KARPAGA VINAYAGA COLLEGE OF ENGINEERING AND TECHNOLOGY
(An Autonomous Institution, Approved by AICTE, New Delhi,
Affiliated to Anna University,Chennai
chinna kolambakkam, chengalpattu(D.t)-603308.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Final PROJECT REPORT

PROJECT TITLE

IOT BASED SAFETY GADGET FOR CHILD SAFETY MONITORING AND NOTIFICATION

TEAM ID: PNT2022TMID38891

TEAM MEMBERS

1. RANJINI.B(TEAM LEAD)
2. NIVETHA.R.P
3. PRINCEIMMANUEL.G
4. USMAN.H
5. LOGESH.M

ABSTRACT

This paper is mainly streamed towards child safety solutions by developing 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.

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CHAPTER 1

INTRODUCTION

The introduction about the child safety monitoring and notifying using IoT based gadgets are briefly discussed in this chapter.

1.1 PROJECT OVERVIEW

The internet of things (IoT) refers to the set of devices and system that stay 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.

1.2 PURPOSE

a. As we all know, kids are the heartbeat of every parent, and when it comes to a child with special needs, parents have to be extra careful. They have to take extra care of their child.
b. 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 location.
c. 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.
d. Child can also initiate emergency notification to the parents in-case of unsafe situation.

Fig 1.1 Child Safety using geofence

a. Enable tracking of the child's location and capturing of data remotely such as where the child located distance etc.

b.To show the child's actual data with reference values.

c. Enable sending of notification if the child is out of location or when the device realizes abnormal conditions/ situations.

d.Develop a prototype of IOT wearable smart band connected to parent's Mobile apps so that they can monitor the actual condition of children at anytime and anyplace.

The remaining chapters of the project are organized as follows, Chapter 2 discusses the literature survey gone through for the project, Chapter 3 briefs about the ideation & proposed solution, Chapter 4 explains the requirement analysis, Chapter 5 explains about the project design, Chapter 6 depicts the project planning and scheduling of this project, Chapter 7 and 8 shows the coding and outcome of the project, Chapter 9 shows the advantages and disadvantages of the project, Chapter 10 concludes the project continued with the future scope explained in Chapter 11.

CHAPTER 2

LITERATURE SURVEY

The introduction about the literature survey gone through forthe project are brieflydiscussed inthis chapter.

Abstract: 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.

Keywords: Child security system, Child monitoring system, Internet of Things (IOT), IOT device, Smart band.

Literaturereview:

The Kid Safety Wearable Device is undertaking depicts the idea of a brilliant wearable gadget for little children.The reason for this gadget is to enable guardians to find their kids easily. Wi-Fi and Bluetooth seem, by all accounts, to be a problematic medium of report between the parent and kid. Consequently, the focal point of this paper is to have a SMS content empowered correspondence medium between the youngsters' wearable and the parent as the earth for GSM portable correspondence is relatively present everywhere. At the point when Child is press the catch SMS sent to Parent gadget. UV radiation and SOS utilized optional gadget measure actualized was utilizing a splendid SOS Light and misery alert ringer introduce on the wearable gadget which when actuated by the guardians by means of SMS content should show the SOS flag brilliantly and sound a caution which an observer can without much of a stretch spot as an indication of pain. Vehicle Tracking System for Children Safety Using RFID, GPS, GSM, This Project comprises of RFID labels and perusers which are intended to investigate the passage and exit of a man in a vehicle. Every individual is relegated with a label which holds the exact points of interest. When he/she enters the vehicle, the peruser peruses the individual's tag and stores the points of interest of passage and exit. This data is told to the concerned specialist through SMS utilizing GSM. The proposed framework encourages to thinkabout the

territory where the vehicle has crossed the way utilizing RFID. The GPS innovation associated with this framework helps in securing reports on understudy's ongoing area.

- **N. Manjunatha , H. M. Jayashree , N. Komal, K. Nayana[IOT Based Smart Gadget for Child Safety andTracking]**
  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.
- **Ms Anisha , AfzalHussain[Child Safety wearable Device]**
  Safety is the most wanted power for everyone in today's world. Rape is the one of the major crime in India practiced against Child and Women. The crime rate is growing steadily since last few decades. According to latest National Crime Records Bureau (NCRB) 2013 annual report, 33,707 rape cases are reported across only India. The number of reported rape cases has been steadily increasing over the past decade. The systems provide the smart child tracking.
- **P.Soundarya , M.NivethaKumari and J.Jayachitra[A Smart Security for Child Safety]**
  Children in all over the world are facing a lot of physical harassment and kidnapped by anyone. There is a need of advanced child security system to provide the safety measure in public places as well as travelling alone through public transports. This project provides a new model for the child security in public places which aims to provide.
- **Navya A, Nidhishree, Vidhyashree, Vishwa[CHILD MONITORING SYSTEM USING GPS CHILD TRACKING SYSTEM]**
  We are all familiar with the difficulties that parents endure in raising their children, especially when both parents work. In such instances, giving 24 hours of time is nearlyimpossible. As a result, we need to create something uniquethat will allow parents to keep a constant eye on their child/infant and be notified if anything unusual happens. As a result, we devised a plan to create a Smart Child Monitoring System based on the Internet of Things, which will allow parents to monitor their children even

when they are away from home and detect every activity of the child from anywhere on the planet. Home & amp; detect every activity of the Child from any distant corner of the world.

- **S.Ramu , K.Pushpalatha, P.Manimegalai [CHILD SAFETY SYSTEM USING ANDROID APP]** Childs security is a critical issue in today's world and it is very much needed for everyone over such an issue. The above system ensure the safety and monitoring of child.

CONCLUSION:

This security Wearable Device will keep the child safe and also the abuse against the child will be decreased. The parent of child will get continuous update about their child status so that they cannot afraid about their childwhen they are not being with the child. This will create some fear to the persons those who all involving in harassment and child trafficking. As like well known proverb "**Prevention is better than cure**", this application will prevent the child from harassment and kidnapping.

2.3 PROBLEM STATEMENT DEFINITION

There are multiple news-sharing apps used by a single user and are often spammed with notifications.There is also a lot of fake news which gets shared. A newssharing app wants to help users find relevant and important news easily every day and also understand explicitly that the news is not fake but from proper sources. While Opening app for reading a news, I'm literally getting too much of advertisements inbetween the content because of these ads I was unable to read the content properly and it makes me feel irritated,App wants to help users find relevant and important news easily every day and also understand explicitly without the ads.

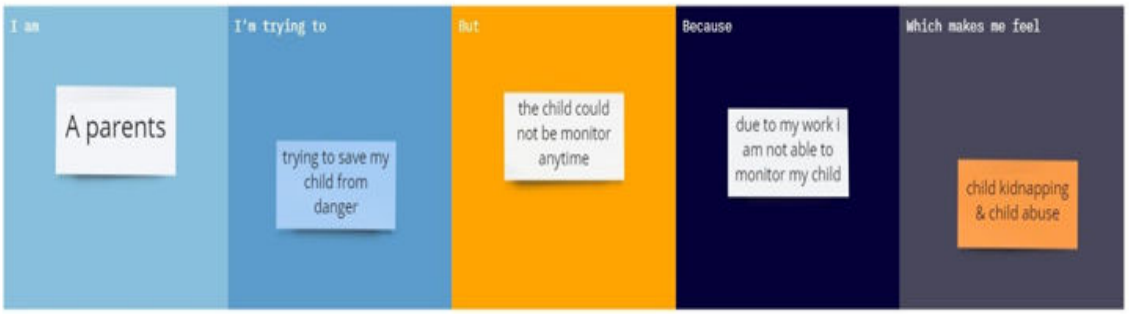


Fig 2.1 Problem Statement Definition

CHAPTER 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 behaviors 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.

