

IBM-NALAIYA THIRAN PROJECT

IOT BASED SAFETY GADGET FOR CHILD SAFETY MONITORING AND NOTIFICATION

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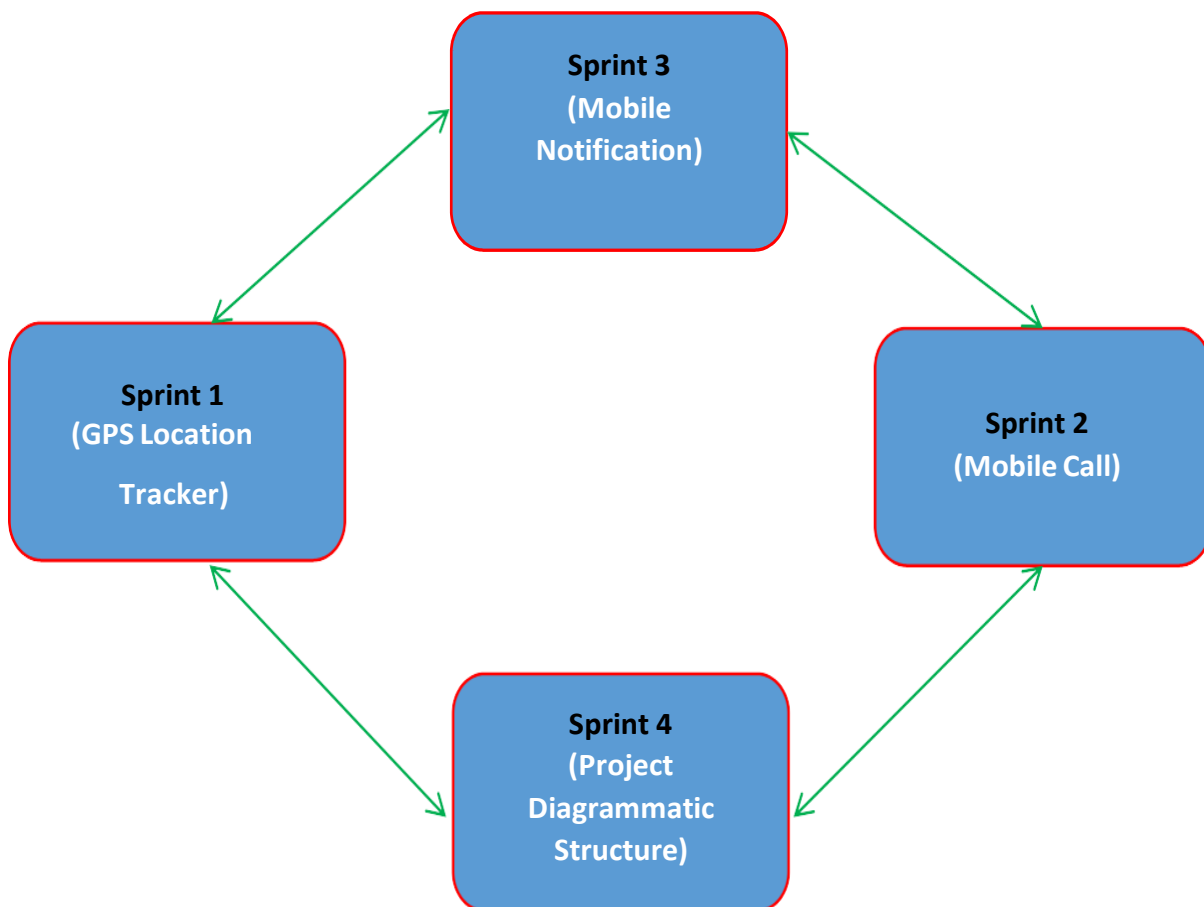
CHAPTER 1

INTRODUCTION

Internet of Things (IoT) plays a major role in every day to day life. The Internet of Things refers to the set of devices and system that stay interconnected with real-world sensor and to the internet. The development of sensors technology, availability of internet connected devices; data analysis algorithms make IoT devices to act smart in emergency situations without human interventions. So, IoT devices are applied in different fields such as agriculture, medical, industrial, security and communication applications. IoT systems are useful within a system to do deeper automation, analysis, and integration. IoT contributes to technology by advances in software, hardware and modern tools. It even uses existing and upcoming technology in the fields of sensing, networking and robotics. IoT brings global changes by its advanced elements in the social, economic, and political impact of the users.

There is a lot of cases registered regarding child safety. So we propose a tracker to continually monitor the location of children for safety purpose. Child Tracker provides an effective and convenient solution to the parents or guardians to keep track of their child's safety and in turn to reduce the increased occurrence of crime against missing children. This project presents the design and implementation of a portable IOT-based safety gadget monitoring and notification system for children.

1.1 PROJECT OVERVIEW



1.2 PURPOSE

During years' Child safety is under threat and it is very important to provide a technology-based solution which will help them under panic situations and monitor them using a smart gadget. The proposed system is equipped with GPS and GSM modules for sending and receiving SMS between the safety gadget and parental phone, the proposed system also consists of Wi-Fi module used to implement IoT and send all the monitoring parameters to the cloud for android mobile monitoring on parental phone.

