Date	21 October 2022
Team ID	PNT2022TMID04739
Project Name	Industry-specific intelligent fire management system
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PROJECT REPORT

ABSTRACT

This study focuses on designing a device that can track a child's whereabouts using GPS, as well as having a panic button that can warn the parent by using a GSM module to call for help. Android parental software is created to control and track the device at any time. Smart gadget device is always linked to parental phone, which can receive and make calls as well as send and receive SMS on gadget via GSM module. Wireless technology is also implemented on device, which is useful to bind the gadget within a region of monitoring range; if gadget moves out of monitoring range, alert will be triggered on binding gadget, helping you keep a virtual eye on child.On-device health monitoring system Checking for factors that can be monitored by a parental app include heart rate, pulse, and temperature. Using a contact switch, the gadget also keeps track of whether it is plugged in or not and notifies the parent if it is unplugged.

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CHAPTER 1

INTRODUCTION

This innovation aims to increase child safety by developing a device that can be tracked using GPS locations and has a panic button to alert the parent via a GSM module. Parents may regulate and keep an eye on the gadget at all time thanks to an Android app. Parents' phones, which have a GSM module and can send and receive SMS messages as well as phone calls, are always connected to smart device gadgets. Additionally, the device has wireless technology, which is helpful to bind the device inside a region of monitoring range; if the device is moving outside of monitoring range, an alert will be triggered on a binding device, assisting you in maintaining a virtual watch over the child. If a bound gadget goes out of the monitoring range, an alarm will be generated, letting you maintain a virtual eye on the child. The health monitoring system that ships with devices measures things like temperature, pulse, and heart rate. These signs can be monitored thanks to the parental control software. The gadget also monitors whether it is plugged in or not via a contact switch, alerting the parent when it is unplugged.

CHAPTER 2

LITERATURE SURVEY

Smart IoT device for Child Safety and Tracking - Child safety and tracking is a major concern as the more number of crimes on children are reported nowadays. With this motivation, a smart IoT device for child safety and tracking is developed to help the parents to locate and monitor their children. The system is developed using LinkIt ONE board programmed in embedded C and interfaced with temperature, heartbeat, touch sensors and also GPS, GSM & digital camera modules. The novelty of the work is that the system automatically alerts the parent/caretaker by sending SMS, when immediate attention is required for the child during emergency. The parameters such as touch, temperature &heartbeat of the child are used for parametric analysis and results are plotted for the same. The above system ensures the safety and tracking of children.

IoT Based Smart Gadget for Child Safety and Tracking- This paper is mainly streamed towards child safety solutions by developing a gadget which can be tracked via its GPS locations and also a panic button on gadget is provided to alert the parent via GSM module calling for help. Parental android app is developed to manage and track the device anytime. Smart gadget device is always connected to parental phone which can receive and make phone calls and also receive SMS on gadget via GSM module, also a wireless technology is implemented on device which is useful to bound the device within a region of monitoring range, if device is moving out of monitoring range then an alert will be triggered on binding gadget, this helps you keep a virtual eye on child. Health monitoring system on gadget checking for parameters like heart beat/pulse rate and temperature is included which can be monitored on parental app. Gadget also monitors whether it is plugged on hand or not using contact switch and alert the parent as soon as it is unplugged.

Design of Wearable Device for Child Safety-Now-a days attacks on children are increasing at an unprecedented rate and the victims are in dangerous conditions, where they are not allowed to contact the family members. The key idea planned in this research work is an advanced technology that offers "Smart Child Safety" for the children. Therefore, the awareness of this method is to send an SMS from children's wear tool to their parent or guardian. In the prevailing structure, there is no monitoring method for child, it should create many problems for them and the no protection mechanism to protect the child from the misbehavior. In addition, there is no aware device for the child's protection; it must be completed by hand only. Thus, the planned method will be highly effective when compared to the other existing techniques in helping the victims. Moreover, it doesn't need any manual operation. This paper recommends a newfangled technology for child protection by using GSM so that the children will not feel abandoned while facing such social problems. The problems overawed here using Arduino UNO, GSM, sensors, MEMS, temperature and panic button by using IOT. In such case, Heartbeat Sensor track the best rate for children and sends the emergency message by using the GSM to save contacts. Such method is actually supportive for children in today's world. Hence, this provides a security to the children and secures the feeling of parents.