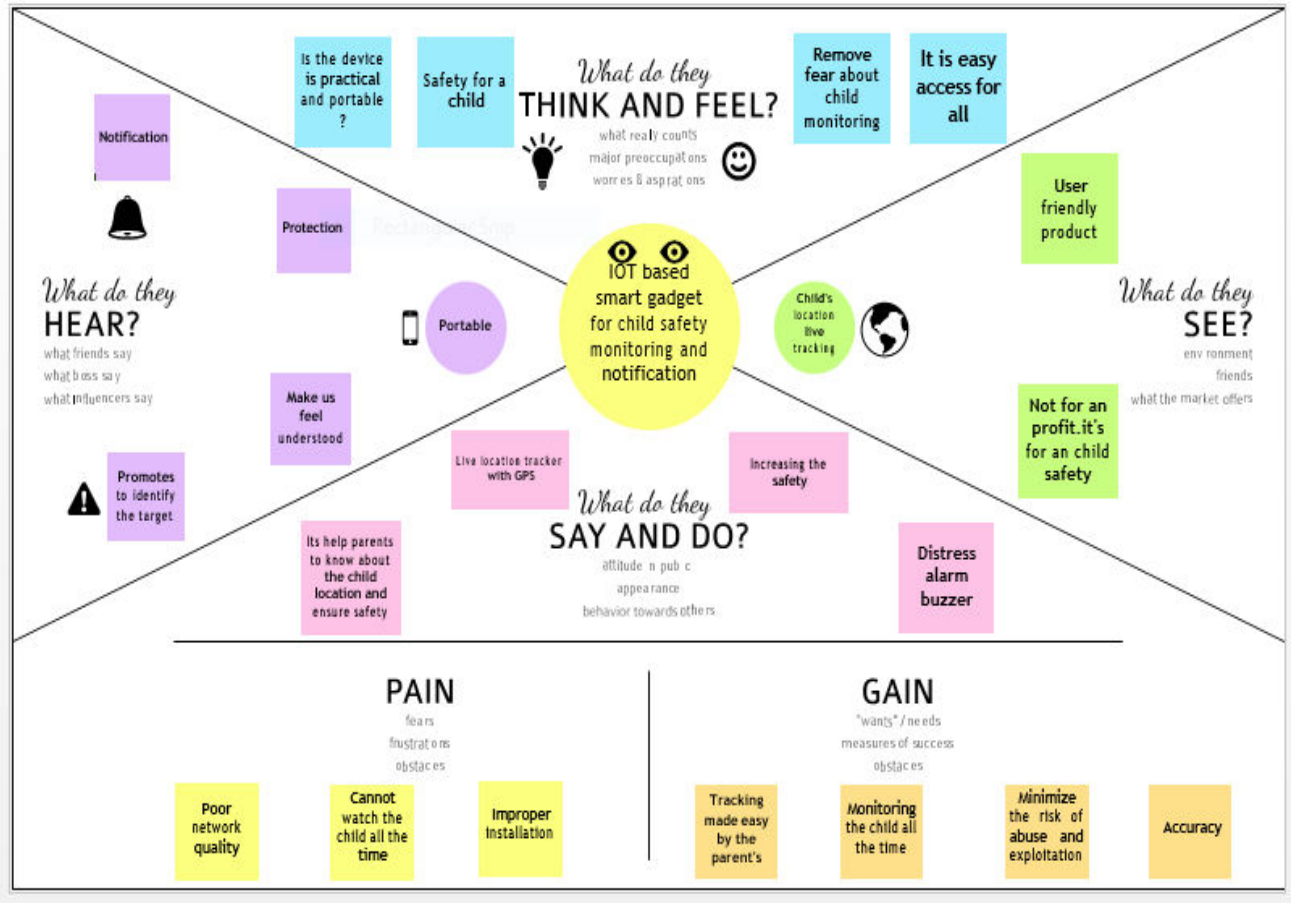


Fig 3.1 Empathy Map Canvas

3.2 IDEATION & BRAINSTORMING

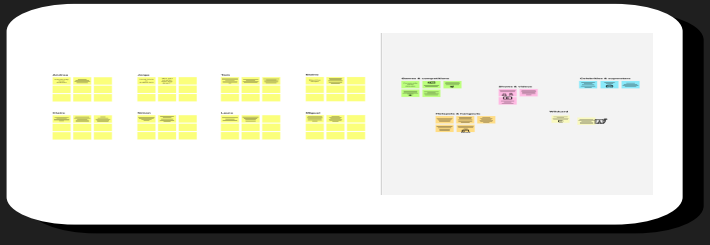
Template

Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

- **10 minutes** to prepare
- **1 hour** to collaborate
- **2-8 people** recommended

Share template feedback



Need some inspiration?

See a finished version of this template to kickstart your work.

Open example →

2

Brainstorm

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

10 minutes

TIP

You can select a sticky note and hit the pencil [switch to sketch] icon to start drawing!

Ranjini.B

- what make an parent worry in this generation
- create a ideation for gadget
- create a model
- measures child heart rate and temperature
- gps to keep track of their child movement
- alert when the child exceed the range of limit

nivetha R.P

- not able to monitor the child anytime
- create a mobile application
- make an battery life better
- low level of radiation
- briiliant ui/ux design for application
- record the data of child activies

usman.H

- the child could not monitor anytime
- intimate the location through gps
- trying to save child from danger
- water resistant
- child locator gadget

logesh.M

- due to their work schedule parent's couldn't able to monitor their child
- goe fencing the child movement
- easy to wear
- create web application
- integrated with cloud server
- secure database

prince.G

- child kidnapping & child abuse
- satellite calling in case of emergency
- user friendly for all kind of parents
- create geo fence
- parental control feature
- connect with parent mobile

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

TIP

Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.

Tracking location

- tracking through gps
- make satellite call during emergency
- accurately update the location of the child
- alert when child exceed the range of limit

Ui

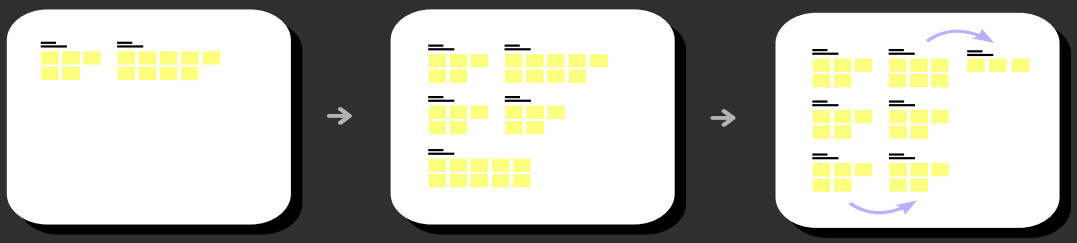
- user friendly for all kind of people
- mobile application
- excellent ui/ux design for application
- instant update to parent's

Physical feature

- easy to wear
- sweat and water proof
- longer battery life
- lower level of radiation

Database

- secure database
- geofencing the child location
- connect with cloud server
- measure & save the heart rate and pulse rate

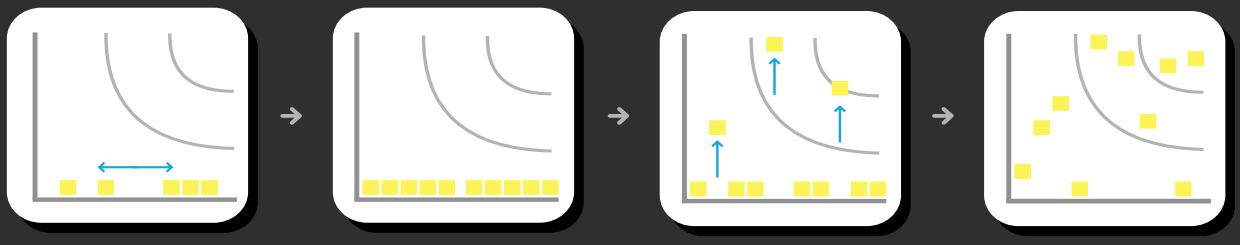


4

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



How might we provide IOT based child safety monitoring and notification?

PROBLEM SOLUTION FIT:

Problem-Solution fit canvas 2.0

Define CS, fit into CC

1. CUSTOMER SEGMENT(S) — CS

Parents and guardians who are concerned about the safety and well-being of their children.

This market includes products that are designed to monitor the location and activities of children,as well as to parents with peace of mind.

6. CUSTOMER CONSTRAINTS — CC

1. The device must be able to be worn by a child.
2. The device must be able to monitor the child's location
3. The device must be able to send alerts to the parent if the child leaves a designated area
4. The device must be water proof
5. The device must have a long battery life.

5. AVAILABLE SOLUTIONS — AS

There are few different ways to go about this.

you could use a home security system with motion detectors and cameras to keep an eye on your child they're home alone.

you could also install a GPS tracker on their things so you can see their location at all times.

Explore AS, differentiate

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

2. JOBS-TO-BE-DONE / PROBLEMS — J&P

Aims to solve is to provide a way for parents to monitor their children's activities and whereabouts in real-time.

This device would allow parents to see where their childrens are,what they are doing,and receive alerts if their chidren are in danger.

9. PROBLEM ROOT CAUSE — RC

There are many potential causes of problems with devices, including hardware or software issues, user error, or problems with the underlying network or connectivity.