CHAPTER 2

LITERATURE SURVEY

RFID-based System for School Children Transportation Safety Enhancement (Anwaar(Proceedings of the 8th IEEE GCC Conference and Exhibition, Muscat, Oman, 1-4 February, 2015)) : This paper presents a system to monitor pick-up/drop-off of school children during daily transportation from and to school. The system consists of two main units, a bus unit and a school unit. The bus unit, used to detect when a child boards or leaves the bus. This information is communicated to the school unit that identifies which of the children did not board or leave the bus and issues an alert message accordingly.

Child Safety & Tracking Management System by using GPS – (Aditi Gupta, Vibhor Harit. Published in: 2016 IEEE) : This paper proposed a model for child safety through smart phones that provides the option to track the location of their children as well as in case of emergency children is able to send a quick message and its current location via Short Message services.

Smart IoT Device for Child Safety and Tracking (M.Nandini Priyanka Smart IoT Device for Child Safety and Tracking. Published in: 2019 IEEE) : The system is developed using Link-It 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.

IoT-based Child Security Monitoring System-Lai Yi Heng (Proceedings of the 3rd International Conference on Integrated Intelligent Computing Communication & Security (ICIIC 2021)) : Throughout the research, it is clearly explained the IoT concept, child safety issues and the need of using child security system. Some previous studies have been included for designing the IoT-based child security smart band. It assists parents to monitor their children remotely. In case situations happen, notifications will be sent to parents so that actions can be taken.

MadhviKannan, Alisha, RM Vijayalakshmi, P ShresthaSinha (May 20-21, 2016), ‘Design and Development of an IoT based wearable device for the Safety and Security of women and girl children’ IEEE International Conference On Recent Trends In Electronics Information Communication Technology, India, pp. 1108-1112.

2.1 EXISTING PROBLEM

Child safety is a challenging problem nowadays due to antisocial elements in the society. The crime rate is day by day increasing. Schools and Playing places need high surveillance for ensuring the safety among children. Smart phones are playing major role for ensuring the safety, where some mobile based applications provide alert systems. During the emergency, mobile apps alert the control room of nearby police station or caretakers of children. The literature shows that location tracking devices are available in the market, but it does not provide the complete solution to the problem. The solution to this problem is to design an IoT device, which senses the child's location and environment and during emergency, it should send the alert to the parents automatically.

2.2 REFERENCES

- [1] B. Dorsemayne, 1. P. Gaulier, 1. P. Wary, N. Kheir and P.Urien, "Internet of Things: A Definition and Taxonomy," Next Generation Mobile Applications, Services and Technologies, 2015 9th International Conference on, Cambridge, 2015, pp. 72-77.
- [2] H. Moustafa, H. Kenn, K. Sayrafian, W. Scanlon and Y.Zhang, "Mobile wearable communications [Guest Editorial]," in IEEE Wireless Communications, vol. 22, no. 1, pp. 10-11, February 2015.
- [3] S. Nasrin and P. 1. Radcliffe, "Novel protocol enables DIY home automation," Telecommunication Networks and Applications Conference (ATNAC), 2014 Australasian, Southbank, VIC, 2014, pp. 212-216.
- [4] F. A. Silva, "Industrial Wireless Sensor Networks: Applications, Protocols, and Standards [Book News]," in IEEE Industrial Electronics Magazine, vol. 8, no. 4, pp. 67-68, Dec. 2014.

[5] Jun Zheng; Simplot-Ryl, D.; Bisdikian, c.; Mouftah, H.T., "The internet of things [Guest Editorial]," in Communications Magazine, IEEE , vol.49, no.11, pp.30-31, November 2011 doi: 10.1109/MCOM.2011.6069706.

[6] K. Braam, Tsung-Ching Huang, E.Montgomery and R. Beausoleil, "Wristband Vital: A wearable multi-sensor microsystem for real-time assistance via low-power Bluetooth link, 2015 IEEE 2nd World Forum on, Milan, 2015, pp. 87-91. doi: 10.1109/WF-IoT.2015.7389032.

[7] "WiFi and WiMAX - break through in wireless access technologies," Wireless, Mobile and Multimedia Networks, 2008. IET International Conference on, Beijing, 2008, pp. 141-145.

[8] P. Bhagwat, "Bluetooth: technology for short-range wireless apps," in IEEE Internet Computing, vol. 5, no. 3, pp. 96-103, May/Jun 2001.

