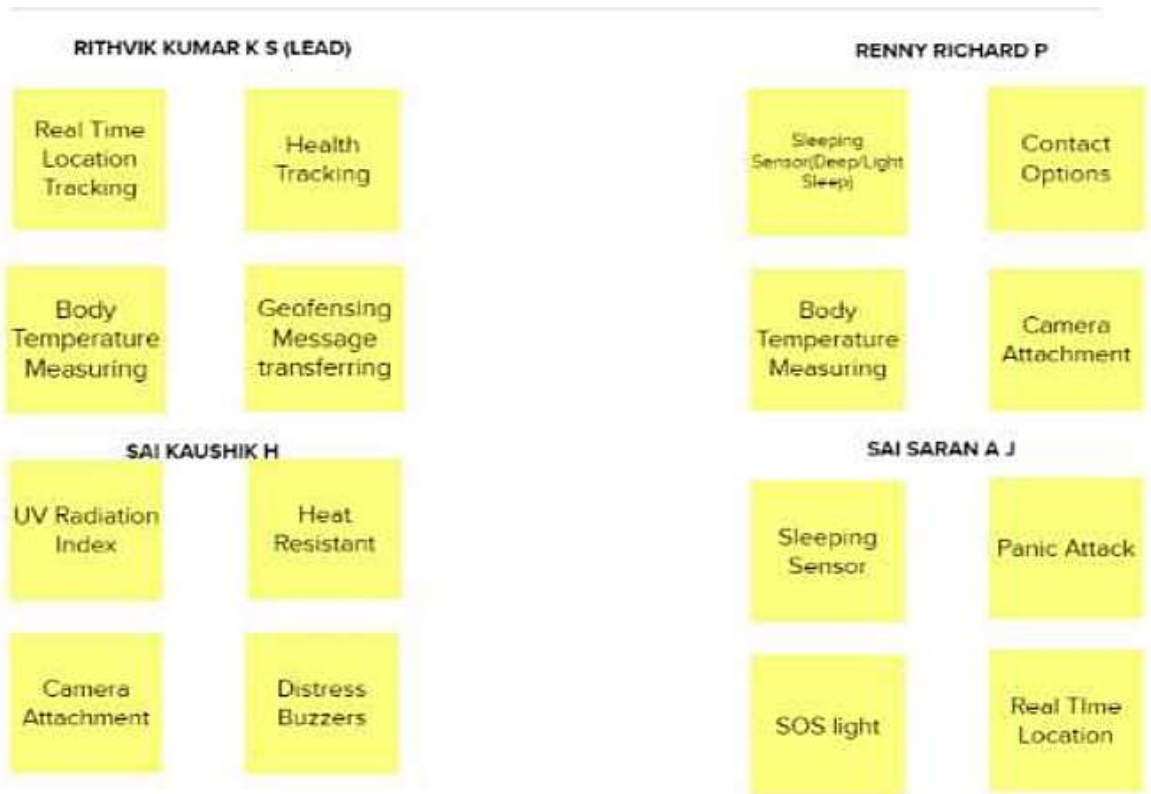
3.1 Empathy Map Canvas



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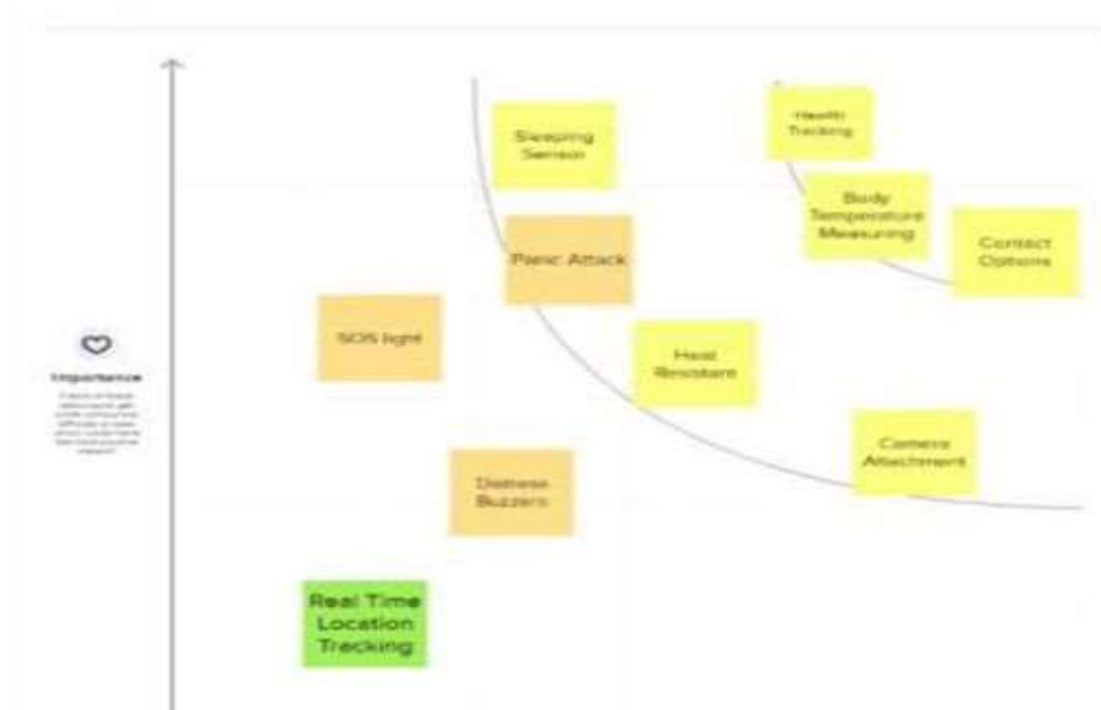
3.2 Ideation and Brainstorming

