IOT BASED SAFETY GADGET FOR CHILD SAFETY MONITORING & NOTIFICATION

PET ENGINEERING COLLEGE

Accredited by NAAC with 'B' Grade Affiliated by Anna University Approved by AICTE

Vallioor, Tamil Nadu-627117

A PROJECT REPORT

Submitted by

PRIYADHARSHINI G (Team leader) **(Roll No: 963219104024)**

MUTHU PRIYADHARSHINI K **(Roll No: 963219104021)**

ANTO SHARLIN BIJU S **(Roll No: 963219104003)**

SIBI AROKYA G **(Roll No: 963219104303)**

SWATHY C **(Roll No: 963219104035)**

in partial fulfilment for the award of the degree of

BACHELOR OF ENGINEERINGING

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

NOVEMBER 2022

INTRODUCTION

The internet of things (IoT) refers to the set of devices and system that stay interconnected with real-world sensor and to the internet. 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 GSM and GPS modules for sending and receiving call and SMS between 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 app monitoring on parental phone. Android application can be used to track the current location of safety gadget using its location coordinates on parental phone android app and also via SMS request from parent phone to safety gadget. Panic alert system is used during panic situations and automatic SMS alert and phone call is triggered from safety gadget to the parental phone seeking for help and also monitored for plug and unplug from hand, as soon the gadget is unplugged from hand a SMS is triggered to parental phone and the alert parameter is also updated to the cloud.

1.1 PROJECT OVERVIEW

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 geo-fence around the particular location. By continuously checking the child's location notifications will be generated if the child crosses the geo-fence. 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.

1.2 Purpose

Approximately 80% of all reports of child abuse are made nowadays, with 74% of the victims being girls and the remaining 20% being males. In this world, a child goes missing every forty seconds. Children are the foundation of a country; if their future was threatened, it would have an effect on the development of the whole country.

The emotional and mental stability of the children is compromised as a result of the abuse, ruining their futures and careers. The things that happen to these defenceless kids are not their fault. Therefore, parents are in charge of raising their own children. However, parents are compelled to seek money because of the state of the economy and their desire to concentrate on their child's future and job. Consequently, it becomes challenging for them to constantly cling to their kids. We have created a setting in our system where this issue can be effectively solved. It enables parents to keep a close eye on their kids in real time while concentrating on their own careers without having to take any physical action. In essence, kids cannot tell their parents about the abuse they experience on a regular basis. They are too young to really comprehend what truly occurs to them. Parents find it challenging to recognize when their children are being abused. So, the main objective of this module is to help working parents to be free from worry about their children by tracking their movements at any time. An autonomous real-time monitoring system is required for every child worldwide in order to stop attacks on children.

2. LITERATURE SURVEY

[1] Authors: M Nandini Priyanka, S Murugan, K. N. H. Srinivas, T. D. S. Sarveswararao, E. Kusuma Kumari. Title: 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. Merits: The parameters such as touch, temperature & heartbeat of the child are used for parametric analysis and results are plotted for the same. Demerits: To implement the IoT device which ensures the complete solution for child safety problems.

[2] Authors: Akash Moodbidri, Hamid ShahnasserTitle: Child safety wearable device.Published in: 2017 IEEE.The purpose of this device is to help the parents to locate their children with ease. At the moment there are many wearable's In the market which helps to track the daily activity of children and also helps to find the child using Wi-Fi and Bluetooth services present on the device. Merits: This wearable over other wearable is that it can be used in any phone and it is not necessary that an expensive smartphone is required and doesn't want to be very tech savvy individual to operate. Demerits: As, this device's battery gives short life-time. High power efficient model will have to be used which can be capable of giving the battery life for a longer time.

[3] Authors: Aditi Gupta, Vibhor Harit.Published in: 2016 IEEE.Title: Child Safety & Tracking Management System by using GPS.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. Merits: The advantages of smart phones which offers rich features likeGoogle maps, GPS, SMS etc. Demerits: This system is unable to sense human behaviour of child.

[4] Authors: Dheeraj Sunehera, Pottabhatini Laxmi Priya. Title: Children Location Monitoring on Google Maps Using GPS and GSM. Published in: 2016 IEEE. This paper provides an Android based solution for the parents to track their children in real time. Different devices are connected with a single device through channels of internet. The concerned device is connected to server via internet. The device can be used by parents to track their children in real time or for women safety. The proposed solution takes the location services provided by GSM module. It allows the parents to get their child's current-location via SMS. Merits: A child tracking system using android terminal and hoc networks. Demerits: This device cannot be used in rural areas.

2.1. EXISTING PROBLEM

Real-Time Child Abuse and Reporting System

In the existing system, we use a voice recognition module in which the alert commands from the child are stored and kept for further reference. If the same child delivers the same command, it will compare with the alert command which was previously stored and sets an emergency level according to the alert Command. The GSM has a SIM which is used to send an alert message or an alert call to the trusted Peoples. GPS is used to track the live location and it is used when needed. The server will search the respective device ID from the database and search for respective contacts according to that device ID And helps in alerting the registered guardians.