2.3 PROBLEM STATEMENT DEFINITION

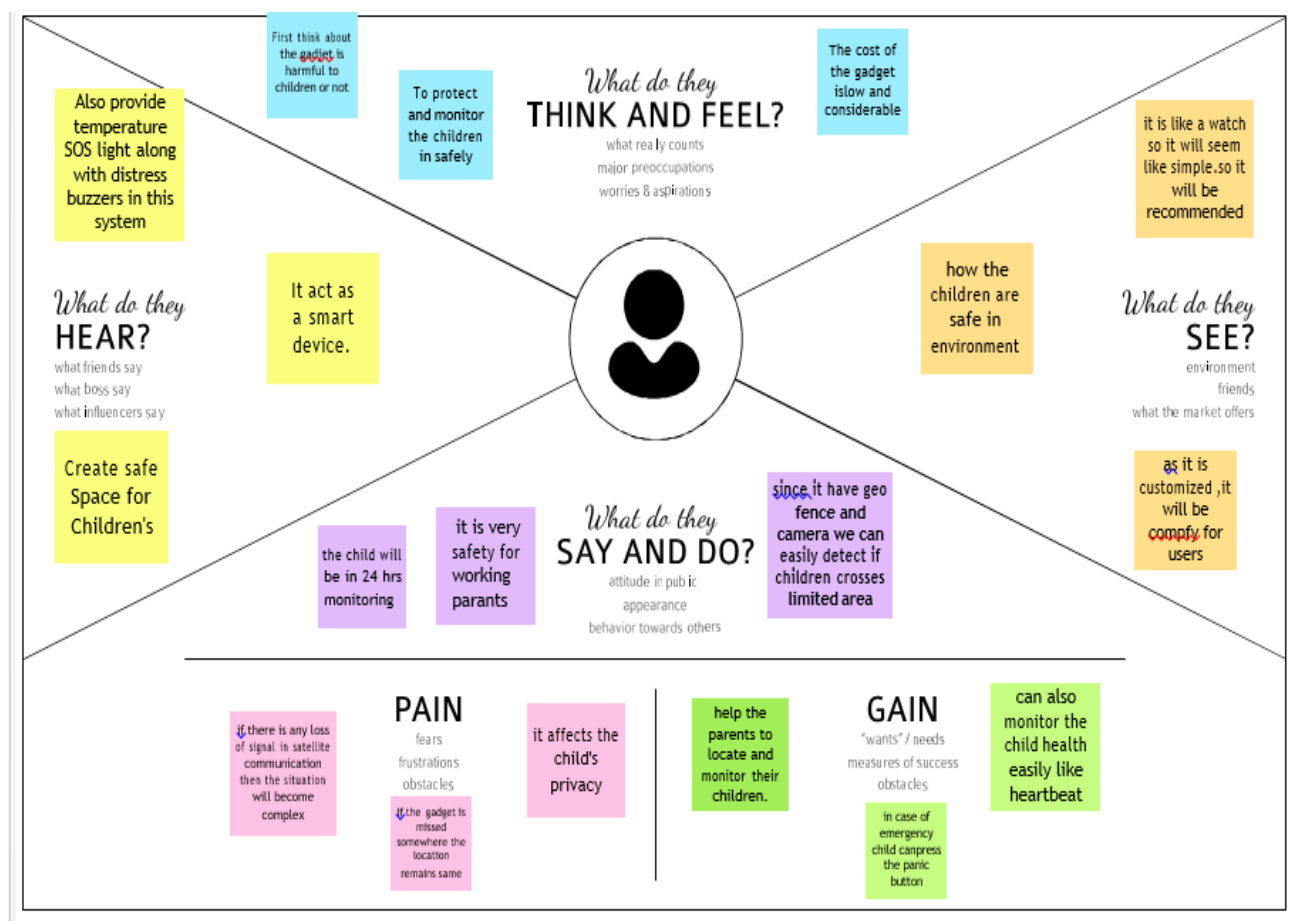
Child tracker helps the parents in continuously monitoring the child's location. They can simply leave their children in school or parks and create a geofence around the particular location. By continuously checking the child's location notifications will be generated if the child crosses the geofence.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

CHAPTER 3

IDEATION AND PROPOSED SYSTEM

3.1 EMPATHY MAP CANVAS

An empathy map is a collaborative tool teams can use to gain a deeper insight into their customers. This tool helps to understand the reason behind some actions a user takes deeply. This tool helps build Empathy towards users and helps design teams shift focus from the product to the users who are going to use the product.



3.2 IDEATION AND BRAINSTORMING

Ideation is often closely related to the practice of brainstorming, a specific technique that is utilized to generate new ideas. A principal difference between ideation and brainstorming is that ideation is commonly more thought of as being an individual pursuit, while brainstorming is almost always a group activity.

1 Define your problem statement

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

5 minutes

PROBLEM

what if child safety gadget disconnects or theft?

Key rules of brainstorming

To run an smooth and productive session

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

2 Brainstorm

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

10 minutes

sharmila

- affects the safety of the child and create the panic to parents
- occurring in data doesn't reach to parents
- when the child's geofence not works due to humidity...
- the issue will occur if the child goes over the geo fence or communication is not strong.
- this can be overcome by forming Zig bee and connect the deices to zig bee.
- issue occuring in location not marked or mismatched to safety location
- it is important because for the child's safety

lakshmi nivetha

- the issue is if the GPS data doesn't pushed to dashboard due to delay in satellite communication it creates big problem
- the issue is other child cannot enter safety because locked by parents. it can't send message to parents if location not changed because of signal issues
- the boundaries of the problem is delay in communication
- the boundaries and the correct mapping to the location.
- the boundary of the problem is battery.
- the issue is the parent doesn't know panic situation of child

hema

- The device materials can vomit hazardous rays
- The child's current activity cannot be notified
- Parents have fear about the child
- The health of the child to be considered
- We concentrate on the gps and other communication devices in lot
- The issue occuring in pointing the location of child
- The rays causes health issues
- If the tracking is lost the childs place is unidentified. So, focus on other way.

madhumitha

- may be the child informations are interrupted
- body temperature, pulse rate may be incorrect
- Child's body temperature may affect by device temperature
- To know the childrens location if they are missing
- to know the health information of the child
- to reduce interrupt to get correct information of the child

11

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

Based on location:

We can only view the last active location of the child.