Safety Device for Children Using IoT and Deep Learning Techniques - The safety and security of children is a major problem in the current era. The children are too young to take care of themselves. We cannot monitor the children at all times in school, play area, and outside place. In this paper, we discuss the concept of child safety device based on Internet of things. The aim of this device is to provide safety to the child by allowing the parent to locate the child and view their surroundings. This device can be used to monitor the temperature and motion of the child. If any problem persists, the GSM mobile communication module automatically sends a text message to the parent as SMS. The other features of the device are emergency light and alarm buzzer which are activated when the button is pressed by the child in a distress situation to seek the attention of the bystanders. The accelerometer and vibration sensors are used to detect the motion of the child. The camera is used to capture the environment of the child. The image taken is processed using convolutional neural network (CNN) which

predicts the background like play area, railway station, beach, road, or classroom. The GPS module is used to record current location of the device which is used to track the device if the child is missing. Hence, this device provides a security cover to the child in today's time.

CHAPTER 3

IDEATION AND PROPOSED SOLUTION

3.1 Empathy map canvas
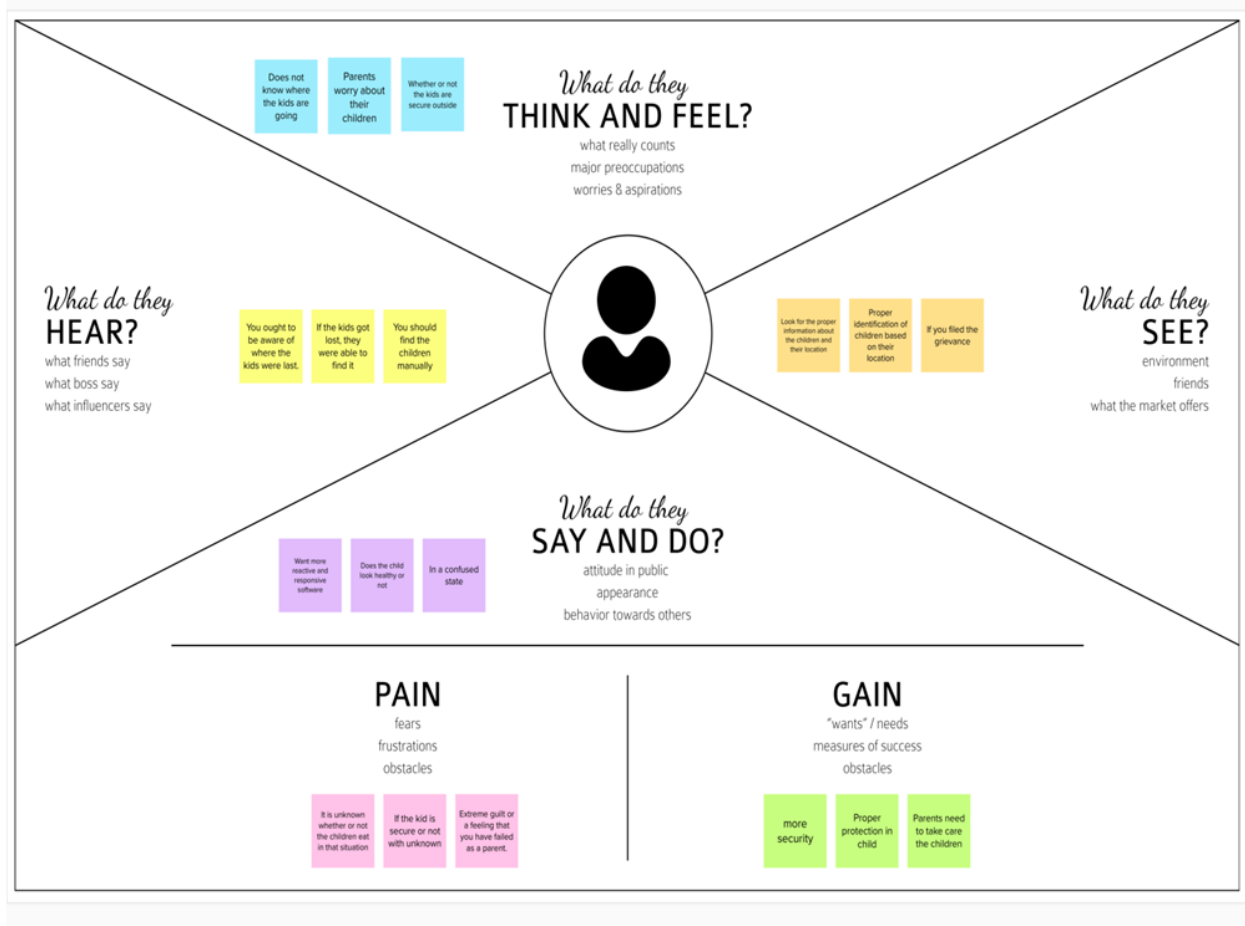
3.2 Ideation and brainstorming

Idea 1:

A compact wearablegadget with a pressure switch.The user can apply pressure to the device by squeezing or compressing it as soon as an attacker is preparingto attack the person or as soon as the person perceives any insecurity from a stranger. Instantaneously the pressure sensor

detects this pressure, and a call is placed to the victim's parents' or guardian's mobile phone numbers that were put in the device at purchase, along with a regular SMS that includes the victim's location. The identical message will be delivered to the policeif the call goes unanswered for an extended period of time. Further,a message with the person'scurrent location is sent to the parent or guardian's phone by standard SMS if the person enters an area that is typically off limits to them.

Idea 2:

By creating a device that can be followed using GPS locations and has a panic button to inform the parent via a GSM module, this invention is primarily focused on improving child safety. An Android app for parents is created to control and monitor the device at any time. Smart gadget device is always connected to parents' phone, which can receive and make phone calls as well as SMS on gadget via GSM module. Additionally, wireless technology is implemented on the device, which is useful to bind the device within a region of monitoring range; if the device is moving out of monitoring range, an alert will be triggered on a binding gadget, helping you maintain a virtual watchover the child.An alert will be sent to a bound device if the device moves outside of the monitoring range, allowing you to keep a virtualcheck on the child. Devicescome with a health monitoring system that checks for factors including heart rate, pulse, and temperature. The parental app allows for the monitoring of these indicators. Using a contact switch, the device also keeps track of whether or not it is plugged in and notifies the parent the moment it is unplugged.

Idea 3:

According to the latest surveys, the number of cases of childabduction and missing children in India is steadily rising. One of the primary worries for parents today is the safety of their children on school buses and outside of school premises, The suggested system makes an effort to give kids security features using new techniques that are introduced to the current safety system for better defense. A portable unit, a cloud platform, and an Android application make up

the proposed system. A raspberry pi 2 model B, a GPS receiver with antenna, and a pulse rate sensor make up the portable device. Using a GPS receiver and a heartbeat sensor, this device will track the child's location in terms of latitude, longitude, and altitude. These data are transmitted to a raspberry pi module, which uses internet connectivity to inject them into elastic search. The android program has a user interface that displays the child's location on a map, the path they took, and their rate of movement. The child's heart rate is also continuously tracked by the application.

3.3 Proposed solution

S.No	Parameter	Description
1.	Problem Statement (Problem to be solved)	To monitor the child safety
2.	Idea / Solution description	To use GPS to track the children
3.	Novelty / Uniqueness	To implement GPS on smart watches to monit the children
4.	Social Impact/ Customer Satisfaction	Child safety
5.	Business Model (Revenue Model)	GPS is not included in the smart watches ,so w are include the GPS in the smart watches ,man parents are used to buy the smart watch for the children safety
6.	Scalability of the Solution	Safety and reliability

3.4 Problem solution fit

1. CUSTOMER SEGMENT(S) `CS`

Who is your customer?

The customers are -
Working parents of 0-5 y.o. Kids
Family members, caretakers, guardians and babysitters.

6. CUSTOMER CONSTRAINTS `CC`

What constraints prevent your customers from taking action or limit their choices of solutions?
The possible constraints are
Spending power
Budget
No cash
Network connection
Available devices
Geo Positioning System (GPS)

5. AVAILABLE SOLUTIONS `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

Whenever the child goes to a location other than its geofence, its parent gets a notification stating that his/her child is in danger.
Earlier the customer tried to contact their nearest police station.
Now the customer uses this application.
Pros and cons of previous solution:
　Pro:
　Human insight.
　Con:
　Unnecessary hassle and a cumbersome process.
　Child's location is not easily accessible.
Pros and cons of current solution:
　Pro:
　Child's location is very easily accessible because the parent gets the notification.
　Con:
　Parents who don't have access to smart phone cannot make use of this application.

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.

Creating a geofence around the child after monitoring its activities.

With the help of geofence, the child's parent get a notification whenever the child crosses the geofence.