The disadvantage of this project is,

i. The child could not produce the exact alert command during a panic condition.

ii. The command produced may not match with the previously stored command.

iii. This project requires manual intervention.

2.2 REFERENCE

[1] Asmita Pawar, Pratiksha Sagare, Tejal Sasane, Kiran Shinde (March–2017) 'Smart security solution for women and children safety based on GPS using IoT', International Journal of Recent Innovation in Engineering and Research, vol. 2, Issue 3, pp. 85-94.

[2] Nitishree, (May-June, 2016) 'A Review on IOT Based Smart GPS Device for Child and Women Safety', International Journal of Engineering Research and General Science, Vol. 4, Issue 3, pp. 159-164.

[3] Pramod, M Uday Bhaskar, Ch. V and Shikha, K. (January 2018) 'IoT wearable device for the safety and security of women and girl' International Journal of Mechanical Engineering and Technology, Vol. 9, Issue 1, pp. 83-88.

[4] Anand Jatti, Madhvi Kannan, Alisha, RM Vijayalakshmi, P Shrestha Sinha (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.

[5] Sarifah Putri Raflesia, Firdaus, Dinda Lestarini, 'An Integrated Child Safety using Geo-Fencing Information on Mobile Devices', International Conference on Electrical Engineering and Computer Science (ICECOS) 2018.

[6] Anwaar Al-Lawati, Shaikha Al-Jahdhami, 'RFID-based System for School Children Transportation Safety Enhancement', Proceedings of the 8th IEEE GCC Conference and Exhibition, Muscat, Oman, 1-4 February

[7] " RFID-based System for School Children Transportation Safety Enhancement ", Proceedings of the 8th IEEE GCC Conference and Exhibition, Muscat, Oman, 1-4 February 2015.

[8] Dr. R. Kamalraj, " A Hybrid Model on Child Security and Activities Monitoring System using IOT", IEEE Xplore Compliant Part Number: CFP18N67-ART; ISBN:978-1-5386-2456-2.

[9] Pooja.K.Biradar1, Prof S.B.Jamge2," An Innovative Monitoring Application for Child Safety", DOI:10.15680/IJIRSET.2015.0409093.

[10] Prof. Sunil K Punjabi, Prof. Suvarna Chaure, "Smart Intelligent System for Women and Child Security" Department of Computer Engineering SIES Graduate School of Technology Nerul, Navi Mumbai, India..

[11] Zejun Huang1, ZhigangGao," An Mobile Safety Monitoring System for Children", 2014 10th International Conference on Mobile Ad-hoc and Sensor Networks.

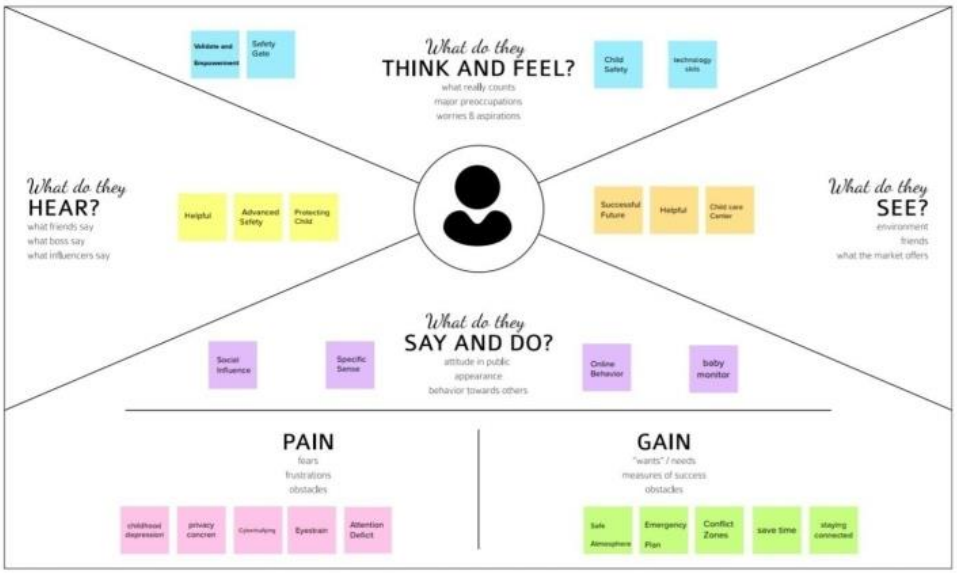
2.3 PROBLEM STATEMENT DEFINITION

The child needs to be monitored even when the parents are distracted. A momentary lack in parental supervision should be combated with an appropriate IT solution in context. The child needs to stay generally within the line of sight. It is necessary for the proposed system to alert the parents when the child walks too far away and outside the „circle of safety" (generally the parents" line of vision), even if the parents are distracted. If the child does go missing, the aid of technology can increase efficiency and decrease the time necessary to locate the child. The child needs to be located, only at the will of the authorized persons (the parents). Once there is data available about the location of the missing child, this data needs to be displayed as information that the parents can easily understand and use.