To know the child's location if they are missing

issue occurring in location not marked or mismatched to safety location

the issue is if the GPS data doesn't push to dashboard due to delay in satellite communication it creates big problem

based on health

The device materials can vomit hazardous rays

Child's body temperature may affect by device temperature

Device heat may affect the child

to know the health information of the child

Data & information are not able to read/write.

based on data

to reduce interrupt to get correct information of the child

When the database crashes.

based on safety

the issue is when child crosses some safety location marked by parents, it want to send message to parents, if location not mapped correctly problem occurs

In order to get the information about child safety works smoothing & accurately.

it is important because the message has to be sent to parents when child gone to danger area.

It affects the safety of the child and create the panic to parents

the issue is the parent doesn't know panic situation of child

If the communication between child and parents where disconnected

based on communication

We concentrate on the gps and other communication devices in iot

the issue will occur if the child gone over the geo fence or communication is not strong.

the boundaries of the problem is delay in communication.

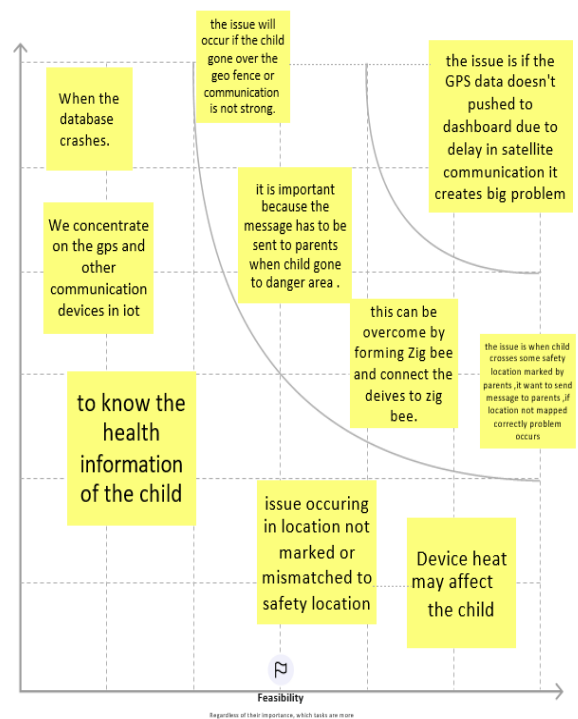
the issue is if the GPS data doesn't push to dashboard due to delay in satellite communication it creates big problem

4

Prioritize

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

20 minutes



3.3 PROPOSED SOLUTION

S. No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Now a days, parents concern more about serious cases such as missing children abduction and abuse They cannot with their children or 24*7 hours to secure their children and monitor the children's activities.
2.	Idea/Solution description	Create a Child tracker which helps the parents with continuously monitoring the child's location. The notification will be sent according to the child's location to their parents or caretakers. The entire location data will be stored in the database.
3.	Novelty/Uniqueness	The novelty of the work is that the system automatically alerts the parent/caretaker by sending notification, when immediate attention is required for the child during emergency
4.	Social Impact/Customer Satisfaction	Make children parents more assure about their kid's security, feature in our device called Geo-Fence. Geo- Fencing Feature allows you to safe-zone. Whenever your child crosses that specific area, you will get an instant notification on your phone.
5.	Business Model (Revenue Model)	<ul style="list-style-type: none"> • Easy touse • Low cost • Weightless • Compatible
6.	Scalability of the Solution	<ul style="list-style-type: none"> • Gadget ensures he safety and tracking of the child • Parents need not worry about their children.

3.4 PROBLEM SOLUTION FIT

At this stage you've proved the existence of a problem and have designed a value proposition that addresses your customers' jobs, pains and gains.

1. CUSTOMER SEGMENT <small>i.e. working parents of 0-5 y.o. kids</small> <ul style="list-style-type: none"> • Caretaker • Parent 	6. CUSTOMER CONSTRAINTS <ul style="list-style-type: none"> • Easy to use • compatible and weightless • low cost 	5. AVAILABLE SOLUTION <ul style="list-style-type: none"> • Knowledge about setting geofence • Device • Internet
2. JOBS -TO- BE-DONE/ PROBLEMS <ul style="list-style-type: none"> • To manage data store • network connectivity? • To alert the parents in case of emergency 	9. PROBLEM ROOT CAUSE Crimes missing children Irresponsible parents	7. BEHAVIOUR <small>Indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace)</small> Tracking devices for kids provide you with real-time GPS details of your child's location. This is extremely useful tool when your child is walking to a friends house from any instant distance where your child's current about could be uncertain.
3. TRIGGERS <ul style="list-style-type: none"> • social media • neighbour places • fear of losing child 4. EMOTIONS: BEFORE/ AFTER <ul style="list-style-type: none"> • Parents are panic that they lost the child • They fell happy after they find the child 	10. YOUR SOLUTION <ul style="list-style-type: none"> • Gadget ensure the safety and tracking of children. • The android app use GPS and mobile service to find the child location and secretly stored accurate location without knowing the children 	8 CHANNELS of BEHAVIOR 8.1 ONLINE <ul style="list-style-type: none"> • web application • GPS module communication 8.2 OFFLINE <small>What sort of service disruptions take place? What offline channels from #7?</small> Distance Calculations gadget using time

CHAPTER 4

REQUIREMENT ANALYSIS

4.1 FUNCTIONAL REQUIREMENTS

S.NO	FUNCTIONAL REQUIREMENTS	DESCRIPTION
1.	User Registration	Registration through SMS.
2.	User Confirmation	Confirmation through OTP. Confirmation through SMS.
3.	User Login	Can login through credentials.
4.	User Feed	The live update of the child is sent to user if the child crosses the geofence.
5.	User Profile	The childrens profile created to give the live location track of the child.
6.	User Alert	The user receives the quick response through alert sound or Messages,if the child crosses the geofence.