BRAINSTORMING:



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Ideation Prioritization



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3.3 PROPOSED SOLUTION

| S.No. | Parameter | Description |
|-------|--|--|
| 1. | Problem Statement (Problem to be solved) | With the increasing rate of child kidnapping and trafficking and lack of tracking technology for child, there is limited Application for child monitoring. Hence an IOT based safety gadget for child safety is probably the need most today |
| 2. | Idea / Solution description | A good solution to this issue would be to design a smart wearable IOT sensor based device for monitoring the environment of a child along with a Mechanism for tracking the child. The gadget will make use of GPS and a python script to publish the location details to the IBM IoT Platform. The wearable also functions to send immediate alerts to the user through in case if the child crosses the Geofence. |
| 3. | Novelty / Uniqueness | All the existing systems make use of GPS and a mobile app to track and receive alerts regarding the child's location and those don't show the exact location and they are unreliable, while this system make use of the IBM Watson IOT Platform and IBM Cloud Services which is reliable and efficient to maintain the database of the child's location. The parent can set geofence and receive alerts through the web application which is user friendly and secure created by using the Node Red Service. |
| 4. | Social Impact / Customer Satisfaction | The main concern of any parent would be the safety and security of their kids. The design of this model does not mandate a lot of technical knowledge from the user to operate and it is simple. The purpose of this device is to facilitate the guardian or parents in locating their child with ease and ensuring its wellbeing. |
| 5. | Business Model (Revenue Model) | The target audience of this device is majorly the parents. Considering the Tracking ability of the device, Hardware quality, used technology and sensors, the starting range of price would go from Rs. 6000 and above. This type of wearable |

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3.4.Problem Solution fit

| | | |
|---|--|--|
| <p>Define CS, fit into CC</p> <p>1. CUSTOMER SEGMENT(S) CS Who is your customer? - working parents, 2-5 y.o. kids</p> <p>1) Parents who are engaged in their work. 2) Care-taker who are aged. 3) Customer who can't be with their child.</p> | <p>6. CUSTOMER CONSTRAINTS CC What constraints prevent your customer from taking action or limit their choices of solutions? (e.g. spending power, budget, no-cable network connection, available devices)</p> <p>1) Didn't know the exact solution to solve the Problem. 2) It is too costly to afford.</p> | <p>5. AVAILABLE SOLUTIONS AS Which solutions are available to the customers when they face the problem in need to get the job done? What have they tried or the past? What pros & cons do these solutions have? (e.g. pen and paper is an alternative to digital monitoring)</p> <p>Child tracking and monitoring gadget can be a best solution.</p> <p>Explore AS, differentiate</p> |
| <p>Focus on J&P, lay into BE, understand RC</p> <p>2. JOBS-TO-BE-DONE / PROBLEMS J&P Which jobs-to-be-done (or problems) do you address for your customer? There could be more than one, progress through action.</p> <p>1) To protect the child from harm. 2) To track current location. 3) To raise alarm in-case of emergency. 4) To record messages, if the child crosses the geo-fence.</p> | <p>4. PROBLEM ROOT CAUSE RC What is the real-cause of the problem(s)? What is the basic story behind the need to fix this job? -> Customers have to do it, because of the danger of kidnapping.</p> <p>Due to lack of child safety and increasing fear of the parents about the child locations and their actions.</p> | <p>7. BEHAVIOUR BE What does your customer do to address the problem and get the job done? (e.g. already existed, find the right solution, calculate usage and benefits, indirectly associated) customers spend time on volunteering work (e.g. Greenpeace)</p> <p>1) Wearable tracker that helps to monitor their child. 2) Alert GPS can also be a solution.</p> <p>Focus on J&P, lay into BE, understand RC</p> |
| <p>Identify strong TR & EM</p> <p>3. TRIGGERS TR Because of the increasing abducts in the society and the child who is not grown enough to take care of themselves.</p> <p>4. EMOTIONS: BEFORE / AFTER EM How do customers feel when they face a problem at a job and afterwards? (e.g. lost, insecure, confident, in control - use it in your communication strategy & design)</p> <p>Before: worried, disconsolate. After: intrepid, peaceful.</p> | <p>10. YOUR SOLUTION SL To design a gadget for protection and alert the parents in emergency.</p> | <p>8. CHANNELS of BEHAVIOUR CH Online: Apps can be developed to track the child's live location. Offline: sensor can be used.</p> <p>Identify strong TR & EM</p> |

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4. REQUIREMENT ANALYSIS

4.1 Functional Requirements

| FR No. | Functional Requirement (Epic) | Sub Requirement (Story / Sub-Task) |
|--------|-------------------------------|--|
| FR-1 | User Registration | Registration through Form Registration through Gmail |
| FR-2 | User Confirmation | Confirmation via Mail Confirmation via OTP |
| FR-3 | User Notification | Notification to registered Mobile number Notification via message |
| FR-4 | User location check | Check through account |