9. PROBLEM ROOT CAUSE `RC`

What is the real reason that this problem exists? What is the back story behind the need to do this job? i.e. customers have to do it because of the change in regulators.
The root cause of this problem is that the child not informing its parents whenever it goes out. More and more children go missing and only some children are recovered.
Child trafficking

7. BEHAVIOUR `BE`

What does your customer do to address the problem and get the job done?
i.e. directly related: find the right solar panel installer, calculate usage and benefits; indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace)
After the customer gets access to the child's location, he/she can go to the specified location and find their child.

---

3. TRIGGERS `TR`

What triggers customers to act? i.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news.

Whenever the child crosses its geofence, the parent gets the notification and acts accordingly.

4. EMOTIONS: BEFORE / AFTER `EM`

How do customers feel when they face a problem or a job and afterwards?
i.e. lost, insecure > confident, in control - use it in your communication strategy & design.
Whenever the customer faces the problem, they tend to feel anxious, upset and worried, frightened.
After they get to know that their child has crossed the geofence, the parent identifies the child's location using this application and feel relieved.

10. YOUR SOLUTION `SL`

If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality.

The customers are the parents, guardians, caretakers and babysitters.
We constantly monitor the child's movements and create a geofence for the child.
Whenever the child crosses the geofence (i.e. the child goes to another location other than its usual ones) the parent gets a notification stating that his/her child has crossed the geofence, so that the parent gets alerted.

8. CHANNELS of BEHAVIOUR `CH`

ONLINE

What kind of actions do customers take online?
The customer constantly monitors his/her child and gets access to their location. The customer gets a notification when something suspicious activity occurs.

OFFLINE

What kind of actions do customers take offline?
After tracking the child's activity, the customer goes to the specified location whenever the child crosses the geofence.

CHAPTER 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 Registration through LinkedIn
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Authentication	Only the authorized person for that product will know, ensures security
FR-4	User Interface	The Inventor Able to see the location of children when they are out of geo-fence will also track the exact information about the children.
FR-5	Notification	Notified through mobile and mail

4.2 Non-Functional requirements

FR NO.	Non-Functional Requirement	Description
NFR - 1	**Usability**	Accessed through Mobile App Showing location (latitude and longitude) of child and also other measures to ensure safety like notification. Portable and comfortable to use.
NFR - 2	**Security**	Database security and ensuring the safety of the product while in use.
NFR - 3	**Reliability**	Once logged in, the webpage is available until logging out of the app, and a comfortable platform or creates a good environment for users to use.
NFR - 4	**Performance**	Each page must load within 4 seconds and database needs to be updated every few seconds and a notification must be sent immediately if seen a change in the child's location.
NFR - 5	**Availability**	The data must be available whenever needed and the product should be able to use at any time.
NFR - 6	**Scalability**	The process must be flexible to use at anytime and versatile.