4.2 NON-FUNCTIONAL REQUIREMENTS

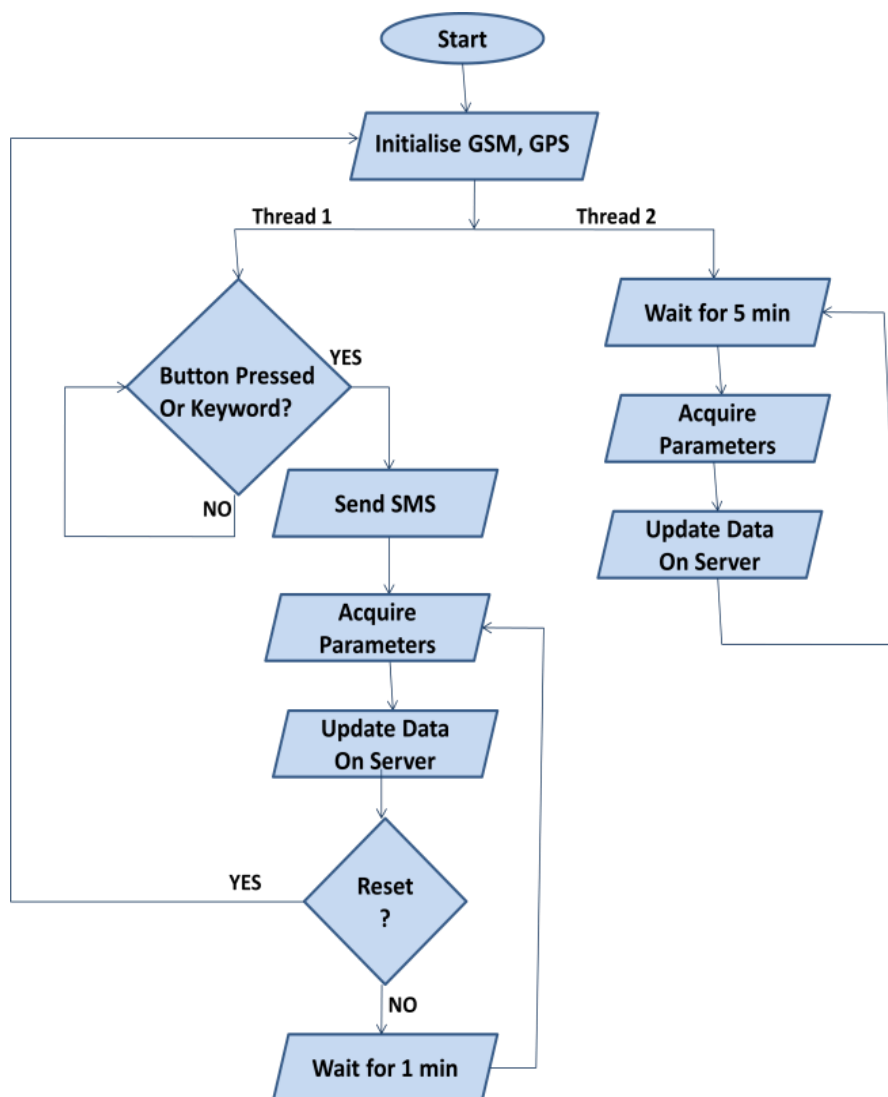
Sn. No.	Non-Functional Requirement	Description
1.	Usability	Monitoring the child and tracking the location
2.	Security	The environment is more secure.
3.	Reliability	The installment of tracker is safe.
4.	Performance	Tracker will achieve high accuracy.
5.	Availability	Build tracker is available all the time.
6.	Scalability	The instant alerts received by the parent / caretaker is ensured.

CHAPTER 5

PROJECT DESIGN

5.1 DATAFLOW DIAGRAM

A data flow diagram (DFD) is a graphical or visual representation using a standardized set of symbols and notations to describe a business's operations through data movement.

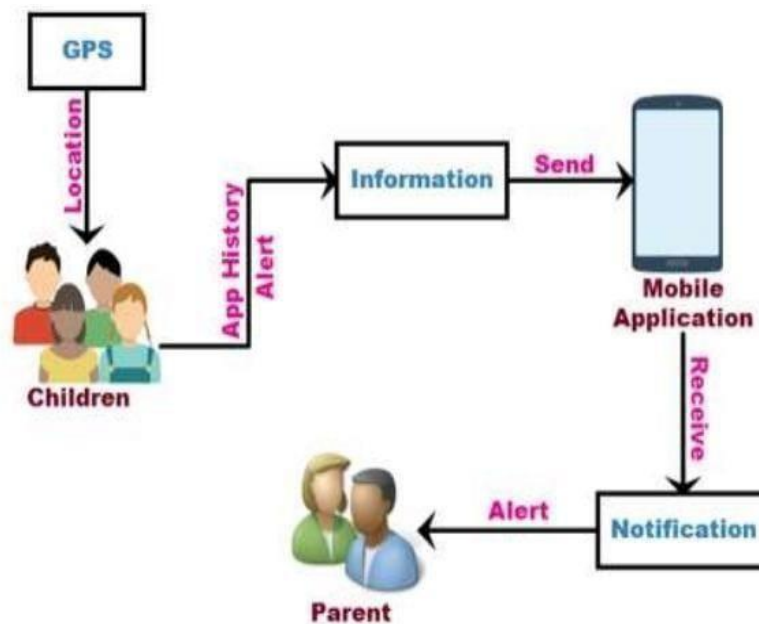


5.2 SOLUTION ARCHITECTURE

Solution architecture is a complex process – with many sub processes that bridges the gap between business problems and technology solutions.