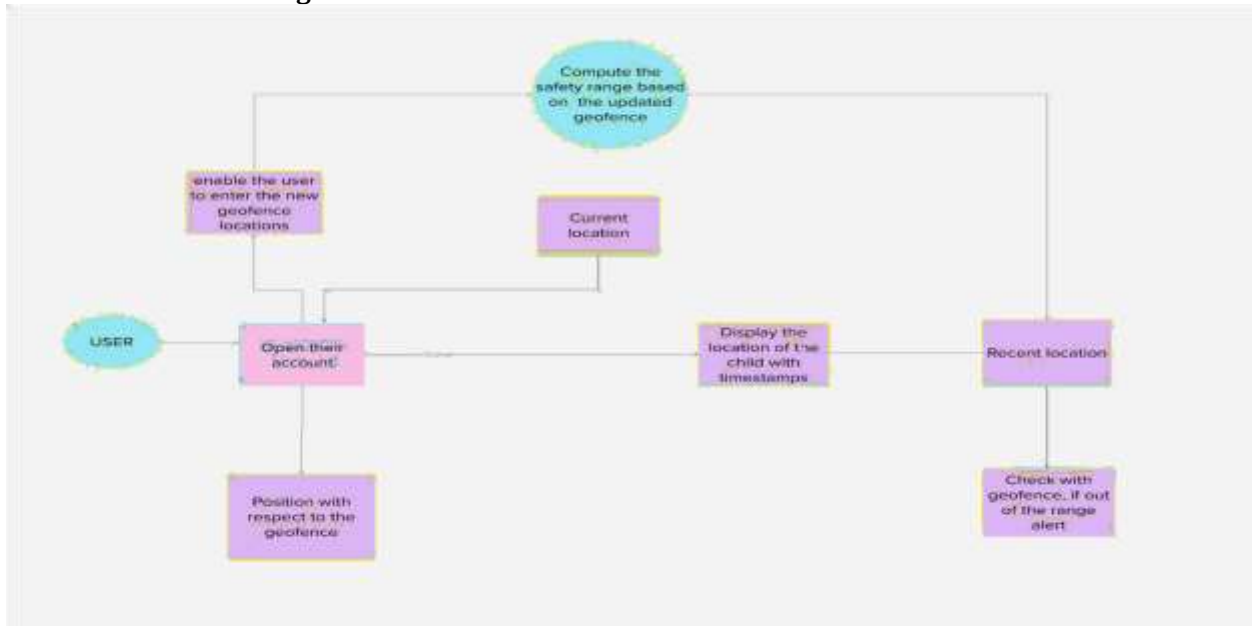
4.2 Non Functional Requirements

| FR No. | Non-Functional Requirement | Description |
|--------|----------------------------|--|
| NFR-1 | Usability | Allows parents to keep a track of their child's location and also, help them raise an alarm in case of an emergency. |
| NFR-2 | Security | Creates a secure environment for child to move around. |
| NFR-3 | Reliability | Increased reliability towards technology and reduced reliability towards guardians. |
| NFR-4 | Performance | High performance in terms of simple usage and security. |
| NFR-5 | Availability | Any time usage backed up by power supply. |
| NFR-6 | Scalability | High level with increase in performance. |

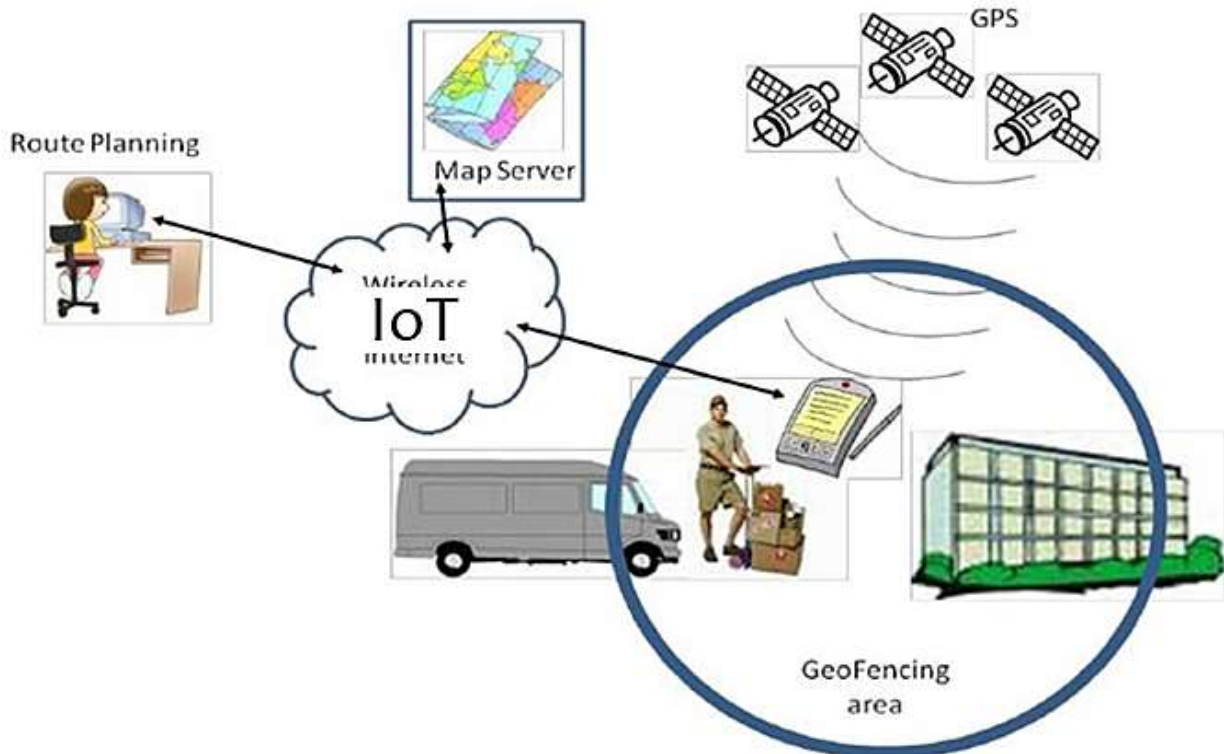
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5. Project Design

5.1 Data flow Diagram



5.2 Solution And Technical Architecture:



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Technical Architecture

Table-1: Components & Technologies:

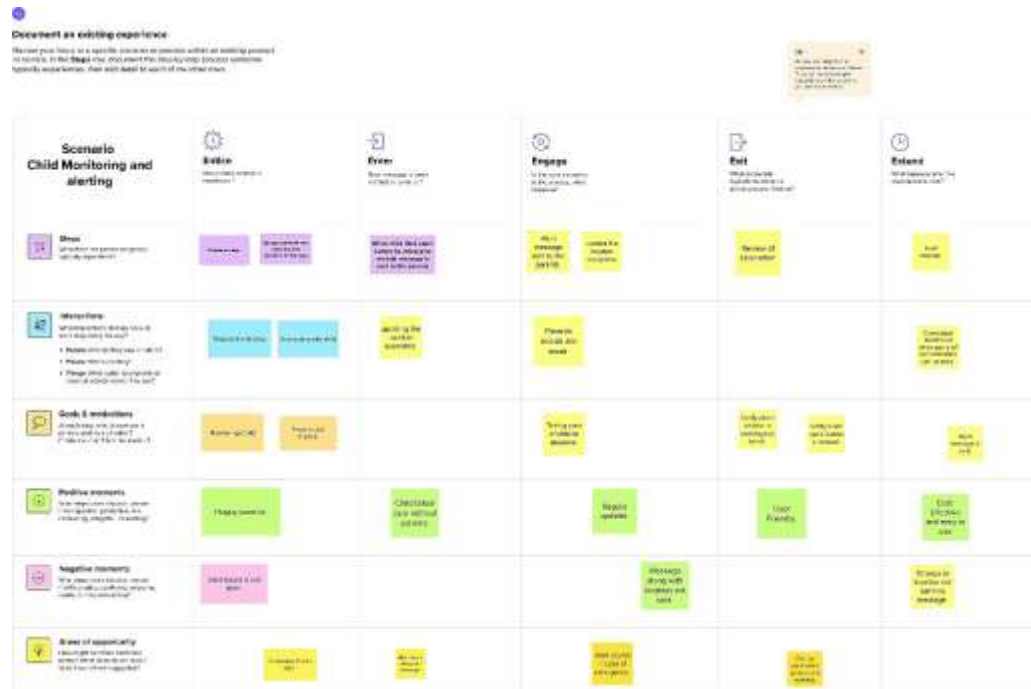
| S. No | Component | Description | Technology |
|-------|---------------------|---|--------------------------|
| 1. | User Interface | How user interacts with application e.g. Web UI, Mobile App, Chatbot etc. | Java |
| 2. | Application Logic-1 | Logic for a process in the application | Java |
| 3. | Database | Data Type, Configurations etc. | Firebase |
| 4. | External API-1 | Purpose of External API used in the application | Google Maps API |
| 5. | Notification | Alert Notification when exited the geofence | Firebase Cloud Messaging |

Table-2: Application Characteristics:

| S.No | Characteristics | Description | Technology |
|------|--------------------------|--|---|
| 1. | Security Implementations | List all the security / access controls implemented, use of firewalls etc. | We are using the Google Maps <u>API</u> , so for every instance of time it updates the current location of the children to their parents/caretakers. |
| 2. | Scalable Architecture | Justify the scalability of architecture (3 – tier, Micro-services) | The technology is used to monitor and send alert notification. |
| 3. | Availability | Justify the availability of applications (e.g. use of load balancers, distributed servers etc.) | We are using the geofence, a service that triggers an action when a device enters a set location |
| 4. | Performance | Design consideration for the performance of the application | We are using Firebase , to send the notification |

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5.3 User stories



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6.PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

| Sprint | Functional Requirement (Epic) | User Story Number | User Story / Task | Story Points | Priority | Team Members |
|----------|---|-------------------|--|--------------|----------|-------------------|
| Sprint-1 | Create and Configure IBM Cloud Services | USN-1 | As a user I need to enrol the cloud registration | 6 | HIGH | RITHVIK KUMAR K.S |
| Sprint-1 | | USN-2 | As a user, I will create IBM cloud account. | 2 | MEDIUM | RITHVIK KUMAR K.S |
| Sprint-1 | | USN-3 | After creating cloud account launch IBM Watson IOT platform by accessing cloud account | 5 | HIGH | RENNY RICHARD. P |
| Sprint-1 | | USN-4 | Create the node in IBM Watson platform | 3 | HIGH | SAI KAUSHIK. H |
| Sprint-1 | | USN-5 | After Creating node get device Type and id | 1 | LOW | SAI SARAN A.J |
| Sprint-1 | | USN-6 | Simulate the node created | 3 | MEDIUM | SAI SARAN A.J |
| Sprint-2 | Create and access Node-Red | USN-7 | As a user ,I can create Node-red by app deployment | 5 | HIGH | RENNY RICHARD. P |
| Sprint-2 | | USN-8 | Connect IBM Watson with node red through API key | 5 | LOW | RITHVIK KUMAR K.S |
| Sprint-2 | | USN-9 | Design the project flow using Node-Red | 7 | HIGH | SAI SARAN A.J |
| Sprint-2 | | USN-10 | Check for the proper connections and the output in the node red application | 3 | MEDIUM | SAI KAUSHIK. H |