CHAPTER 5

PROJECT DESIGN

5.1 Data Flow Diagrams
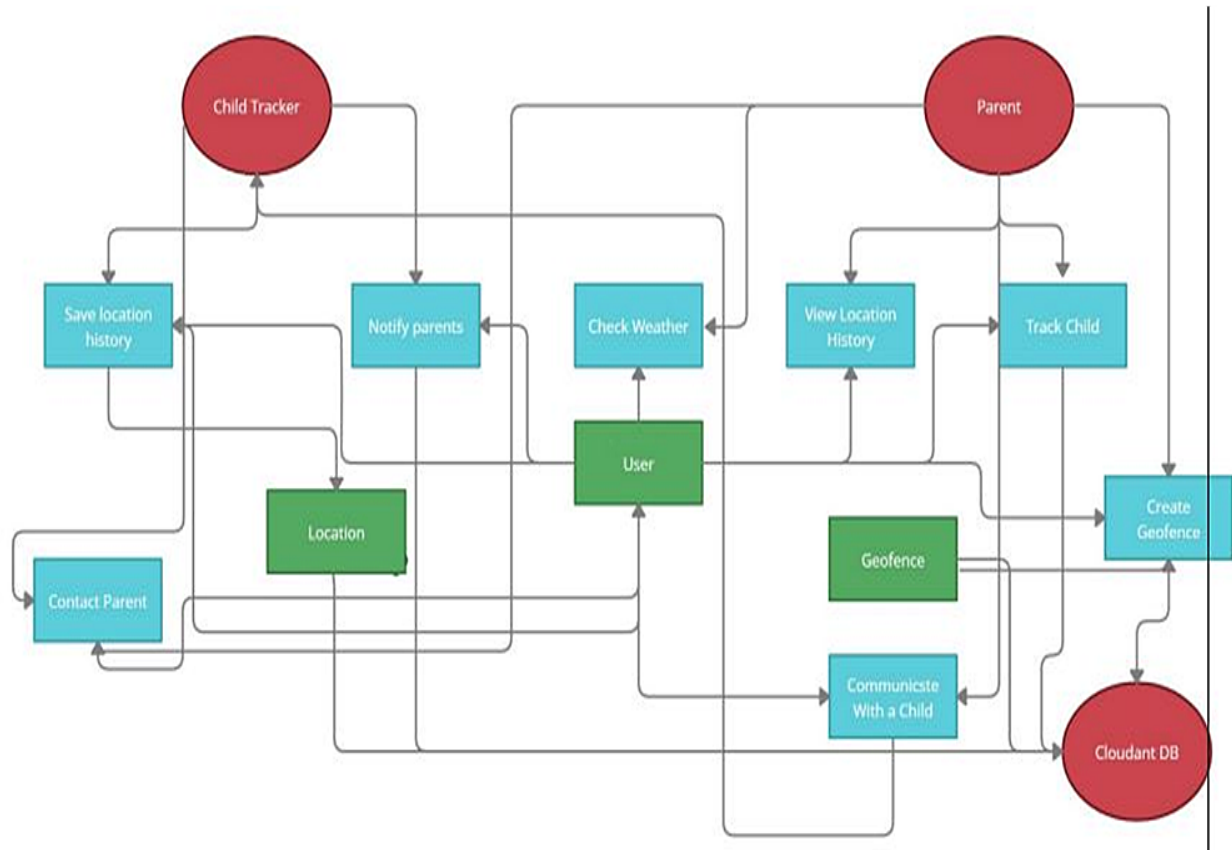
5.2 Solution & Technical Architecture

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

- Find the best tech solution to solve existing businessproblems.

- Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.

- Define features, development phases, and solution requirements.

- Provide specifications according to which the solu on is defined, managed, and delivered.

CHAPTER 6

PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning Estimation

Sprint	Functional Requirement (Epic)	User story number	User story/Task	Story points	Priority
Sprint-1		US-1	Create the IBM Cloud services which are being used in this project.	6	High
Sprint-1		US-2	Configure the IBM Cloud services which are being used in completing this project.	4	Medium
Sprint-2		US-3	IBM Watson IoT platform acts as the mediator to connect the web application to IoT devices, so create the IBM Watson IoT platform.	5	Medium
Sprint-2		US-4	In order to connect the IoT device to the IBM cloud, create a device in the IBM Watson IoT platform and get the device credentials.	5	High
Sprint-3		US-1	Configure the connection security and create API keys	10	High

			that are used in the Node-RED service for accessing the IBM IoT Platform.		
Sprint-3		US-2	Create a Node-RED service.	10	High
Sprint-3		US-1	Develop a python script to publish random sensor data such as temperature, moisture, soil and humidity to the IBM IoT platform	7	High
Sprint-3		US-2	After developing python code, commands are received just print the statements which represent the control of the devices.	5	Medium
Sprint-4		US-3	Publish Data to The IBM Cloud	8	High
Sprint-4		US-1	Create Web UI in Node- Red	10	High
Sprint-4		US-2	Configure the Node-RED flow to receive data from the IBM IoT platform and also use Cloudant DB nodes to store the received sensor data in the cloudant DB	10	High

6.2 Sprint delivery schedule

Sprint	Total story points	Duration	Sprint Start Date	Sprint End Date	Story points complete(as on planned date)	Sprint released date(Actual)
Sprint-1	20	3 Days	31 Oct 2022	02 Nov 2022	20	02 Nov 2022
Sprint-2	20	3 Days	02 Nov 2022	05 Nov 2022	20	05 Nov 2022
Sprint-3	20	3 Days	05 Nov 2022	08 Nov 2022	20	08 Nov 2022
Sprint-4	20	3 Days	11 Nov 2022	14 Nov 2022	20	14 Nov 2022

CHAPTER 7

CODING& SOLUTIONING

(Explain the features added in theproject along with code)

7.1 Feature 1 (Adding Geo-fence)

Geo-fence is like a round wall covering the given location.So parents can use them to mark the location where their children are going . Multiple Geo-fence can beadded.