7. BEHAVIOUR — BE

if a child safety monitoring device is properly installed and functioning, it will alert the parents whenever they cross the range of limit.

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

Identify strong TR & EM

3. TRIGGERS — TR

If the child wanders out of a designated safe area, if the child is in close proximity to a dangerous object, or if the child's heart rate or respiratory rate falls outside of a normal range.

4. EMOTIONS: BEFORE / AFTER — EM

BEFORE: The parent may feel anxious about the child's safety,especially if the child is very young.

AFTER: Parents may feel relieved and more confidient when their child is using the device.

10. YOUR SOLUTION — SL

One solution for child's safety monitoring is :

The use of a GPS tracker can be weared on a child's hand and it will allow parents to track their child's location at all times.

This can be especially useful if a child is lost or if there is a concern that may be in danger.

8. CHANNELS of BEHAVIOUR — CH

8.1 ONLINE

It can communicate with a parent or caregiver,the most common method is through a mobile app,which can send notificationsto a parent's smartphone or tablet.

8.2 OFFLINE

It can be monitored offline by checking the device's event log.

This will show a record of the device's activies,including any attempts to access blocked websites and applications.

Extract online & offline CH of BE

AMALTAMA

CHAPTER 4

REQUIREMENT ANALYSIS

In this chapter, the requirement analysis of the proposed system has been discussed along with the brief explanation about its advantages.

4.1 FUNTIONAL REQUIREMENT

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / 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 geofence	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 back-end 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 aren'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 aren't can track down their child's activity and also can find their child.

4.2 NON-FUNCTIONAL REQUIREMENT

Following are the non-functional requirements of the proposed solution.

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

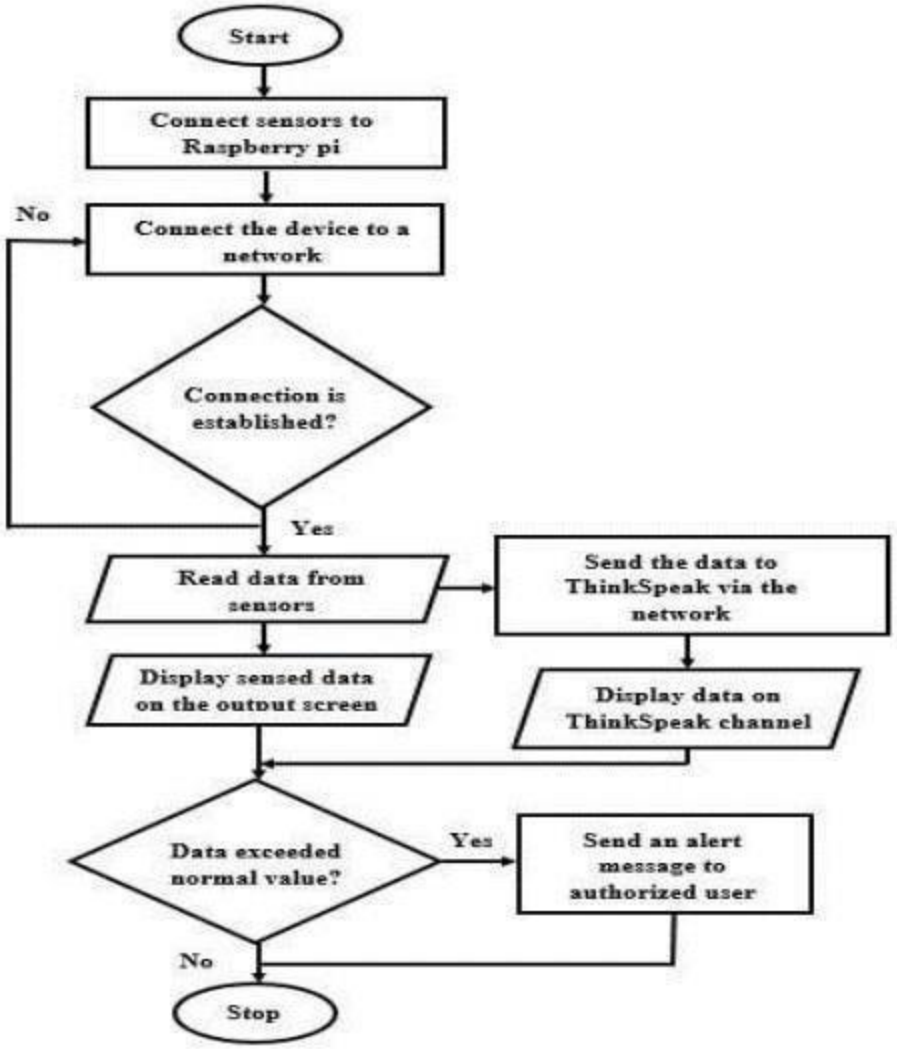
NFR-6	Scalability	Gadget ensures the safety and tracking of the children. Parents need not worry about their children.
NFR-7	Evaluability	The system should be able to deliver promptly to the financing authority. In the case of non-profit organizations, the solution should be 'advancing the mission'.
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.

This chapter dealt with the funtional and non-functional requirement analysis of proposed system.

CHAPTER 5

PROJECT DESIGN

5.1 DATA FLOW DIAGRAMS



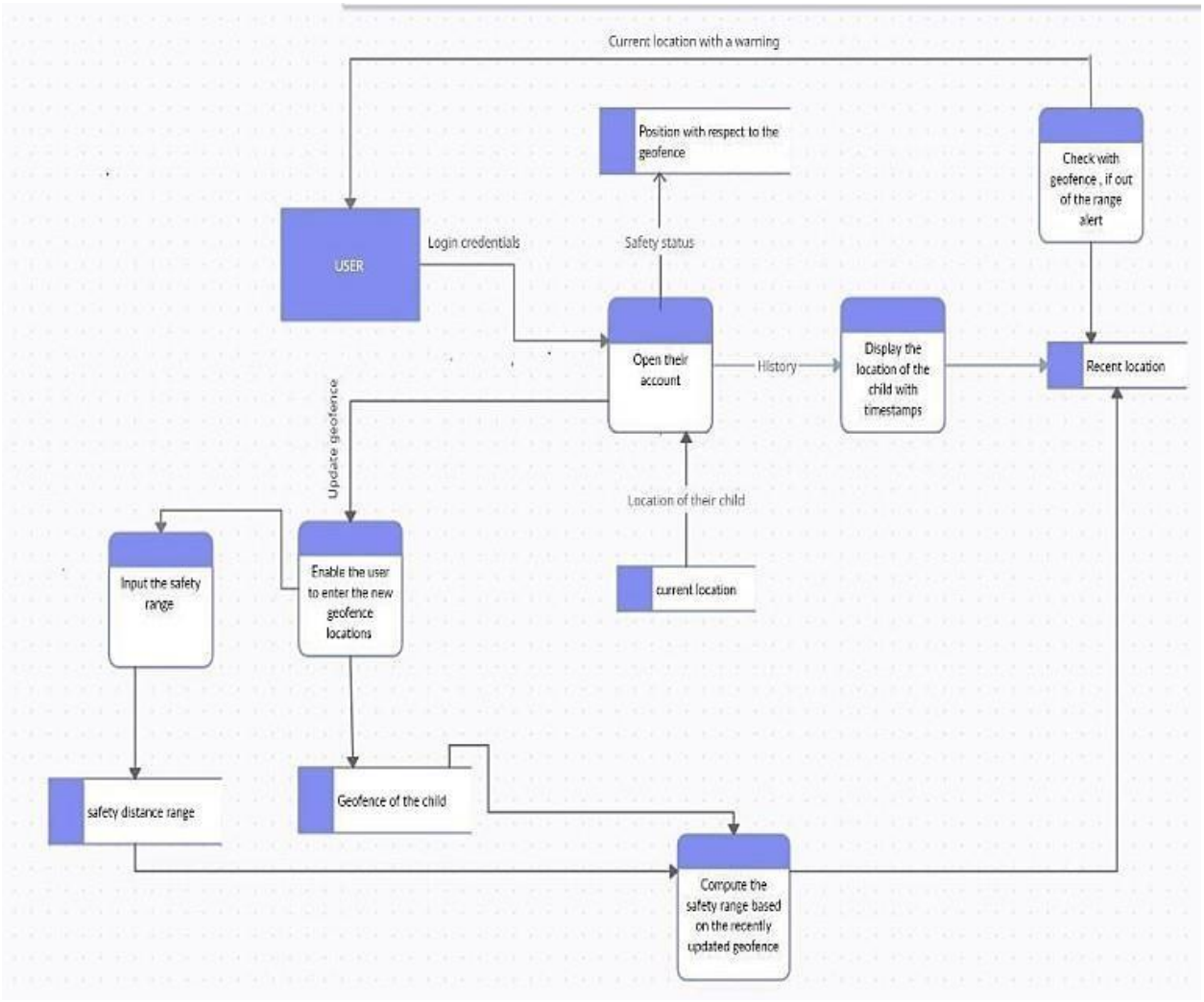


Fig 5.1 Dataflow Diagram

5.2 SOLUTION & TECHNICAL ARCHITECTURE

5.2.1 SOLUTION ARCHITECTURE

Track current location of the child using GPS and continuous monitoring of the same is done. When the gadget detects the activity to be outside the given geofence (as mentioned by the parent or guardian), alert messages or notifications are sent to the registered device, appropriately. Additional features such as recording of messages could be done if any kind of danger is sensed.