Its goals is to:

- Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.
- Provide specifications according to which the solution is defined, managed, and delivered. Solution



5.3 USER STORIES

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Parents Mobile user)	Registration	USN-1 (FATHER)	I can access the location of my children using the credentials provided as a Father.	I can access my account / dashboard and receive confirmation email & click confirm	High	Sprint-1
		USN-2 (MOTHER)	I can access the location of my children using the credentials provided as a Mother.	I can access my account / dashboard and receive confirmation email & click confirm	High	Sprint-1
		USN-3 (GUARDIAN)	I too can monitor the children's activities using safety gadget monitoring system.	I can access my account / dashboard and receive confirmation email & click confirm	Medium	Sprint-2
	Login	USN-4 (if required)	Same function to be performed as in previous cases.	Same function to be performed as in previous cases.	Not Yet Determined	----
	Dashboard	USN-5 (if required)	Same function to be performed as in previous cases.	Same function to be performed as in previous cases.	Not Yet Determined	--- -

CHAPTER 6

PROJECT PLANNING AND SCHEDULING

6.1 SPRINT PLANNING AND ESTIMATION

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Login	USN-1	As a customer, I might ensure login credential through gmail ease manner for the purpose of sending alert message to the parents or guardians (or) informing through normal message.	2	High	Sharmila, LakshmiNivetha
Sprint-1	Registration	USN-2	As a user, I have to registered my details and tools details in a simple and easy manner by considering the safety of child, this registered system sends notification to the parents.	2	High	Madhumitha ,Hema
Sprint-2	Dashboard	USN-3	As a user, In case of any emergency situation parents(I) must get the alert notificationand location of the child.	3	Medium	Sharmila, Hema
Sprint-3	Dashboard	USN-4	As a user, I(parent) need to safeguard child andtracking the child's location and it is important to notify near police station incase of more emergency .	2	High	Sharmila LakshmiNivetha
Sprint-3	Dashboard	USN-5	As a user, Its good to have a IOT based system to safeguard monitoring without presence ofparent.	2	High	Hema
Sprint -4	Monitoring the environment	USN 1	User can monitor the situation of the environment from a dashboard that displayssensor information about the environment and child health.	2	High	Sharmila, LakshmiNiveta, Madhumitha, Hema
Sprint- 4	Event Notification	USN 6	Sending an alert SMS to the parents andguardians in case of panic situation.	2	High	Madhumitha

6.2 SPRINT DELIVERY AND SCHEDULE

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	4	6 Days	24 Oct 2022	29 Oct 2022	4	29 Oct 2022
Sprint-2	3	6 Days	31 Oct 2022	05 Nov 2022	3	05 Nov 2022
Sprint-3	4	6 Days	07 Nov 2022	12 Nov 2022	4	12 Nov 2022
Sprint-4	4	6 Days	14 Nov 2022	19 Nov 2022	4	19 Nov 2022

CHAPTER 7

CODING

7.1 FEATURE 1 (GEOFENCE CREATION)

```
import json
import wiotp.sdk.device
import time

myConfig = {
    "identity": {
        "orgId": "2tgcd6"
        "typeId": "sharmila1211"
        "deviceId": "assignmentid"
    }
    "auth": {
        "token": "6i_GjL?bbd6!oYFjW@"
    }
}

client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()

while True:
    name = "sharmila"
    #in area location

    latitude=11.225894
    longitude=76.980855
    #out area location

    #latitude=11.225894
    #longitude=76.980855

    mydata = {'name' : name, 'lat' : latitude, 'lon' : longitude}
    client.publishEvent("IoTSensor", "json", data=mydata, qos=0, onpublish=None)
```

```
print ("Data published to IBM IOT platform :", mydata)
time.sleep(5)
```

```
client.disconnect()
```

7.2 FEATURE 2 (CLOUD DATABASE STORING)

```
“_id”: “00292d5468cd7c093a8e6563794e903a”,
“_rev”: “1-odbded97afc74f22b918f876adf0afba”,
“topic”: “iot-1/type/sharmila1211/id/assignmentid/evt/IoTSensor/fmt/json”,
“payload”: {
    “message”: “Exit”,
    “Time”: “16/11/2022, 11:23:45 PM”,
    “name”: “sharmila”
    “lat”: 11.225894,
    “lon”: 76.980855
},
“deviceId”: “assignmentid”
“deviceType”: “sharmila1211”
“eventType”: “IoTSensor”
“format”: “json”,
“location”: {
    “inarea”: false
}
```

CHAPTER 8

TESTING

8.1 TEST CASES

A **Test Case** is a set of actions executed to verify a particular feature or functionality of your software application. A Test Case contains test steps, test data, precondition, postcondition developed for specific test scenario to verify any requirement. The test case includes specific variables or conditions, using which a testing engineer can compare expected and actual results to determine whether a software product is functioning as per the requirements of the customer.