7.1.1 CODING

```
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 staticfinal String TAG = "GeofenceHelper";
        PendingIntent pendingIntent;
        public GeofenceHelper(Context base)
```

```java
        {
          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).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_GEOFENCES:return

"GEOFENCE_TOO_MANY_GEOFENCES";

    case GeofenceStatusCodes.GEOFENCE_TOO_MANY_PENDING_INTENTS:

    return "GEOFENCE_TOO_MANY_PENDING_INTENTS";

    }

}

return e.getLocalizedMessage();

}
```

7.2 Feature 2 (Alert Notification)

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

7.2.1 CODING:

```
package com.example.geofence;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.location.Location;
import android.os.CountDownTimer;
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;

publicclass GeofenceBroadcastReceiver extendsBroadcastReceiver
{
        private static final String TAG = "GeofenceBroadcastReceiv";
        @Override
        public void onReceive(Context context, Intent intent)
         {
        /*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(longmillisUntilFinished)
                {
                        mToastToShow.show();
                }
                public void onFinish()
                 {
                        mToastToShow.cancel();
```

22

```java
            }
        };

// 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: Error receiving geofence event..."); return;
        }

List<Geofence> geofenceList=geofencingEvent.getTriggeringGeofences(); for (Geofence
geofence:geofenceList)
 {
        Log.d(TAG, "onReceive: " + geofence.getRequestId());
}
 //Location location = geofencingEvent.getTriggeringLocation();int transitionType =
geofencingEvent.getGeofenceTransition();

switch (transitionType)
{
        case Geofence.GEOFENCE_TRANSITION_ENTER:
        notificationHelper.sendHighPriorityNotification("Entered the Location", "",
MapsActivity.class);
        break;
        case Geofence.GEOFENCE_TRANSITION_EXIT:
        notificationHelper.sendHighPriorityNotification("Exited the Location ", "",
MapsActivity.class);
        break;
}
}
}
```

CHAPTER 8

TESTING

8.1 Test Cases

Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Comments	TC for Automation(Y/N)	BUG ID	Executed By
LoginPage_TC_0 01	Functional	Home Page	Verify user is able to see the Login/Signup popup when user clicked on App		1.Enter App 3.Verify login/Signup popup displayed or not		Login/Signup popup should display	Working as expected	Pass		Y		SnehaShri, Swetha
LoginPage_TC_0 02	UI	Home Page	Verify the UI elements in Login/Signup popup		1.Enter App 2.Verify login/Signup popup with below UI elements: a.email text box b.password text box c.Login button d.New customer? Register		Application should show below UI elements: a.email text box b.password text box c.Login button with orange colour d.New customer? Register	Working as expected	Pass		Y		Shanmugapriya, Shwetha
LoginPage_TC_0 03	Functional	Home page	Verify user is able to log into application with Valid credentials		1.Enter App 2.Enter Valid username/email in Email text box 3.Enter valid password in password text box 4. Click on login button	Username: abcd@gmail.com password: Testing123	User should navigate to user account homepage	Working as expected	Pass		Y		Shakthi
LoginPage_TC_0 04	Functional	Login page	Verify user is able to log into application with InValid credentials		1.Enter App 2.Enter InValid username/email in Email text box 3.Enter valid password in password text box 4. Click on login button	Username: abcd@gmail password: Testing123	Application should show "Login error. There is no user record corresponding to the identifier"	Working as expected	pass		Y		Shakthi , Shanmugapriya
LoginPage_TC_0 04	Functional	Login page	Verify user is able to log into application with Valid credentials		1.Enter App 2.Enter Valid username/email in Email text box 3.Enter invalid password in password text box 4. Click on login button	Username: cscf39ec020@rsinamtsp.ed u.in password: Testing123678586786876 876	Application should show "the Password is invalid"	Working as expected	Pass		Y		Shretha D, SnehaShri
LoginPage_TC_0 05	Functional	Login page	Verify user is able to log into application with InValid credentials		1.Enter App 2.Enter InValid username/email in Email text box 3.Enter Invalid password in password text box 4. Click on login button	Username: abcd password: Testing123678586786876 876	Application should show "Login error. There is no user record corresponding to the identifier"	Working as expected	Pass		Y		Swetha
Dashboard	Functional	Dashboard	Adding geofence in the location used		1.Enter App 2.Enter the valid username and password		Application show a red circle around the location	Working as expected	Pass		Y		Sneha Shri
Alert Notification	Functional	Notification	Notification when the user entered the geofence		1.Enter App 2.Enter the valid username and password 3.Add the Geofence		Application sent the notification " Entered the location"	Working as expected	Pass		Y		Shanmugapriya, Shwetha
Alert Notification	Functional	Notification	Notification when the user exited the geofence		1.Enter App 2.Enter the valid username and password		Application sent the notification " Exited the location"	Working as expected	Pass		Y		Shakthi , Swetha