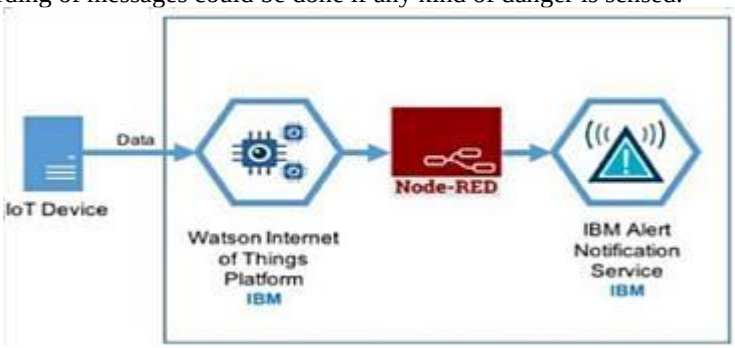


Fig 5.2 Solution Architecture Diagram

5.2.2 TECHNICAL ARCHITECTURE

Fig 5.3 Technical Architecture Diagram

5.3 USER STORIES

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user) and (Web user)	Registration	USN-1	As a user, I can register my account by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1

		USN-2	As a user, I will receive confirmation email once I have registered myself	I can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the application through apple account	I can register & access the dashboard with apple account Login	High	Sprint-2
	Login	USN-4	As a user, I can log into the application by entering user id & password		High	Sprint1
Customer Care Executive	Login		As I enter I can view the working of the application and scan for any glitches and monitor the operation and check if all the users are authorized.	I can login only with my provided credentials	Medium	Sprint - 3

Table 5.1 User Stories

CHAPTER 6

PROJECT PLANNING & SCHEDULING

6.1 SPRINT PLANNING & ESTIMATION

Milestone Name	Activities	Milestone Number	Description	Completion Date	Status
Prerequisites			Create the IBM account and download the necessary software for your chosen category of the project	27/08/2022	Completed
Ideation Phase	Literature Survey	1	Literature survey on the selected project by gathering and referring research paper and publications	02/09/2022	Completed
	Empathy Map	1	Create an empathy map that list the user's pains and gains	08/09/2022	Completed
	Problem Statement	1	Summarize the problem that customer needs to be solved	09/09/2022	Completed
	Brainstorming	1	Gather many different ideas from the team mates and prioritize the idea based on feasibility and innovative	16/9/2022	Completed
Project Design Phase -1	Proposed Solution	2	Prepare the proposed solution document that you proposed to solve the problem statement which should include feasibility ,business model … etc.	24/9/2022	Completed
	Solution Architecture	2	Prepare Solution architecture diagram for the proposed solution	01/10/2022	Completed
	Problem Solution Fit	2	Prepare Solution Fit Document for the proposed solution	01/10/2022	Completed
Project Design Phase -2	Customer Journey Map	3	Prepare a customer journey map to understand how the user interact and experience your product	08/10/2022	Completed

	Data Flow Diagram	3	Draw the data flow diagram for you proposed solution	12/10/2022	Completed

	Solution Requirements	3	Create a solution requirement document for the proposed solution	14/10/2022	Completed
	Technology Stack	3	Prepare the technology stack diagram for the proposed solution	14/10/2022	Completed
Project Planning	Milestone And Activity List	4	Create a document to show your milestones as well as activity in your development cycle	21/10/2022	Completed
	Sprint Delivery Plan	4	Create a sprint plan for the project	21/10/2022	Completed
Project Development Phase	Sprint-1	5	Delivery of the sprint-1	29/10/2022	On Going
	Sprint-2	6	Delivery of the sprint-2	5/11/2022	On Going
	Sprint-3	7	Delivery of the sprint-3	12/11/2022	On Going
	Sprint-4	8	Delivery of the sprint-4	19/11/2022	On Going

Project Planning Template (Product Backlog, Sprint Planning, Stories and story points)

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	NIVETHA.R.P PRINCE IMMANUEL.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	RANJINI.B USMAN.H
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.	3	Medium	LOKESH USMAN.H

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
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 incase of more emergency .	2	High	NIVETHA.R.P
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	LOKESH PRINCE IMMANUEL.G
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	RANJINI.B NIVETHA.R.P
Sprint- 4	Event Notification	USN 6	Sending an alert SMS to the parents and guardians in case of panic situation.	2	High	USMAN.H

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	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
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

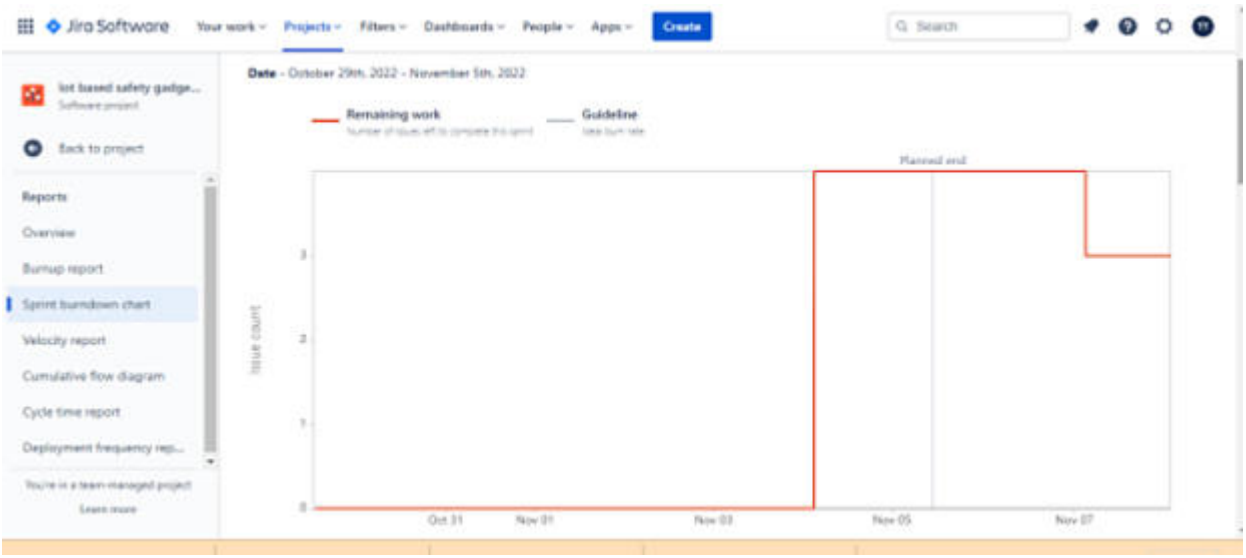
Velocity:

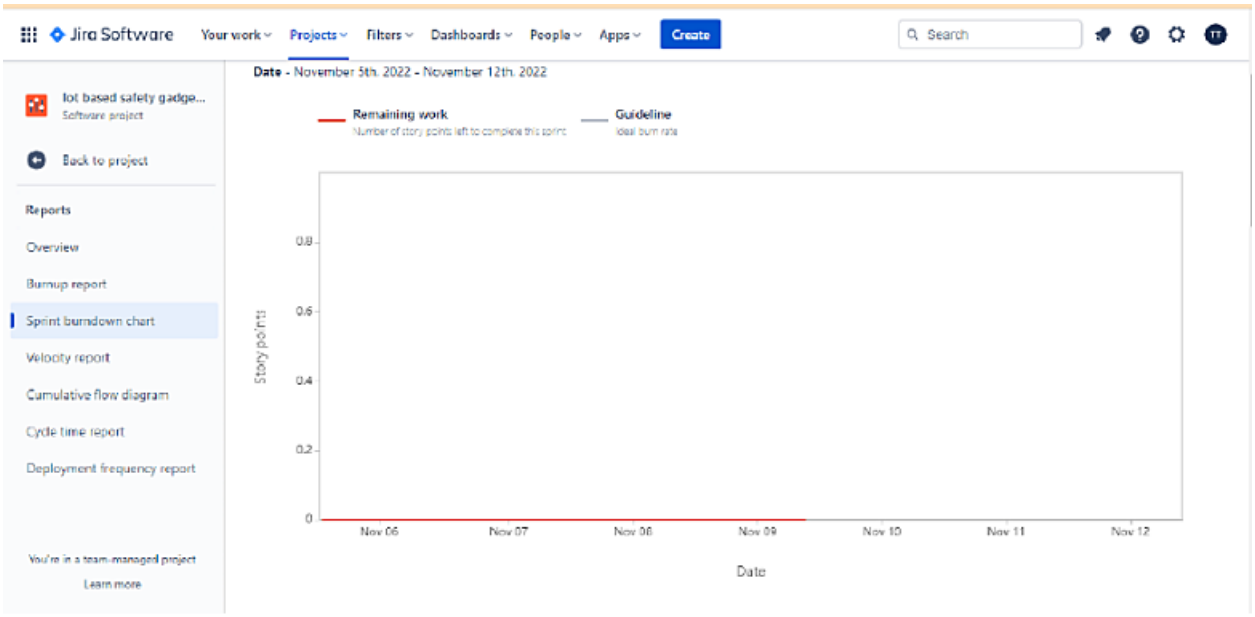
Imagine we have a 10-day sprint duration, and the velocity of the team is 15 (points per sprint). Let's calculate the team's average velocity (AV) per iteration unit (story points per day)