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas:

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



3.2 Ideation & Brainstorming

Idea 1:

A compact wearable gadget with a pressure switch. The user can apply pressure to the device by squeezing or compressing it as soon as an attacker is preparing to 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 police if the call goes unanswered for an extended period of time. Further, a message with the person's current 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 watch over 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 virtual check on the child. Devices come 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 child abduction 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 defence. 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.

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

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 childrens location if they are missing

issue occuring in location not marked or mismatched to safety location

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

Based on safety

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

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

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

based on health

The device materials can vomit hazardous rays

Child's body temperature may affect bydevice temperature

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

Device heat may affect the child

to know the health information of the child

If the communication between child and parents where disconnected

Based on communication

Data & information are not able to read/write.

based on data

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.

to reduce interrupt to get correct information of the child

When the database crashes.

the boundaries of the problem is delay in communication.

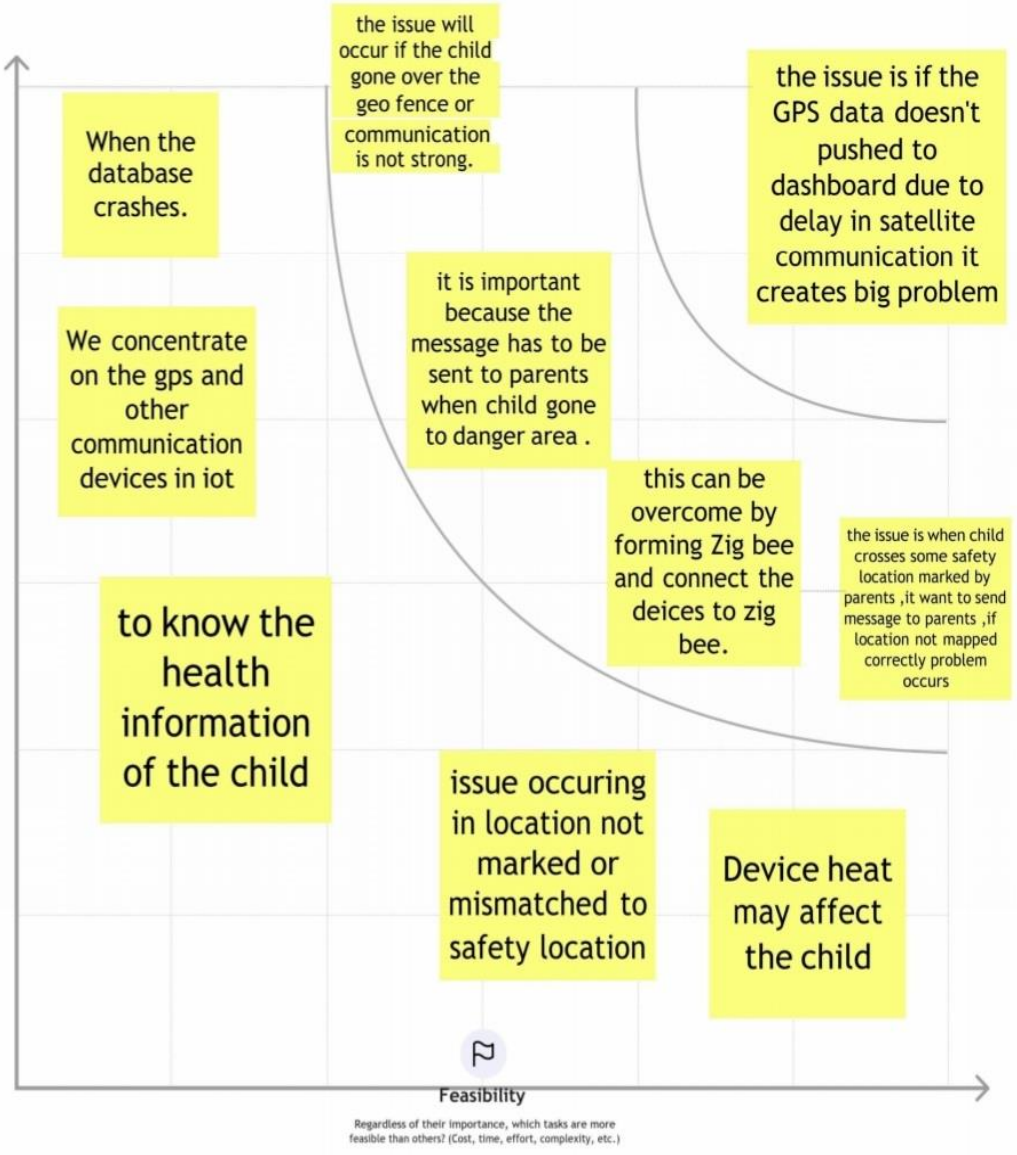
the issue is if the GPS data doesn't pushed to dashboard due to delay in satellite communication it creates big problem

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



Regardless of their importance, which tasks are more feasible than others? (Cost, time, effort, complexity, etc.)