8.2 User Acceptance Testing

8.2.1 Defect Analysis

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
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

8.2.2 Test Case Analysis

Section	Total Cases	Not Tested	Fail	Pass
Prin 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 Report Output	5	0	0	5
Version Control	3	0	1	2
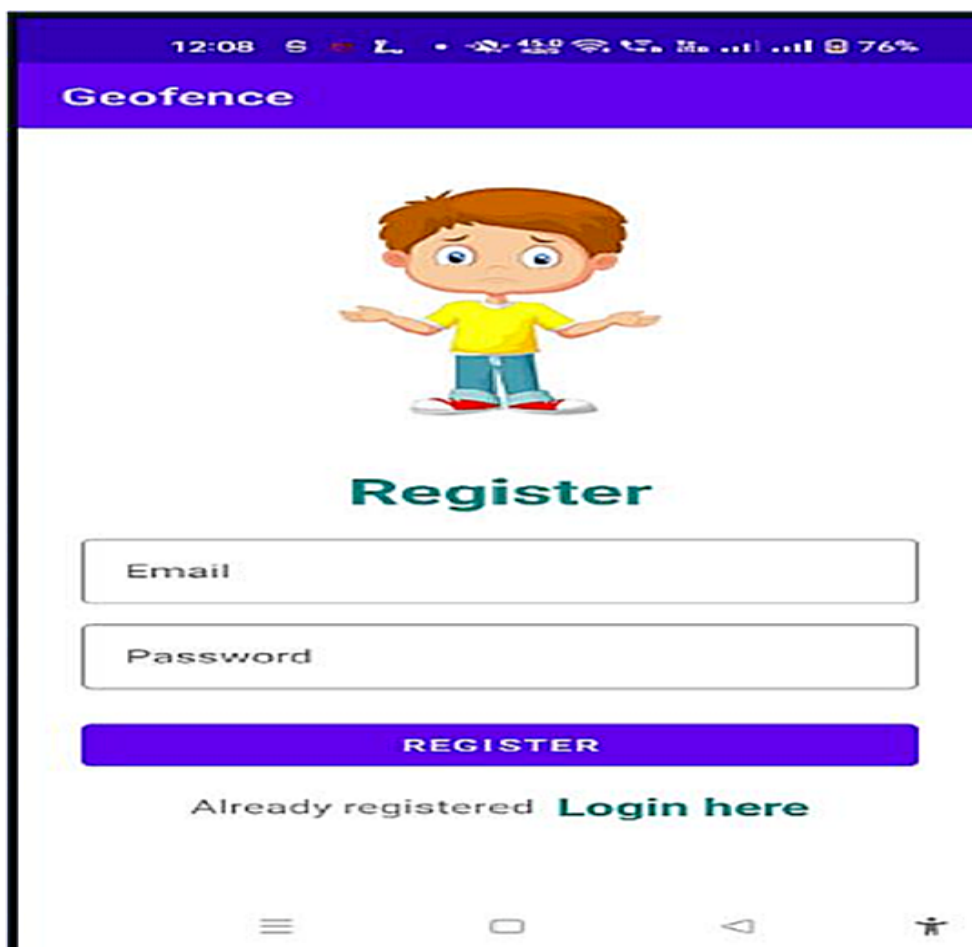
CHAPTER 9

RESULTS

9.1 User Registration :

Users get 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.

9.1.1 Registration Page :

9.2 User Login

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

## 9.2.1 Login page :

9.3 Adding Geofence and Alert Notification

Users can add geofence in the locationwhere they want to add or where their child is going to play so they can monitor the child location . Once the child enters 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.