Testing is the final verification and validation activity within the organization itself.

White Box Testing

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software.

Using white box testing we can derive test cases that:-

- Guarantee that all independent paths within a module have been exercised at least once.
- Exercise all logical decisions on their true and false sides.
- Execute all loops at their boundaries and within their operational bounds.
- Execute internal data structure to assure their validity.

Black Box Testing

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. It is a testing in which the software under test is treated, as a black box . The test provides inputs and responds to outputs without considering how the software works.

It uncovers a different class of errors in the following categories:

- Incorrect or missing function.
- Performance errors.
- Initialization and termination errors.
- Errors in objects.

Unit Testing

Unit testing is usually conducted as part of a combined code and unit test phase of the software lifecycle, although it is not uncommon for coding and unit testing to be conducted as two distinct phases: Test strategy and approach. Field testing will be performed manually and functional tests will be written in detail.

Test objectives:

- All Components must work properly.
- Proper coordinates should be sent by the Android app to the Arduino
- The entry screen, messages and responses must not be delayed in the Android

8.2 USER ACCEPTANCE TESTING

Purpose of Document

The purpose of this document is to briefly explain the test coverage and open issues of the [ProductName] project at the time of the release to User Acceptance Testing (UAT).

Defect Analysis

This report shows the number of resolved or closed bugs at each severity level, and how they were resolved

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	10	4	2	3	20
Duplicate	1	0	3	0	4
External	2	3	0	1	6
Fixed	11	2	4	20	37
Not Reproduced	0	0	1	0	1
Skipped	0	0	1	1	2
Won't Fix	0	5	2	1	8
Totals	24	14	13	26	77

Test Case Analysis

This report shows the number of test cases that have passed, failed, and untested

Section	Total Cases	Not Tested	Fail	Pass
Print Engine	7	0	0	7
Client Application	51	0	0	51
Security	2	0	0	2
Outsource Shipping	3	0	0	3
Exception Reporting	9	0	0	9
Final Report Output	4	0	0	4
Version Control	2	0	0	2

CHAPTER 9

RESULTS

9.1 PERFORMANCE METRICS

Project metrics are used to track the progress and performance of a project. Monitoring parts of a project like productivity, scheduling, and scope make it easier for team leaders to see what's on track. As a project evolves, mentors need access to changing deadlines or budgets to meet their client's expectations.



CHAPTER 10

ADVANTAGES AND DISADVANTAGES

ADVANTAGES

- Child Tracker provides parents with the real-time location.
- Enable sending of notification if the child is out of location.
- Parent can locate and retrieve details anywhere and anytime.
- As GPS connectivity is used, it is easy to provides location services.

DISADVANTAGES

- The child could not produce the exact alert command during a panic condition.
- Sometimes the command produced by the child may mismatch with the stored command.
- It is difficult to implement in rural areas.

CHAPTER 11

CONCLUSION

The word Future resembles the word Children. As Dr. A.P.J Abdul Kalam's words "Youngsters are the future pillars of one's nation", today's children are tomorrow's youngsters, preserving their dreams and life for a better future is necessary. Each and every parent should take care of their children, without letting them to fall into the dark world, which entirely ruin them physically, mentally and emotionally destroying our future. Hence, considering the importance of our future, our project makes it easy for parents to track their children and to monitor them on regular basis, which makes them ensure the safety of their children and reduces the rate of attacks on children while also making them feel protected and secure.

CHAPTER 12

FUTURE SCOPE

The future scope of the work is to implement the IoT device which ensures the complete solution for child safety problems.

Following are few different issues that need to be improved the system developed in this project

- 1.** At the time of Crime ,the identification of offender and real time location should be sent to the nearest police station.
- 2.** Device can be made further Compact in size.
- 3.** Developing the ability to work in any environmental situation.

CHAPTER 13

APPENDIX

WEB USER INTERFACE

<!DOCTYPE

PE html>

```
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width,
initial-scale=1.0">
  <link rel="stylesheet" href="/FIREOAUTH.css">
  <link rel="stylesheet"
href="https://cdnjs.cloudflare.com/ajax/libs/nprogress/0.2.0/n
progress.min.css">
  <link rel="shortcut icon"
href="https://raw.githubusercontent.com/tharunoptimus-
pd/firepwa/main/favicon.ico?token=GHSAT0AAAAAABR46
HVJ5M5L3QGFRZRQXOISYUJUWAA" type="image/x
icon">
  <style>
    html,
    body {
      height: 100%;
      margin: 0;
      font-family: -apple-system, BlinkMacSystemFont,
"Segoe UI"
        , Roboto, Oxygen,
          Ubuntu, Cantarell,"Open Sans"
            ,"HelveticaNeue",
        sans-serif;
      font-weight: 300;
    }

    a {
      text-decoration: none;
```



```
    color: #007bff;  
    font-weight: 500;  
    font-size: 1.2rem;  
  }
```

```
h3 {  
  font-size: 1.4rem;  
}
```

```
h3, h4 {  
  margin: 0;  
  padding: 0.3rem 0;  
}
```

```
.wrapper {  
  display: flex;  
  flex-direction: column;  
  align-items: center;  
  justify-content: center;  
  height: 100%;  
  text-align: center;  
}
```

```
.oneClickSignin {  
  padding: 0.5rem;  
  border: 1px solid #44444444;  
  border-radius: 5px;  
  box-shadow: 0 0 3px 0px #44444444;  
  opacity: 0.2;  
  pointer-events: none;  
}  
.qrcode {  
  opacity: 0.1;  
}
```

```

.learnAboutFire {
  padding-top: 1.25em;
}

.qrHolder {
  display: none;
  margin-top: 3rem;
}

.qrContainer {
  align-items: center;
  display: flex;
  justify-content: center;
  padding: 8px;
  margin: 2rem auto; box-shadow: 0 0px 6px 1px rgb(0
0 0 / 16%); border: 1px solid #444444444;
  border-radius: 6px;
  width: 200px;
  height: 200px;
}
</style>
<title>Fire OAuth</title> <script>
if (window.location.hostname !== "localhost") { if
(location.protocol !== "https:") { location.replace(
`https:${location.href.substring(
location.protocol.length
)}`
)
}
}
</script>
</head>
<body>
<div class="wrapper">
  <h3 class="pageTitle">Login with SAFETY</h3>

  <div class="qrAuthorize">