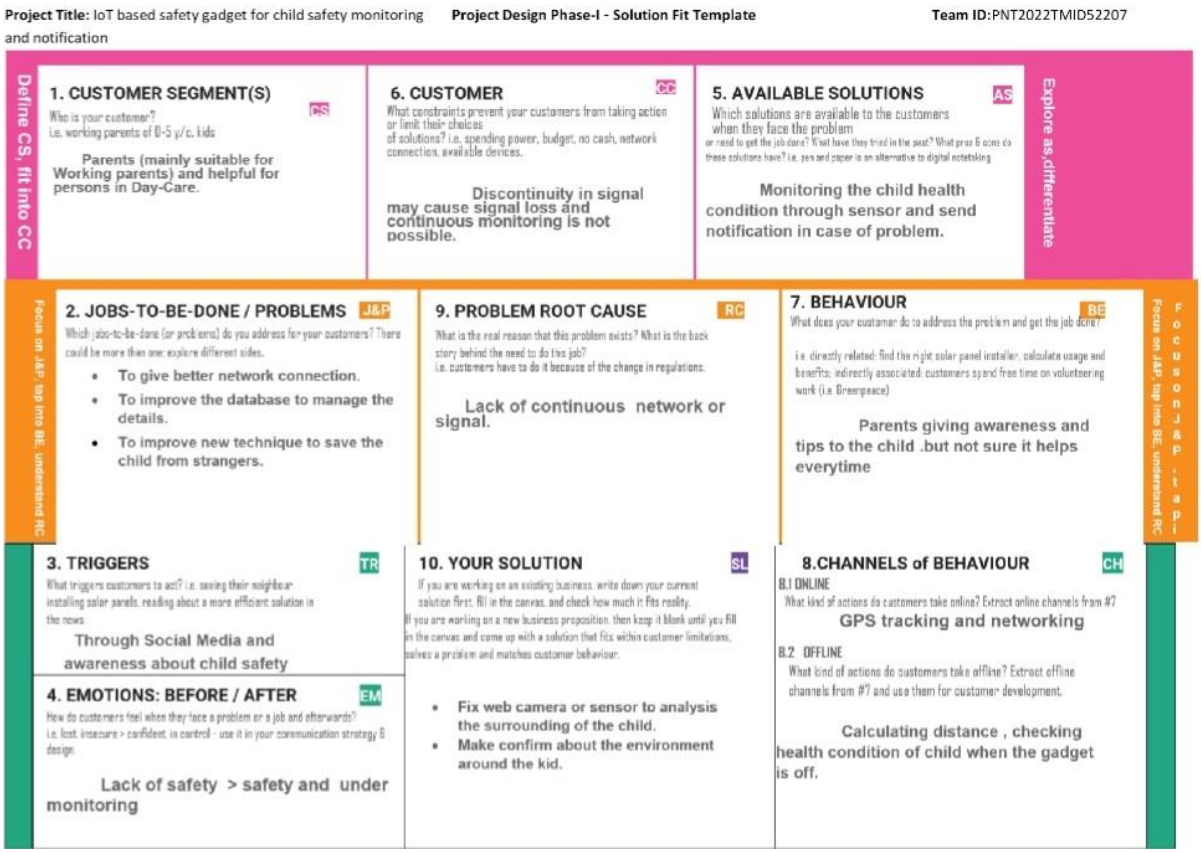
3.3 Proposed Solution

Overcome the drawbacks of the existing system. We implement the project using Raspberry Pi. Using Raspberry Pi and Pi camera the child abduction is found. The image processing is done to capture the image of the person who is in opposite direction of child. The pulse sensor differentiates the pulse rate of child and find whether child is in emergency condition. The sound sensor used to predict the voice of child and to help the child to recover from the circumstances. The Problem-Solution Fit canvas is based on the principles of Lean Startup, LUM (Lazy User Model) and User Experience design. It helps entrepreneurs, marketers and corporate innovators identify behavioral patterns and recognize what would work and why. It is a template to help identify solutions with higher chances of solution adoption, reduce time situation**.**

SI.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 of the hour today
2.	Idea / Solution description	A good solution to this issue would be to design a smart wearable Internet of Things 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 geo-fence
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, 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 geo-fence and receive alerts through the web application which is user friendly and secure created 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 safety system is of utmost importance today and would be a must buy gadget in the market today.
6.	Scalability of the Solution	With the present needs for monitoring the child, the system is designed. It has a location database to maintain the entire location history of the child and

		the parent can set the geo-fence to determine the safer boundary of the child. . If there is a need for integrating additional sensors to improve accuracy, it can be done to make the system efficient in the long run.

3.4 Problem Solution fit



4. REQUIRMENT ANALYSIS

Functional requirements are the desired operations of a program, or system as defined in software development and systems engineering. The systems in systems engineering can be either software electronic hardware or combination software-driven electronics.

4.1 Functional Requirement

Functional requirements are a part of requirements analysis (also known as requirements engineering), which is an interdisciplinary field of engineering that concerns the design and maintenance of complex systems. Functional requirements describe the desired end function of a system operating within normal parameters, so as to assure the design is adequate to make the desired product and the end product reaches its potential of the design in order to meet user expectations.