9.3.1 Geofence
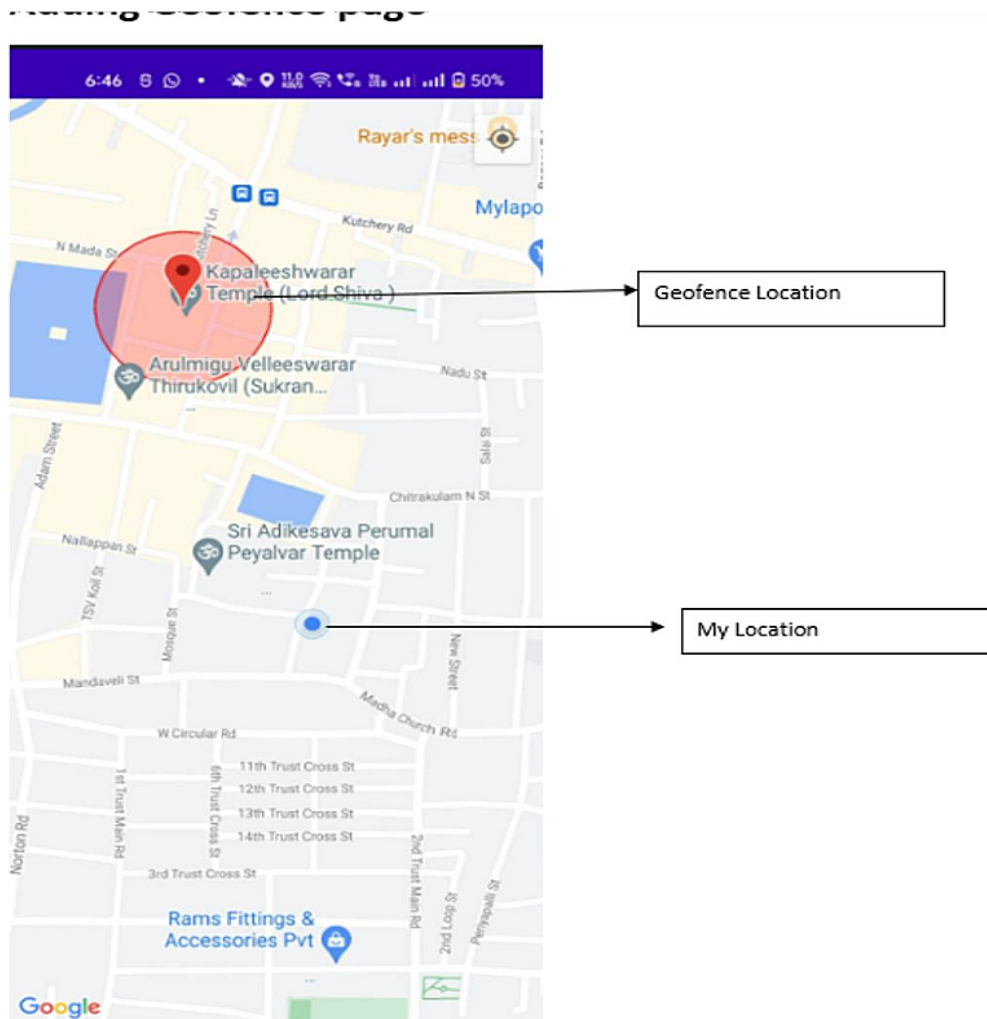
CHAPTER 10

ADVANTAGES AND DISADVANTAGES

The parent can monitor their child from anywhere at any time, and also get a notification when the child goes away from the permitted radius. It also allows the parent to know if their child is in any dangerous situation. The disadvantages of this system are that the child could not produce the exact alert command during a panic condition. The command produced maynot match the previously stored command. This project requires manual intervention.

CHAPTER 11

CONCLUSION

Future is similar to the word children. Youngpeople are the future pillars of one's nation, as Dr. A.P.J.Abdul Kalam oncesaid, thus it is important to protect today's children's dreamsand lives in order to give them a betterfuture. Therefore, every parent should take good care of their own children to prevent them from being victims of abuse that will completely harm them on a physical, mental, and emotional level, wrecking our future. Due to the significance of our future, our product makes it simple for parents to track their kids and regularly visually monitor them, enablingthem to assure their safety and lowering the incidence of child abuse.

CHAPTER 12

FUTURE SCOPE

In our system,we use the Internet of Things, GPS, GSM, and Raspberry Pi to automatically monitor the youngster in real time. When we utilize a web camera and GPS to actively monitor, this systemneeds network connections, satellite communication, and a high-speed data connection. It is challenging to keep an eye out for any network problems or satellite connection problems. Additionally, there is a lag when streaming videos through the server. The Zigbee concept or accessing the system without the internet and employing high-speed server transmission can therefore be used in the future to solve these problems.

CHAPTER 13

APPENDIX

GitHub Link:

[IBM-EPBL/IBM-Project-22272-1659845605:IoTBasedSafetyGadgetforChildSafetyMonitoring&Notification](#)