```

<h4 class="subTitle">Scan QR from your
FireOAuthApp❖</h4>

<div class="qrContainer">
<canvas id="qr-code" class="qrcode"></canvas>
</div>
</div>

<div class="oneClickSignin"> <h4>Have Fire PWA
on this device?</h4><a target="_blank"
id="authorizeOverLink"
href="https://firepwa.netlify.app/authorize?sessionId"rel="noope
ner">Click to Authorize ❖ </div>

<div class="learnAboutFire"> <a target="_blank"
href="https://fireoauth.netlify.app"
rel="noopener">Learn More about SAFETY
</div>

</div>
<script
src="https://cdnjs.cloudflare.com/ajax/libs/nprogress/
0.2.0/nprogress.min.js"></script>
<script
src="https://cdnjs.cloudflare.com/ajax/libs/qrious/4.0.2
/qrrious.min.js"></script>
<script
src="https://cdnjs.cloudflare.com/ajax/libs/socket.io/4.
2.0/socket.io.js"></script>

<script>
const FIRE_API_KEY =
"635b790a3bcc6b59c4b772d0"const
FIRE_ENDPOINT =
"https://fire.adaptable.app/api/apis/generate" const
CHANNEL_NAME = "fireOAuthChannel"const
broadcastingChannel = new
BroadcastChannel(CHANNEL_NAME) const
FIRE_SERVER_SOCKET_ENDPOINT=

```

"https://fire.adaptable.app"
  let socket =

  io(FIRE_SERVER_SOCKET_ENDPOINT)let

  qr

  let qrcode = document.querySelector(".qrcode") let
  oneClickSignin =
document.querySelector(".oneClickSignin") let pageTitle =
  document.querySelector(".pageTitle") let subTitle =
  document.querySelector(".subTitle")

  function setOpacity(opacity) {
    oneClickSignin.style.opacity = opacity
    oneClickSignin.style.pointerEvents = opacity=== "1" ? "auto" :
    "none"
    qrcode.style.opacity = opacity
  }

  async function getSessionID() {
    let response
    try {
      response = await
fetch(`${FIRE_ENDPOINT}/${FIRE_API_KEY}`, { method:
      "GET"
      ,
      headers: {
        "Content-Type": "application/json",
      }
    })
  } catch (error) {
    console.log(error)
    return null
  }

```

```

    }
    let data = await response.json()
    let { sessionId, chatRoomId } = data return {
sessionId, chatRoomId } }

```

```

function generateQR(value) {
  (qr = new QRious({
    element: document.getElementById("qr-code"), size:
    200,
    level: 'M'
    ,
    value: value,
  })))
}

```

```

function changeHREF ({sessionId, chatRoomId}) { let
  firePwaUrlHostname =
"https://firepwa.netlify.app"
  let originURL =
    encodeURIComponent(window.location.origin)

```

```

    let url =
`${firePwaUrlHostname}/authorize.html?sessionId=${sessionId}
  &chatRoomId=${chatRoomId}&url=${originURL}` let a =
document.getElementById("authorizeOverLink") a.href = url
}

```

```

async function fire() {
  NProgress.set(0.4)
  let { sessionId, chatRoomId } = await getSessionID()

```

```

    if(sessionId === undefined || chatRoomId ===undefined ||
sessionId === null || chatRoomId ===null) {pageTitle.innerHTML
= "Something went wrong❓"

```

```

        subTitle.innerHTML = "Please try
        againlater❖"return
    }

```

```

setOpacity("1")

```

```

NProgress.done()
let data = {
    sessionId,
    url:
    encodeURIComponent(window.location.origin
    )}
data = JSON.stringify(data)
generateQR(data)
changeHREF({sessionId, chatRoomId})
socket.emit("join room"
, sessionId)
}

```

```

fire()

```

```

        socket.on("trusted token"
, (token) => {

```

```

let data = {}
data.success = true
data.token = token

```

```

        broadCastingChannel.postMessage(data)

```

```

        window.close()
    })

```

```
</script>  
</body>  
</html>
```

GITHUB LINK :

<https://github.com/IBM-EPBL/IBM-Project-42239-1660656727>

DEMO LINK :

<https://drive.google.com/file/d/1XqEC0KLLJTsn8TSY9dCPI7jWX0WiATwo/view?usp=drivesdk>