FR No	Functional Requirement(EPIC)	Sub Requirement(Sub-Task)
FR 1	User Registration	• Registration through Gmail • Registration through phone number
FR 2	User confirmation	• Confirmation via Email • Confirmation via OTP
FR-3	App installation	• Installation through link • Installation through play store
FR-4	Settings geo-fence	• Setting by user to find child location
FR-5	Detecting child location	• Detecting location via app • Detecting location via SMS
FR-6	User Interface	• User Login Form. • Admin Login Form.
FR-7	Database	• Stored in cloud for seamless connectivity. • Parents and kids link with the distance and the location values obtained from the mobile devices are stored here. • The values include parent id, kid id, distance, longitude, latitude etc.
FR-8	Server	• It connects the database and the front end application. • The backend server has been implemented to run as a service and is deployed in an IBM cloud instance. • The backend server has been implemented to run as a service and is deployed in an IBM cloud instance.
FR-9	GPS tracking	• The system is implemented with a GPS module, which acquires the location information of the user and stores it to the database.
FR-10	API	• The value collected is sent to the database using an API.
FR-11	React JS	• We are using react is as front end for us project. • Node JS for the back end we are using node is.
FR-12	GPS modules	• It receives data directly from satellites.
FR-13	Battery Life	• If the child or parent forgets to charge the device for a whole day then also the device will work. That's why we aim to make this device last the whole day with one charge. • It should be long-lasting.
FR-14	Location History	• The location history will help to track the child's activity so that the area 't will be updated. Location history will be there for 30 days. • For example if the child gets missing with the help of location history the area 't can track down their child's activity and also can find their child.

4.2 Non-Functional requirement

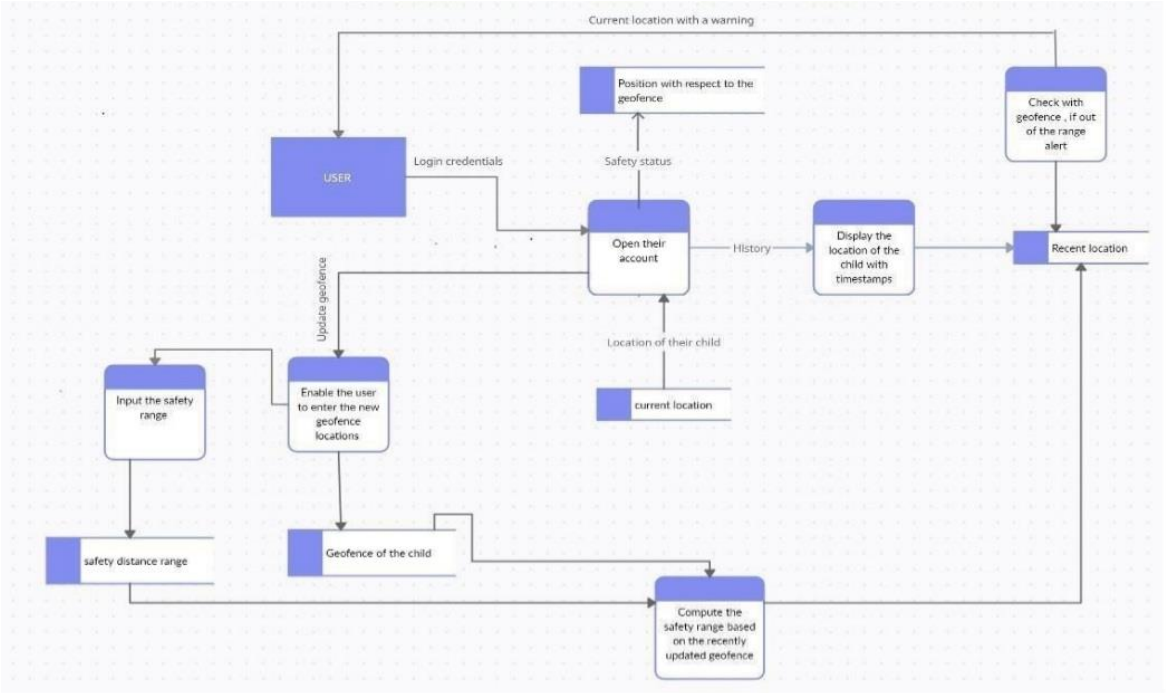
They specify the Non-Functional Requirements are the constraints or the quality attribute of the software. Non-Functional Requirements deal with issues like scalability, maintainability, performance, portability, security, reliability, and many more. Non-Functional Requirements address vital issues of quality for software systems. If NFRs not addressed properly, the results can include:

FR No.	Non-functional Requirements	Description
NFR-1	Usability	• Device have GSM can help to inform the parents or relatives about the current situations of the child by deliver the message immediately to save the child
NFR-2	Security	• Make children parents more assure about their kid's security, we have a feature in our device called Geo-Fence. • Whenever your child crosses that specific area, you will get an instant notification on your phone
NFR-3	Reliability	• Portable • Easy to use • Flexibility
NFR-4	Performance	• 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
NFR-5	Availability	• Track your child even in a crowd • Get travel details of kids at any time • Know the current location
NFR-6	Scalability	• Gadget ensures the safety and tracking of the children. • Parents need not worry about their children
NFR-7	Availability	• The system should be able to deliver promptly to the financing authority. • In the case of non-profit organizations, the solution should be 'advancing the mission'
NFR-8	Dynamicity	• IOT devices may have the capability to Adapt dynamically and change based on their conditions.
NFR-9	Desirability	• Navigation should be made easy. The user should be able to search and find the information he needs without much hassle.