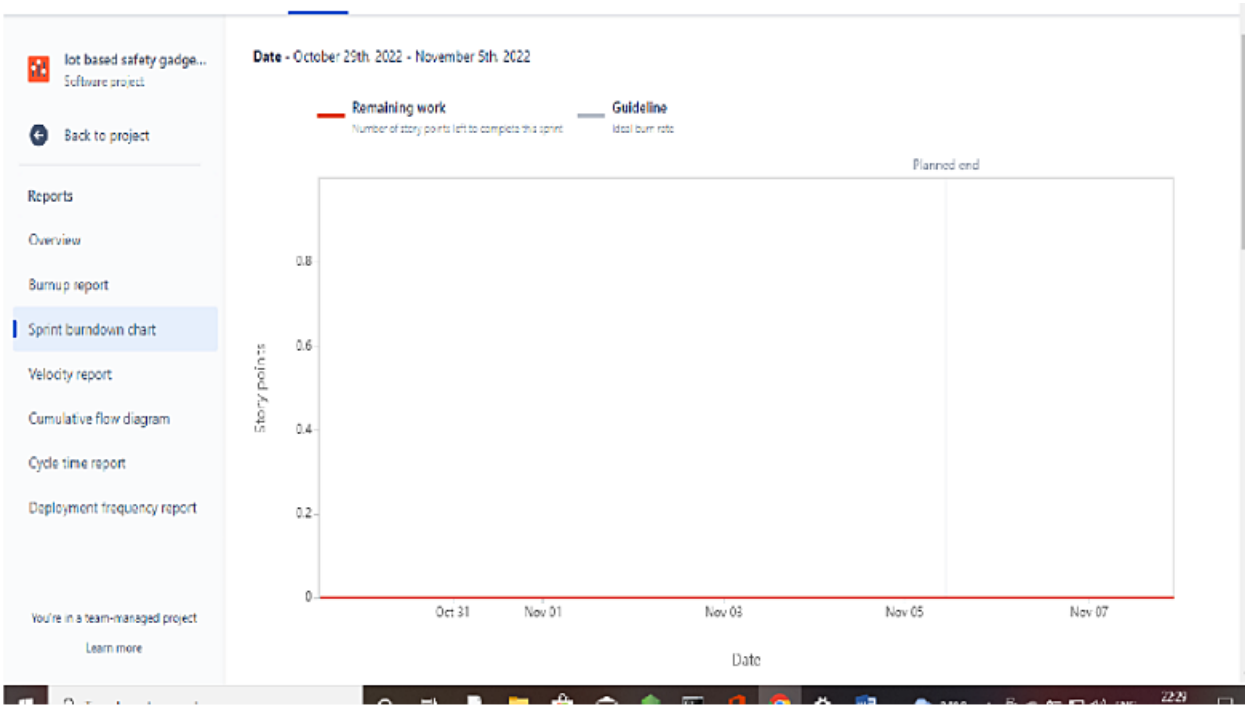
$$AV = 2.5$$

6.3 REPORTS FROM JIRA

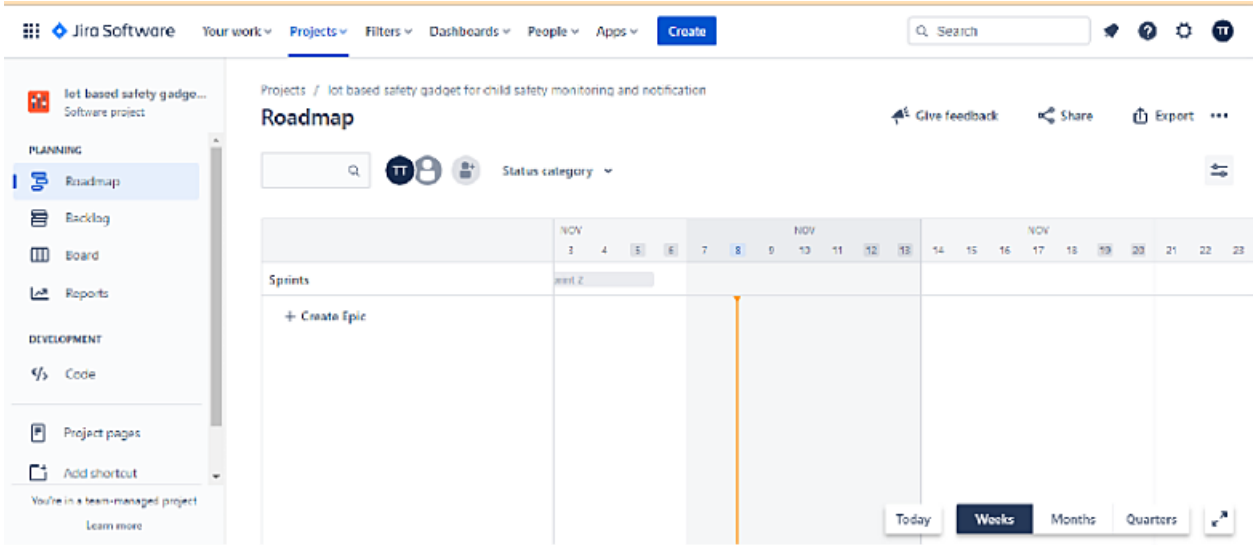
BURNDOWN CHART

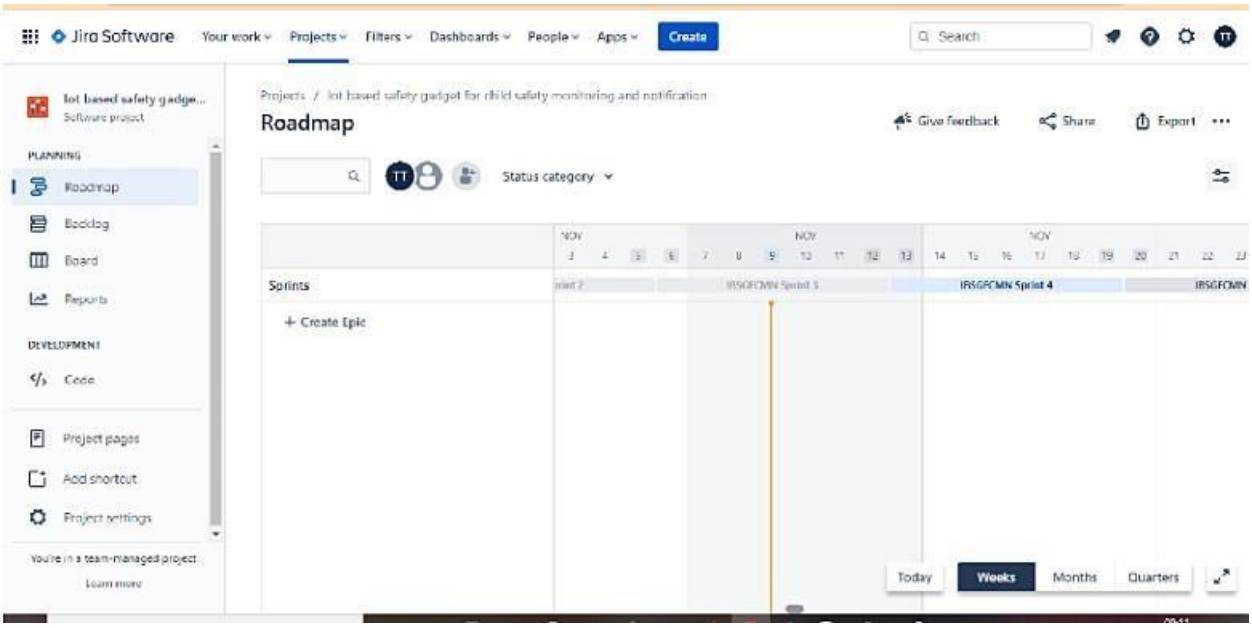





Iot based safety gadge...
Software project
Back to project
Reports
Overview
Burnup report
Sprint burndown chart
Velocity report
Cumulative flow diagram
Cycle time report
Deployment frequency report
You're in a team-managed project
Learn more
Date - October 29th 2022 - November 5th 2022
Remaining work
Number of story points left to complete this sprint
Guideline
Ideal burn rate
Planned end
Story points
0.8
0.6
0.4
0.2
0
Oct 31
Nov 01
Nov 03
Nov 05
Nov 07
Date

ROADMAP

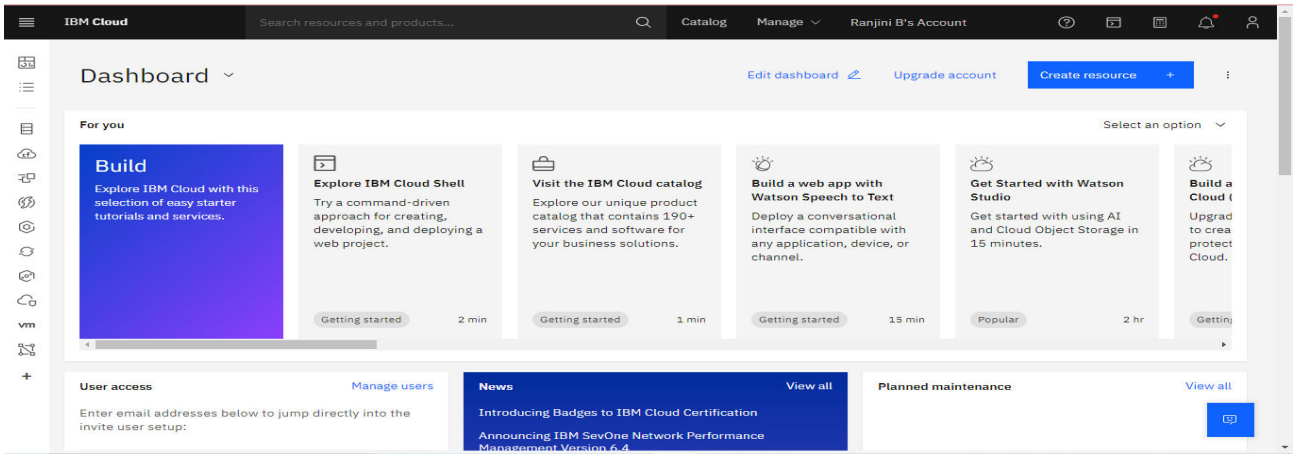

Jira Software
Your work
Projects
Filters
Dashboards
People
Apps
Create
Search
Iot based safety gadge...
Software project
PLANNING
Roadmap
Backlog
Board
Reports
DEVELOPMENT
Code
Project pages
Add shortcut
You're in a team-managed project
Learn more
Projects / Iot based safety gadget for child safety monitoring and notification
Roadmap
Give feedback
Share
Export
Status category
NOV
Sprints
+ Create Epic
Today
Weeks
Months
Quarters


Jira Software
Your work
Projects
Filters
Dashboards
People
Apps
Create
Search
Iot based safety gadge...
Software project
PLANNING
Roadmap
Backlog
Board
Reports
DEVELOPMENT
Code
Project pages
Add shortcut
Project settings
You're in a team-managed project
Learn more
Projects / Iot based safety gadget for child safety monitoring and notification
Roadmap
Give feedback
Share
Export
Status category
NOV
NOV
NOV
Sprints
IRSGFCMN Sprint 4
+ Create Epic
Today
Weeks
Months
Quarters

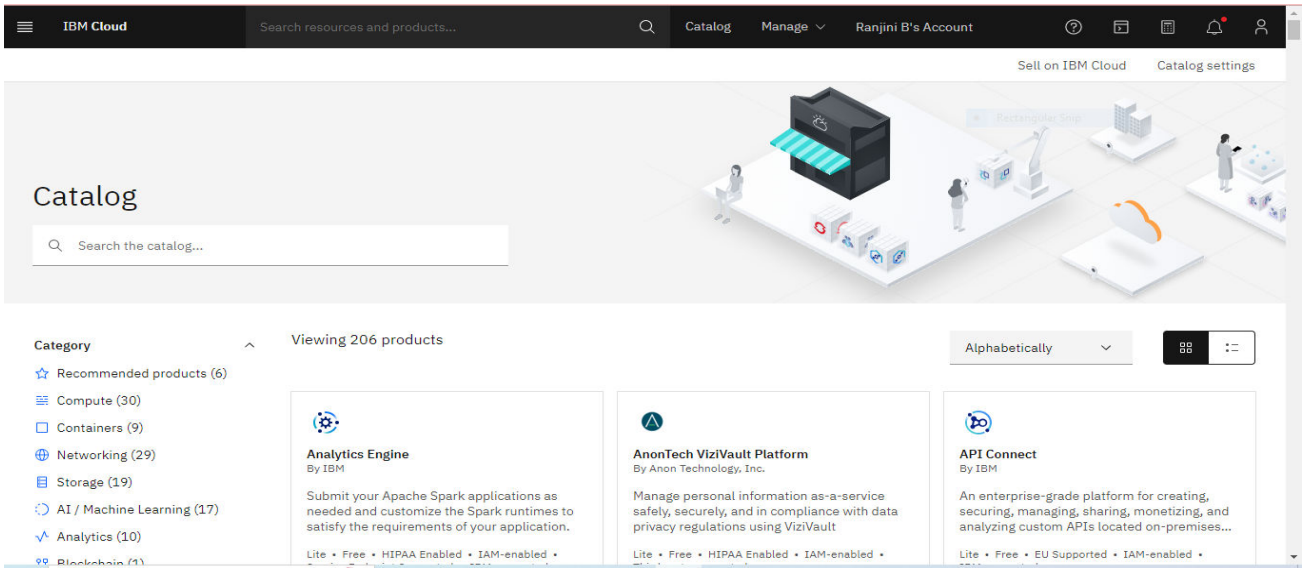
CHAPTER 7 CODING AND SOLUTIONING

7.1 CREATE AND CONFIGURE IBM CLOUD SERVICES

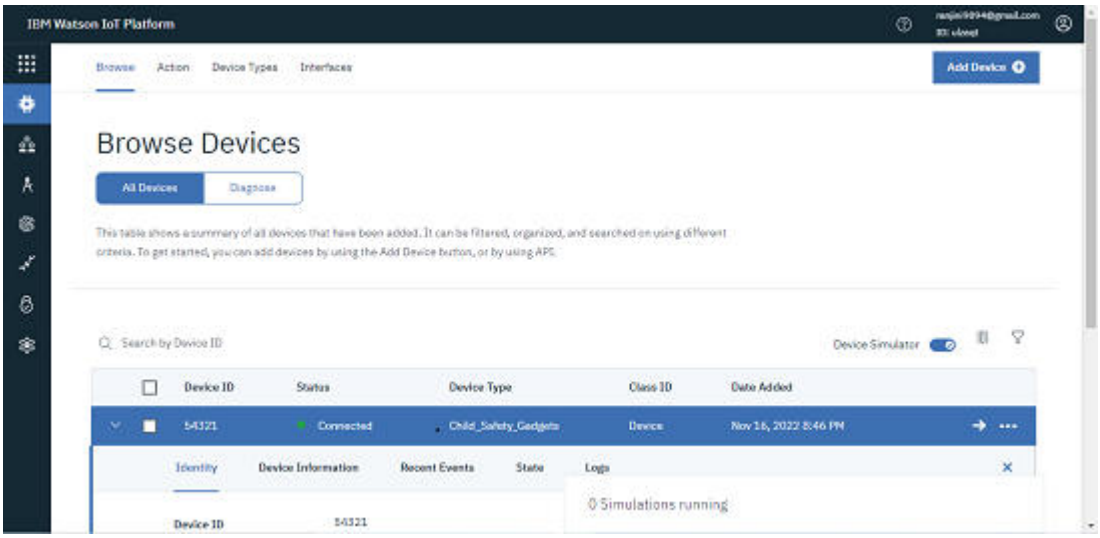
USN 1: As a user I need to enroll the cloud registration