| Sprint | Functional Requirement (Epic) | User Story Number | User Story / Task | Story Points | Priority | Team Members |
|----------|-------------------------------|-------------------|--|--------------|----------|-------------------|
| Sprint-3 | User signup/login | USN-11 | As a user, I can sign up for the application by entering my phone number , user name, password, and confirming my password | 2 | HIGH | RENNY RICHARD. P |
| Sprint-3 | User confirmation | USN-12 | As a user, I can login with my username and password once signed up, I will receive confirmation mail and OTP. | 2 | LOW | SAI KAUSHIK. H |
| Sprint-3 | Setting geo-fence | USN-13 | To specify the geo location coordinates for geofence based on user given input | 4 | HIGH | SAI KAUSHIK. H |
| Sprint-3 | Tracking location | USN-14 | I input live location from sensor | 4 | HIGH | SAI SARAN A.J |
| Sprint-3 | User location check | USN-15 | I check for out of boundary location against established geo-fence by fetching live location from cloud database | 2 | LOW | RENNY RICHARD. P |
| Sprint-3 | Database | USN-16 | Creation of a database | 6 | HIGH | RITHVIK KUMAR K.S |
| Sprint-4 | Interfacing | USN-17 | To connect all involved scripts, database and devices | 10 | HIGH | RENNY RICHARD. P |
| Sprint-4 | User notification | USN-18 | To develop a module to notify user via app in case of possible emergency | 10 | MEDIUM | RITHVIK KUMAR K.S |
| Sprint-4 | Emergency usage | USN-19 | To develop a module to notify user via mobile number in case of possible emergency | 5 | HIGH | SAI SARAN A.J |
| Sprint-4 | Maintaining Database | USN-20 | Monitor and maintain all database | 5 | HIGH | SAI KAUSHIK. H |

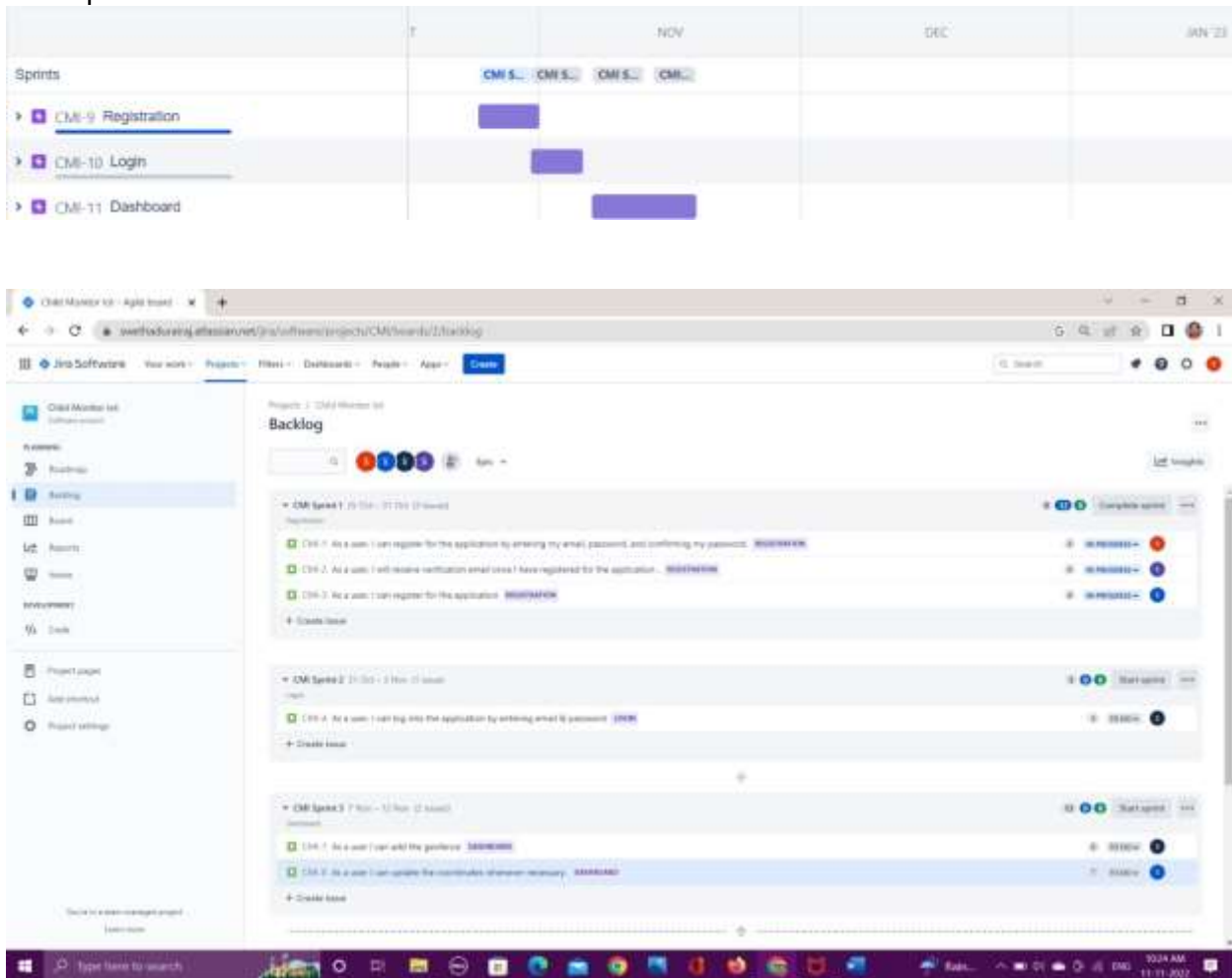
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6.2 Sprint Delivery Schedule

Project Tracker, Velocity & Burndown Chart: (4 Marks)

| Sprint | Total Story Points | Duration | Sprint Start Date | Sprint End Date (Planned) | Story Points Completed (as on Planned End Date) | Sprint Release Date (Actual) |
|----------|--------------------|----------|-------------------|---------------------------|---|------------------------------|
| Sprint-1 | 20 | 6 Days | 24 Oct 2022 | 29 Oct 2022 | 20 | 29 Oct 2022 |
| Sprint-2 | 20 | 6 Days | 31 Oct 2022 | 05 Nov 2022 | 20 (In progress) | 05 Nov 2022 |
| Sprint-3 | 20 | 6 Days | 07 Nov 2022 | 12 Nov 2022 | 20 (In progress) | 12 Nov 2022 |
| Sprint-4 | 30 | 6 Days | 14 Nov 2022 | 19 Nov 2022 | 30 (In progress) | 19 Nov 2022 |

6.3 Reports From JIRA



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7.Coding and Solutioning:

7.1Feature 1(AddingGeofence)

→ Geofence is like a round wall covering the given location. So parents can use them to mark the location where their children is going .