5. PROJECT DESIGN

Child Tracker helps the parents in continuously monitoring the child's location. They can simply leave their children in school or parks and create geo-fence around the Particular location. By continuously checking the child's location notifications will be Generated if the child crosses the geo-fence. 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.

5.1 Data Flow Diagrams

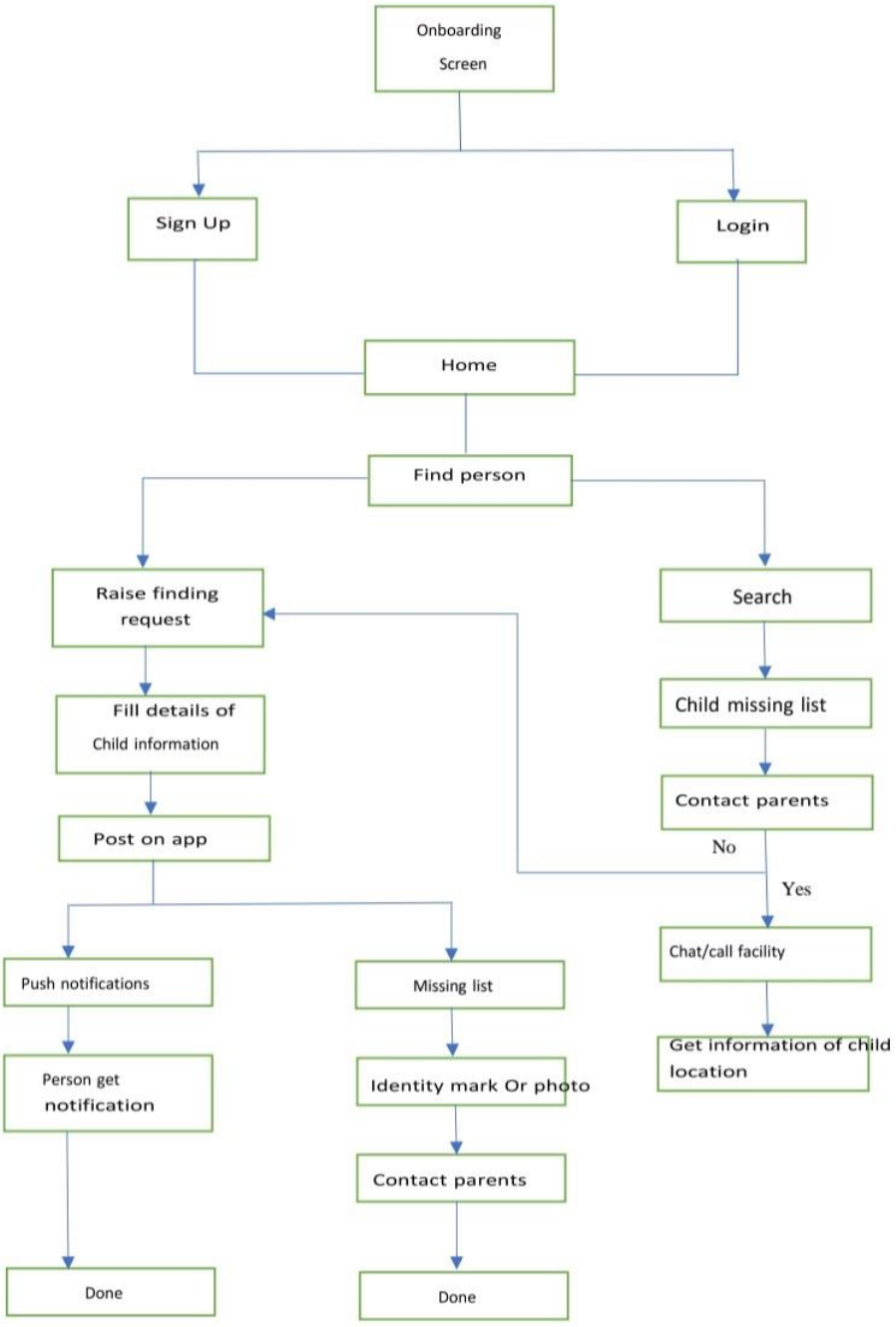


5.2 Solution & Technical Architecture

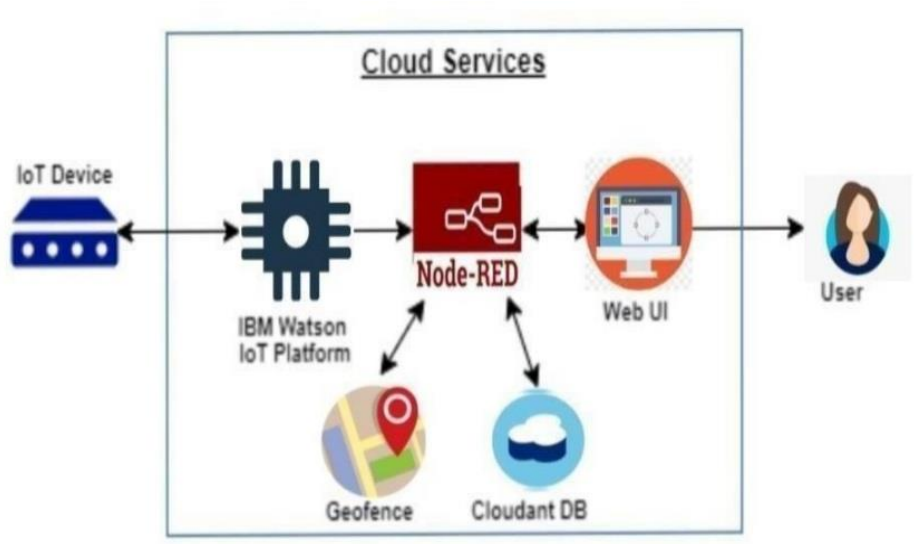
Solution Architecture

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 business problems.
- 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 solution is defined, managed, and delivered.


Onboarding Screen
Sign Up
Login
Home
Find person
Raise finding request
Search
Fill details of Child information
Child missing list
Post on app
Contact parents
No
Yes
Push notifications
Missing list
Chat/call facility
Person get notification
Identity mark Or photo
Get information of child location
Contact parents
Done
Done

Technical Architecture



5.3 User Stories

The purpose of a user story is to articulate how a piece of work will deliver a particular value back to the customer. Note that "customers" don't have to be external end users in the traditional sense, they can also be internal customers or colleagues within your organization who depend on your team.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance Criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1 (FATHER)	As a user, I can register by entering my email, and password, and confirming my password. I can access the location of my children using the credence also provided as a Father.	I can access my account/ dashboard and receive a confirmation email & click confirm	High	Sprint-1
		USN-2 (MOTHER)	As a user, I can register by entering my email, and password,	I can access my account/dashboard and receive a confirmation email & click	High	Sprint-1

			and confirming my password. I can access the location of my children using I can access my account/dashboard and receive a confirmation email & click confirm High Sprint-1 the credence also provided as a Mother.	confirm		
		USN-3 (GUARDIAN/ CARETAKER)	As a user, I can monitor the children's activities using a Safety gadget Monitoring system.	I can access my account/dashboard and receive a confirmation email & click confirm	Medium	Sprint-1
	Login	USN-4	As a user, I can log into the application by Entering my email & password.	I can access my account/ dashboard.	Medium	Sprint-2
	Dashboard	USN-5	As a user, I can fix the geofence for my child's location so	I can monitor the Current location of my child.	High	Sprint-2

6. PROJECT PLANNING & SCHEDULING