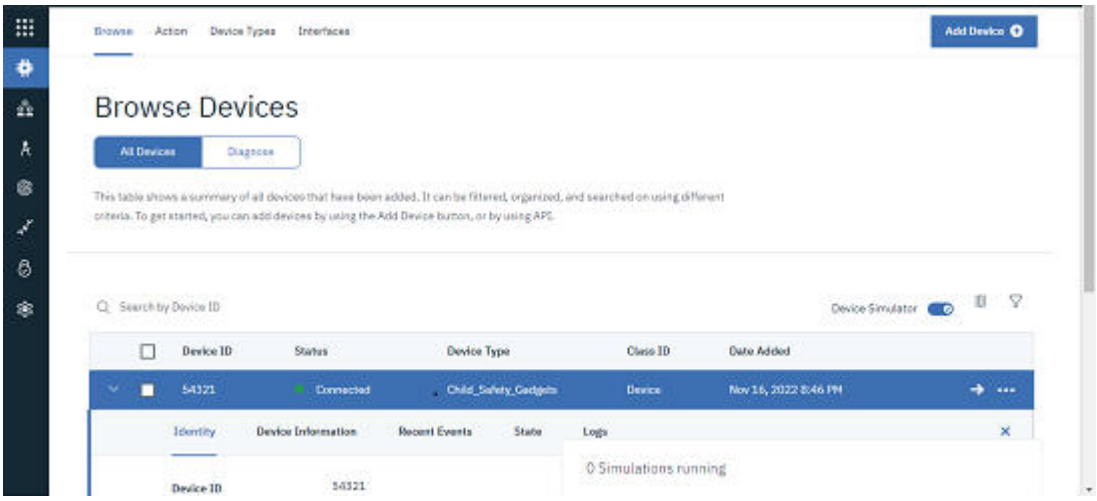
USN 2: As a user, I will create IBM cloud account.



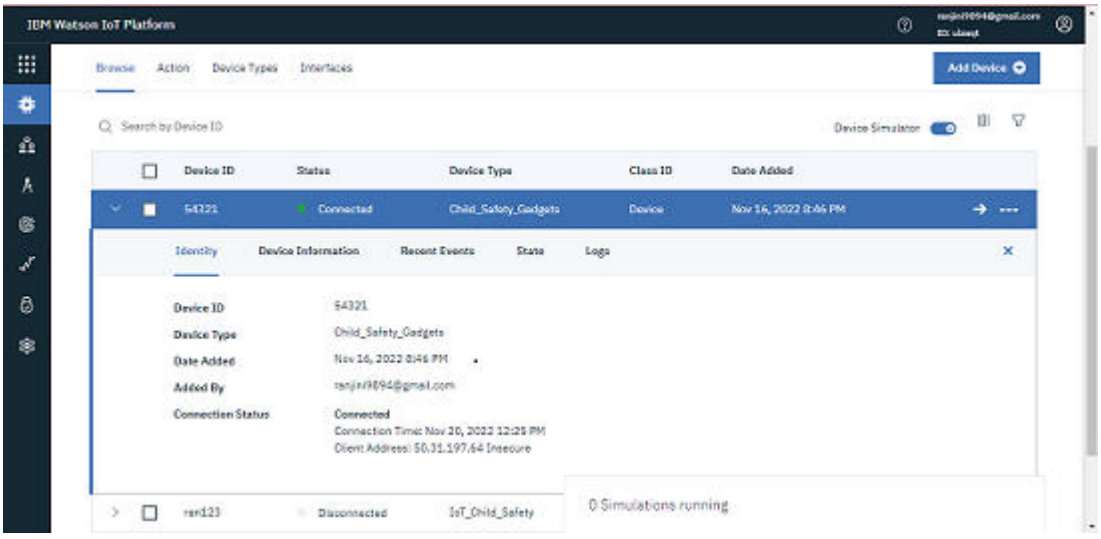
USN 3: After creating cloud account launch IBM Watson IOT platform by accessing cloud account .



USN 4: Create the node in IBM Watson platform



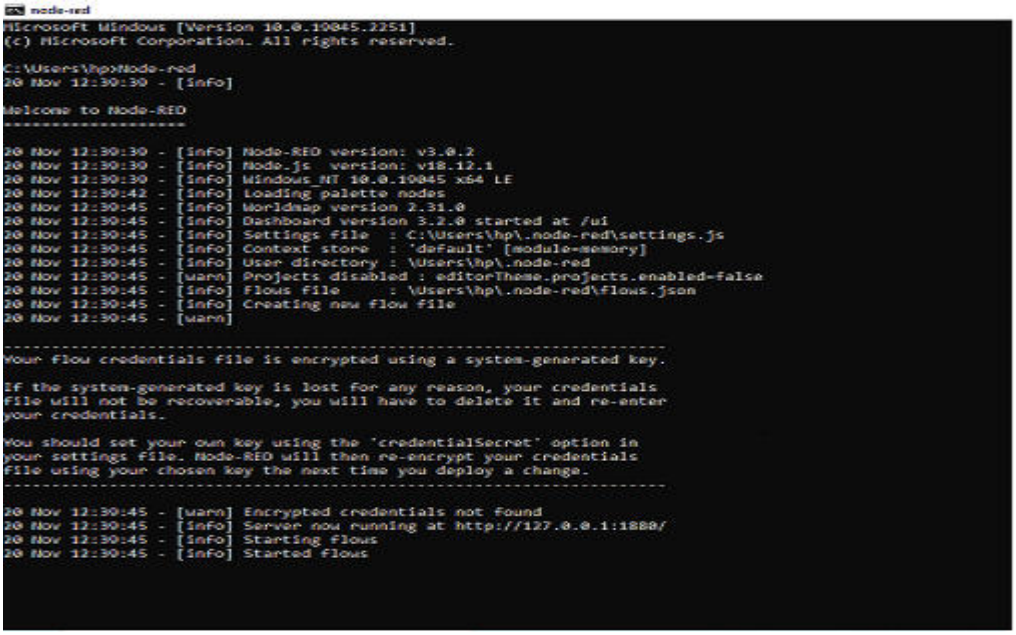
USN 5: After Creating node get device Type and id