→ Multiple Geofence can be added

```
1. package
    com.example.geofence;import
    android.app.PendingIntent;import
    android.content.Context;
import android.content.ContextWrapper;
import android.content.Intent;
import android.widget.Toast;

import
com.google.android.gms.common.api.ApiException;import
com.google.android.gms.location.Geofence;
import com.google.android.gms.location.GeofenceStatusCodes;import
com.google.android.gms.location.GeofencingRequest;import
com.google.android.gms.maps.model.LatLng;

public class GeofenceHelper extends ContextWrapper {

    private static final String TAG = "GeofenceHelper";
    PendingIntent pendingIntent;

    public GeofenceHelper(Context base) {
        super(base);
    }

    public GeofencingRequest getGeofencingRequest(Geofence geofence) {return new
        GeofencingRequest.Builder()
            .addGeofence(geofence)

        .setInitialTrigger(GeofencingRequest.INITIAL_TRIGGER_ENTER)
            .build();
    }

    public Geofence getGeofence(String ID,LatLng latLng, float radius,int transitionTypes) {
        return new Geofence.Builder()
            .setCircularRegion(latLng.latitude, latLng.longitude,

radius)
```

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```
    }

    .setRequestId(ID)
    .setTransitionTypes(transitionTypes)
    .setLoiteringDelay(5000)
    .setExpirationDuration(Geofence.NEVER_EXPIRE)
    .build();

    public PendingIntent getPendingIntent() {if
        (pendingIntent != null){
            return pendingIntent;
        }
        Intent intent = new Intent(this, GeofenceBroadcastReceiver.class);pendingIntent
        =PendingIntent.getBroadcast(this, 2607,intent,
PendingIntent.FLAG_IMMUTABLE);

        return pendingIntent;
    }

    public String getErrorString(Exception e) {if(e
        instanceof ApiException) {
        ApiException apiException = (ApiException) e;
        switch(apiException.getStatusCode()) {
            case GeofenceStatusCodes
                .GEOFENCE_NOT_AVAILABLE:
                return
                "GEOFENCE_NOT_AVAILABLE";
            case GeofenceStatusCodes
                .GEOFENCE_TOO_MANY_GEOFEN
                CES:return
                "GEOFENCE_TOO_MANY_GEOFENCES";
            case GeofenceStatusCodes
                .GEOFENCE_TOO_MANY_PENDING_INTENTS:
                return
                "GEOFENCE_TOO_MANY_PENDING_INTENTS";
        }
    }
    return e.getLocalizedMessage();
}
}
```

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7.2 Feature2 (Alert Notification)

- ➔ Once geofence is added, when the child enters the geofence a notification will be sent
- ➔ When the child leaves the geofence a notification will be sent.

```
import
android.util.Log;import
android.widget.Toast;

import com.google.android.gms.location.Geofence;import
com.google.android.gms.location.GeofencingEvent;

import
java.util.List;import
android.os.Handler;

public class GeofenceBroadcastReceiver extends BroadcastReceiver {
    private static final String TAG = "GeofenceBroadcastReceiv";@Override

    public void onReceive(Context context, Intent intent) {
        //TODO: This method is called when the BroadcastReceiver is receiving
        // an Intent broadcast
        //.
        /*Toast.makeText(context, "GEOFENCE_ENTERED",
        Toast.LENGTH_SHORT).show();

        final Toast mToastToShow;
        int toastDurationInMilliseconds = 1200000;
        mToastToShow = Toast.makeText(context, "GEOFENCE_EXITED",
        Toast.LENGTH_LONG);

        //Set the countdown to display the toast
        CountdownTimer toastCountDown;
        toastCountDown = new CountdownTimer(toastDurationInMilliseconds, 100000)

    {
        public void onTick(long millisUntilFinished) {
            mToastToShow.show();
        }

        public void onFinish() {
            mToastToShow.cancel();
        }
    }
};
```

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```
// Show the toast and starts the countdown
mToastToShow.show();
toastCountDown.start();*/
```

```
NotificationHelper notificationHelper = new
NotificationHelper(context);
```

```
notificationHelper.sendHighPriorityNotification("GEOFENCE_TRANSITION_ENTER", "",
MapsActivity.class);
```

```
GeofencingEvent geofencingEvent = GeofencingEvent.fromIntent(intent);if
```

```
(geofencingEvent.hasError()) {
```

```
Log.d(TAG,"onReceive: Errorreceiving geofence event...package
com.example.geofence;import android.app.PendingIntent;import
android.content.Context;
```

```
break;
```

```
}
```