Identifying the key project sponsors and stakeholders, to determine the basis of project scope, budget, and time-frame for project execution. Upon enlisting the stake-holder requirements, prioritizing/setting project objectives.

Identifying the project deliverables required to attain the project objectives.

Creating the project schedule.

Identifying the project risks, if any, and develop suitable mitigation plans.

Communicating and presenting the project plan to stakeholders

6.1 Sprint Planning & Estimation

SPRINT	FUNCTIONAL REQUIREMENT (EPIC)	USER STORY NUMBER	USER STORY / TASK	STORY POINTS	PRIORITY	TEAM MEMBES
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	PriyaDharshini G
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	Sibi Arokya Swathy
Sprint-2	Dashboard	USN-3	As a user, In case of any emergency situation parents(I) must get the alert notification and location of the child.	2	High	Priyadharshini Muthu priya Dharshini Anto Sharlin Biju
Sprint-3	Dashboard	USN-4	As a user, I(parent) need to safeguard child and tracking the child's location and it is important to notify near police station in case of more emergency	2	High	Sibi Arokya Anto Sharlin Biju
Sprint-3	Dashboard	USN-5	As a user, Its good to have a IOT based system to safeguard monitoring without presence of parent.	2	High	Priyadharshini Swathy
Sprint-4	Monitoring the environment	USN-1	User can monitor the situation of the environment from a dashboard that Displays sensor information about the Environment and child health.	2	High	Muthu Priya Dharshini Sibi Arokya
Sprint-4	Event Notification	USN-6	Sending an alert SMS to the parents and Guardians in case of panic situation.	2	High	Priyadharshini Anto Sharlin Biju

6.2 Sprint Delivery 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	20	4 Days	04 Nov 2022	07 Nov 2022	12	07 Nov 2022
Sprint-2	20	4 Days	07 Nov 2022	10 Nov 2022	14	10 Nov 2022
Sprint-3	20	4 Days	10 Nov 2022	13 Nov 2022	15	13 Nov 2022
Sprint-4	20	4 Days	14 Nov 2022	17 Nov 2022	12	17 Nov 2022

Velocity:

Imagine we have 10-day sprint duration, and the velocity of the team is 15 (points per sprint). Let's calculate the team's average

Velocity

(AV) per iteration unit (story points per day)

6AV=1.5

Burn down Chart

Nov 22	Nov 22	Nov 22	Nov 22	Nov 22

6.3 REPORTS FROM JIRA

Reports like Created Vs Resolved, Resolution Time and Average Age underscore if there is more incoming work than the team is able to complete or highlight if your backlog requires action. This category also includes some generic, customizable gadgets like Pie Charts, Single Level Group by Reports, and Time since Issues Reports. Data visualization is key to creating impressive, appealing, and lucid JIRA reports, and following best practices of JIRA dashboard reporting takes you closer to achieving optimal results.