8. Testing

8.1 Test Cases

| Test case ID | Feature Type | Component | Test Scenario | Pre-Conditions | Steps To Execute | Test Data | Expected Result | Actual Result | Exec. St. | Comments | TC Pass Automation(Y/N) |
|--------------------|--------------|--------------|---|----------------|---|--|--|---------------------|-----------|----------|-------------------------|
| LoginPage_TC_001 | Functional | Home Page | Verify user is able to see the Login/Signup popup when user clicked on app. | | 1.Error App 2.Verify login/Signup popup displayed as expected. | | Login/Signup popup should display | Working as expected | Pass | | Y |
| LoginPage_TC_002 | UI | Home Page | Verify the UI elements in Login/Signup popup | | 1.Error App 2.Verify login/Signup popup with below UI elements: a. email text box b. password text box c. Login button d. Sign Up button e. Register button | | Application should show below UI elements: a. email text box b. password text box c. Login button with orange colour d. Sign Up button e. Register button | Working as expected | Pass | | Y |
| LoginPage_TC_003 | Functional | Home page | Verify user is able to log into application with Valid credentials | | 1.Error App 2. Enter Valid username/email in Email text box 3. Enter valid password in password text box 4. Click on Login button. | Username: sbod@gmail.com password: Testing123 | User should navigate to user account home page. | Working as expected | Pass | | Y |
| LoginPage_TC_004 | Functional | Login page | Verify user is able to log into application with Invalid credentials | | 1.Error App 2. Enter Invalid username/email in Email text box 3. Enter valid password in password text box 4. Click on Login button. | Username: sbod@gmail.com password: Testing123 | Application should show "Login error. There is no user record corresponding to the identifier" | Working as expected | Pass | | Y |
| LoginPage_TC_004 | Functional | Login page | Verify user is able to log into application with Valid credentials | | 1.Error App 2. Enter Valid username/email in Email text box 3. Enter Invalid password in password text box 4. Click on Login button. | Username: test123@minimaps.co.uk password: Testing1234567890123456789 | Application should show "The Password is invalid" | Working as expected | Pass | | Y |
| LoginPage_TC_005 | Functional | Login page | Verify user is able to log into application with Invalid credentials | | 1.Error App 2. Enter Invalid username/email in Email text box 3. Enter Invalid password in password text box 4. Click on Login button. | Username: sbod@gmail.com password: Testing1234567890123456789 | Application should show "Login error. There is no user record corresponding to the identifier" | Working as expected | Pass | | Y |
| Dashboard | Functional | Dashboard | Adding geofence in the location map | | 1.Error App 2. Enter the valid username and password | | Application show a red circle around the location | Working as expected | Pass | | Y |
| Alert Notification | Functional | Notification | Notification when the user entered the geofence | | 1.Error App 2. Enter the valid username and password 3. Add the Geofence | | Application sent the notification "Entered the location" | Working as expected | Pass | | Y |
| Alert Notification | Functional | Notification | Notification when the user exited the geofence | | 1.Error App 2. Enter the valid username and password | | Application sent the notification "Exited the location" | Working as expected | Pass | | Y |

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8.2 User Acceptance Testing

1. Defect Analysis:

| Resolution | Severit y1 | Severit y2 | Severit y3 | Severit y4 | Subtot al |
|-------------------|---------------|---------------|---------------|---------------|--------------|
| By Design | 11 | 4 | 2 | 2 | 19 |
| Duplicate | 1 | 1 | 2 | 0 | 4 |
| External | 2 | 3 | 0 | 1 | 6 |
| Fixed | 10 | 2 | 3 | 20 | 35 |
| Not Reproduced | 0 | 0 | 2 | 0 | 2 |
| Skipped | 0 | 0 | 2 | 1 | 3 |
| Won't Fix | 0 | 5 | 2 | 1 | 8 |
| Totals | 24 | 15 | 13 | 25 | 77 |

2. Test Case Analysis

| Section | Total Cases | Not Teste d | Fail | Pass |
|---------------------|----------------|-------------------|------|------|
| Print Engine | 5 | 0 | 1 | 4 |
| Client Application | 47 | 0 | 2 | 45 |
| Security | 3 | 0 | 0 | 3 |
| Outsource Shipping | 2 | 0 | 0 | 2 |
| Exception Reporting | 11 | 0 | 2 | 9 |
| Final ReportOutput | 5 | 0 | 0 | 5 |
| Version Control | 3 | 0 | 1 | 2 |

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9. Results:

1. User registration:

User gets registered to the app using their mail and create their password. On the user is registered a verification mail will be sent to the user mail id. The user needs to verify the account. All user details are stored in the firebase and verification mail is sent by firebase authentication .

Registration Page

Geofence



Register

Email

Password

REGISTER

Already registered [Login here](#)

Verification Mail



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2. User Login:

User with their registered mail and password will login to the account . As the details are stored in firebase, when invalid mail or password is entered a message say invalid mail or password occur

Login Page

Geofence




Login

LOGIN

Not registered yet **Register here**

User details

 **Firebase**

Project Overview

Project shortcuts

Authentication

Product categories

Build

Release & Monitor

Analytics

Engage

All products

Customize your nav!

Spark



childlogin

Authentication

Users Sign-in method Templates Usage Settings

Search by email address, phone number, or user UID

Add user

| Identifier | Providers | Created | Signed in | User UID |
|-----------------------------|---|--------------|-----------|-----------------------------|
| gpbaj123@gmail.com |  | Nov 11, 2022 | | OTPKXwzNcagGBuOXpewDo3zS... |
| swetha.durairaj2002@gsma... |  | Nov 11, 2022 | | 05Q3ecLYAh0d5ZAx8B8SRNm8J63 |