7. CODING AND SOLUTIONING

In computing, scheduling is the action of assigning resources to perform tasks. The resources may be processors, network links or expansion cards. The tasks may be threads, processes or data flows. The scheduling activity is carried out by a process called scheduler.

Schedulers are often designed so as to keep all computer resources busy (as in load balancing), allow multiple users to share system resources effectively, or to achieve a target quality-of-service.

7.1 FEATURE 1

This article is about scheduling in general. For networks, see Network scheduler. For other uses, see Scheduling (disambiguation) computing, scheduling is the action of assigning resources to perform tasks. The resources may be processors, network links or expansion cards. The tasks may be threads, processes or data flows.

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;
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 getGefence(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

Transform features into benefits and boost your potential conversion rate with the INK's Generate Features vs. Benefits Sales Copy tool.

- 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.

```
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;
```

```
Public class GeofenceBroadcastReceiver extends BroadcastReceiver {private
 Static final String TAG = "GeofenceBroadcastReceiv";
 Receiving
 @Override
 Public void onReceive (Context context, Intent internt){
 // TODO: This method is called when the BroadcastReceiver is
 // 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 ();
 }
 };
 // Show the toast and starts the countdown
mToastToShow.show ();
 toastCountDown.start();*/
 NotificationHelper notificationHelper = new NotificationHelper(context);
 notificationHelper.sendHighPriorityNotification("GEOFENCE_TRANSITION_ENT
 ER",
```

```
"", 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;

        }

        }

        }
```

7.3 DATABASE SCHEMA (if applicable)

A database schema is the skeleton structure that represents the logical view of the entire database. It defines how the data is organized and how the relations among them are associated. It formulates all the constraints that are to be applied on the data. A database schema defines its entities and the relationship among them. It contains a descriptive detail of the database, which can be depicted by means of schema diagrams. It's the database designers who design the schema to help programmers understand the database

8 TESTING

8.1 TEST CASES

Software testing is known as a process for validating and verifying the working of a software/application. It makes sure that the software is working without any errors, bugs, or any other issues and gives the expected output to the user. The software testing process doesn't limit to finding faults in the present software but also finding measures to upgrade the software in various factors such as efficiency, usability, and accuracy. So, to test software the software testing provides a particular format called a Test Case.

8.2 USER ACCEPTANCE TESTING

1. Defect Analysis

Need of User Acceptance Testing arises once software has undergone Unit, Integration and System testing because developers might have built software based on requirements document by their own understanding and further required changes during development may not be effectively communicated to them, so for testing whether the final product is accepted by client/end-user, user acceptance testing is needed**.**

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

2. Test Case Analysis

Sec on	**Total Cases**	**Not Tested**	**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 Report Output	5	0	0	5
Version Control	3	0	1	2

9 RESULTS

9.1 PERFORMANCE MATRICS

A performance testing results report is crucial for knowing the areas of defects and improvements in the software. Performance testers are responsible for reporting credible information about the applications and systems they run tests on, and in doing so, must use an effective approach. Any wrong or misleading information about the website's readiness or system application could spell doom on so many fronts for the company, financially, socially (brand reputation), and possibly, the viability of the company. A performance testing results report template is an essential tool in collecting precise, infallible, and valuable metrics for further analysis.

10. ADVANTAGES & DISADVANTAGES

Advantages

- Data Accuracy
- Efficiency
- It can be used in any cell phone and doesn't necessarily require an expensive smart phone
- High energy density
- High working voltage for single battery cell
- Population-free with a long cycle life
- No memory effect
- Capacity, voltage, resistance, platform time consistency is good
- Lightweight, small size
- Stay connected

Disadvantages

- Data security concerns
- Technical concerns
- Capabilities are limited
- Wearable technology is expensive
- High cost but once it is implemented the expenses can be reduced

11. CONCLUSION

Future is similar to the word children. Young people are the future pillars of one's nation, as Dr. A.P.J. Abdul Kalam once said, thus it is important to protect today's children's dreams and lives in order to give them a better future. 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, enabling them to assure their safety and lowering the incidence of Child abuse.

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 system needs 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**.**

13 APPENDIXES

Appendicitis occurs when your child's appendix becomes infected or inflamed. Symptoms include severe pain in your child's lower right abdomen. Treatment usually involves removal of your child's appendix through surgery. Treatment is vital. If appendicitis is not treated, your child's appendix could rupture, causing life-threatening conditions.

GitHub

https://github.com/IBM-EPBL/IBM-Project-46796-1660761682

Project Demo Link

https://drive.google.com/file/d/16rNJExTRjXBdqJQnAsGy4wUBwQRT1D_N/view?usp=drivesdk