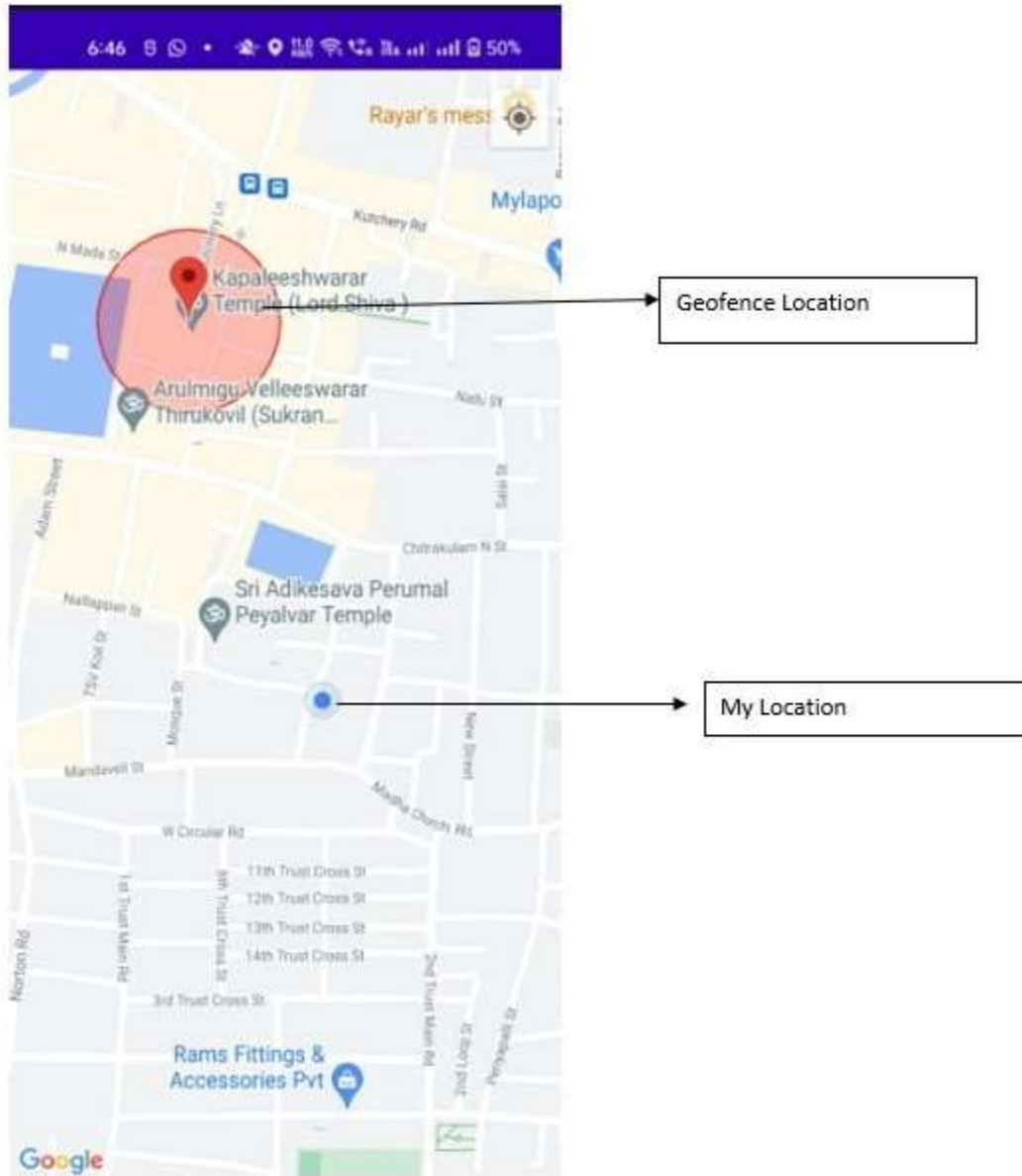
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3. Adding Geofence and Alert Notification

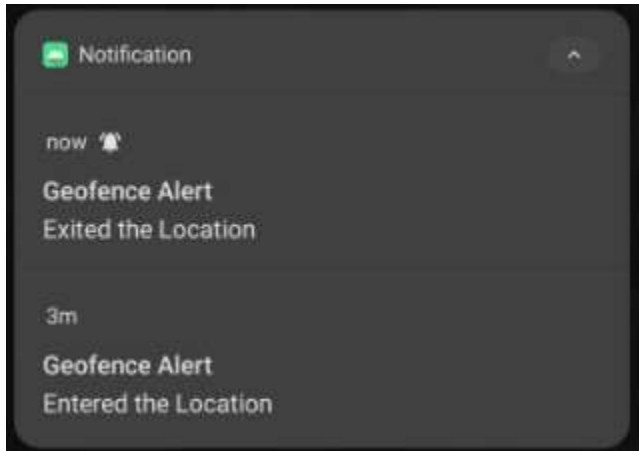
User can add geofence in the location where they want to add or where their child is going play so they can monitor the child location. Once the child enter the geofence alert notification says entered the location will be displayed . When the child leaves the geofence alert notification says exited the location will be displayed.

Geofence



IBM PROJECT REPORT

Notification



10. ADVANTAGES & DISADVANTAGES

ADVANTAGES:

1. Simple and easy to use
2. Parents can feel secure because if the child leaves the desired location and immediately a notification will be sent
3. Geofence can be added easily

DISADVANTAGES:

1. Multiple geofence can be a problem

11. CONCLUSION

This research demonstrates a Smart IoT device for child safety and tracking, to help the parents to locate and monitor their children. Through this device, the parent can track and monitor their child with just a simple app. It is not possible to always stay beside children as most of the parents need to go for work. With this project, parents can track the location of their children and get alerts whenever the child goes out of the geofence. It becomes easy for parents to look after their child while working. This device is efficient to use. Thus, by keeping in mind the advantages and applications we are developing a child monitoring device. In order to avoid kidnapping cases, the child monitoring system is needed.

12. FUTURE SCOPE:

The future work would be to further develop and implement the safety wearable device so that it could be woven or sewn into a fabric that could be worn, using synthetic fibers.

13. Appendix

Source Code

<https://github.com/IBM-EPBL/IBM-Project-12490-1659452178>

GitHub

<https://github.com/IBM-EPBL/IBM-Project-12490-1659452178>

Project Demo Link

<https://www.youtube.com/embed/x4QC80V88g>