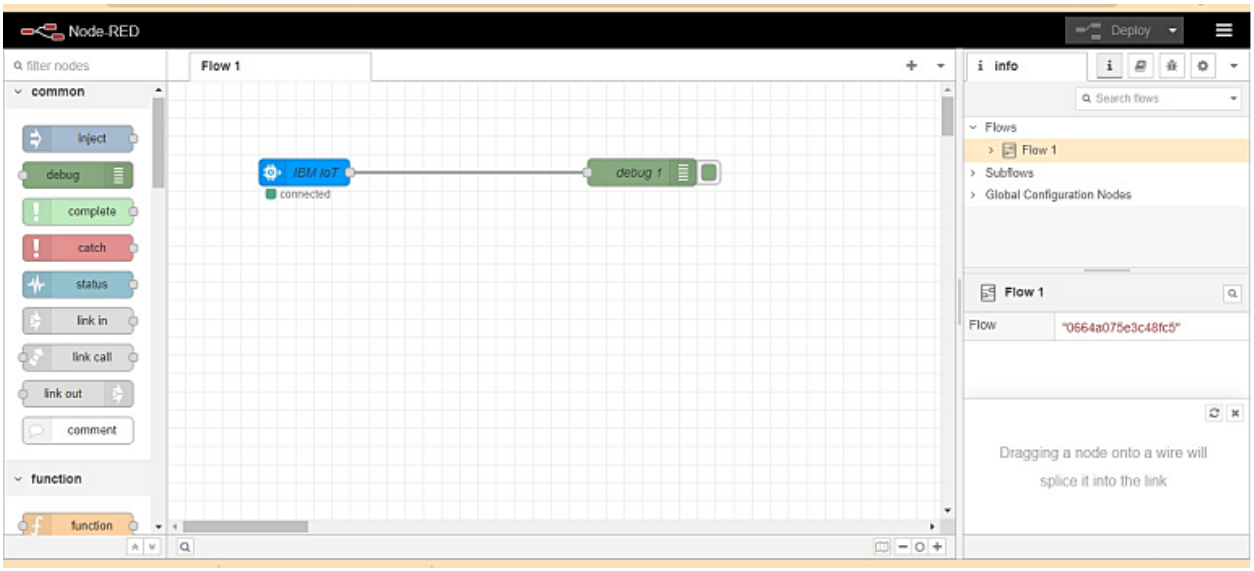
USN 6: Simulate the node created

7.2 CREATE AND ACCESS NODE-RED

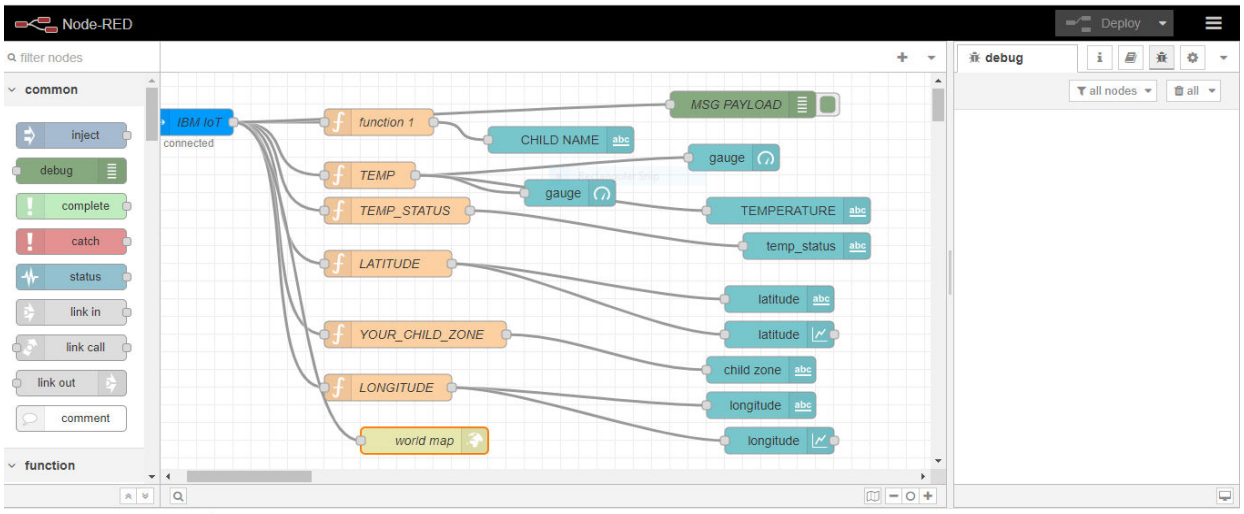
USN 7: As a user, I can create Node-red by app deployment



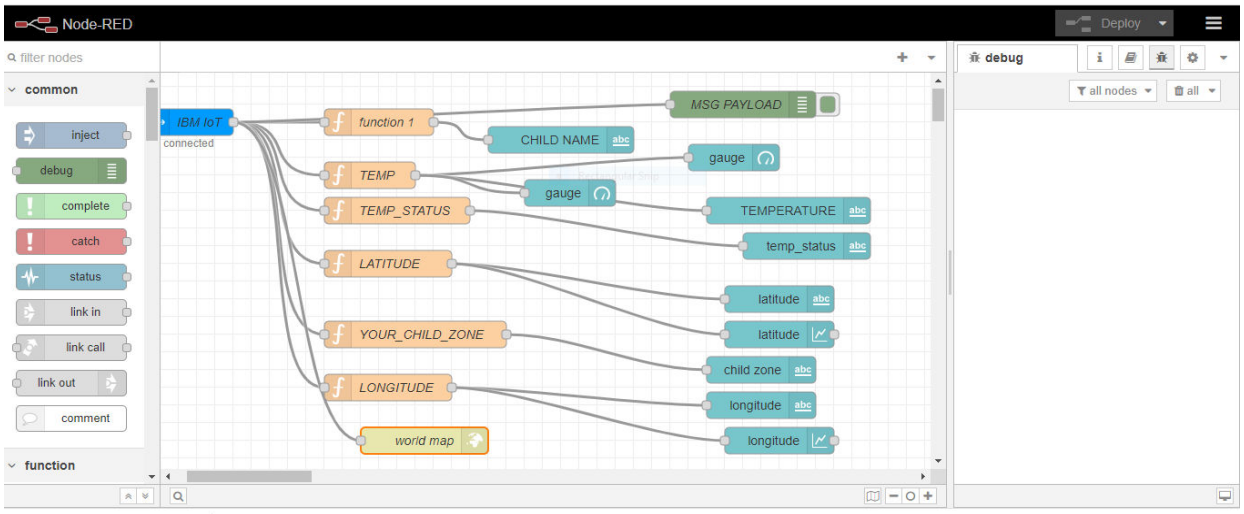
USN 8: Connect IBM Watson with node red through API key



USN 9 : Design the project flow using Node-Red

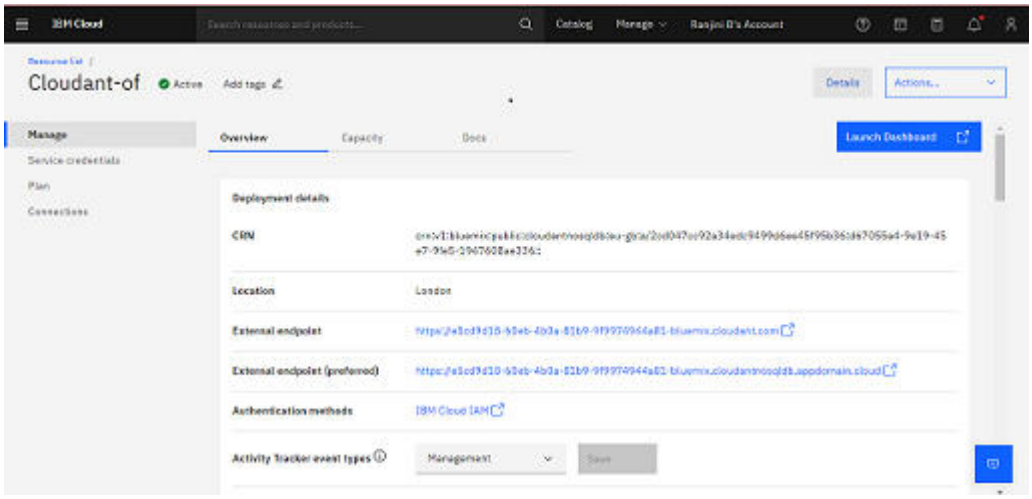


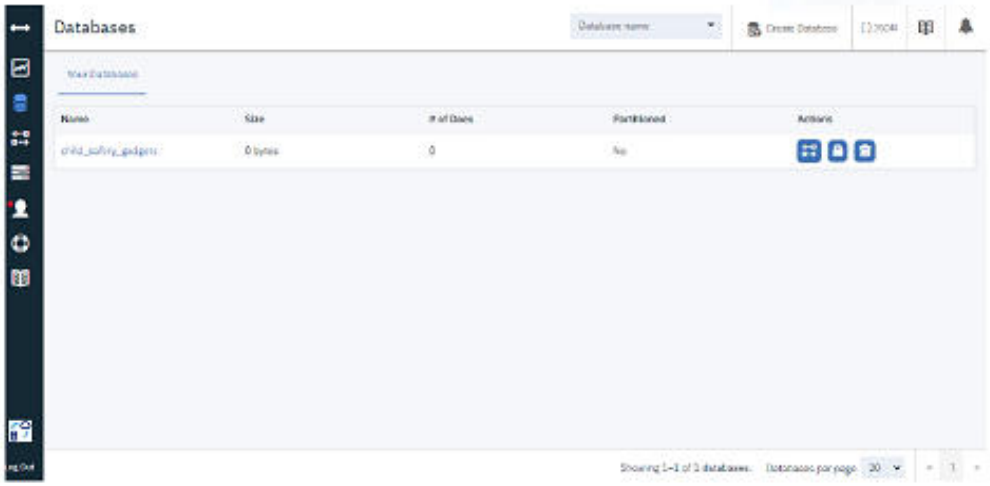
USN 10: Check for the proper connections and the output in the node red application



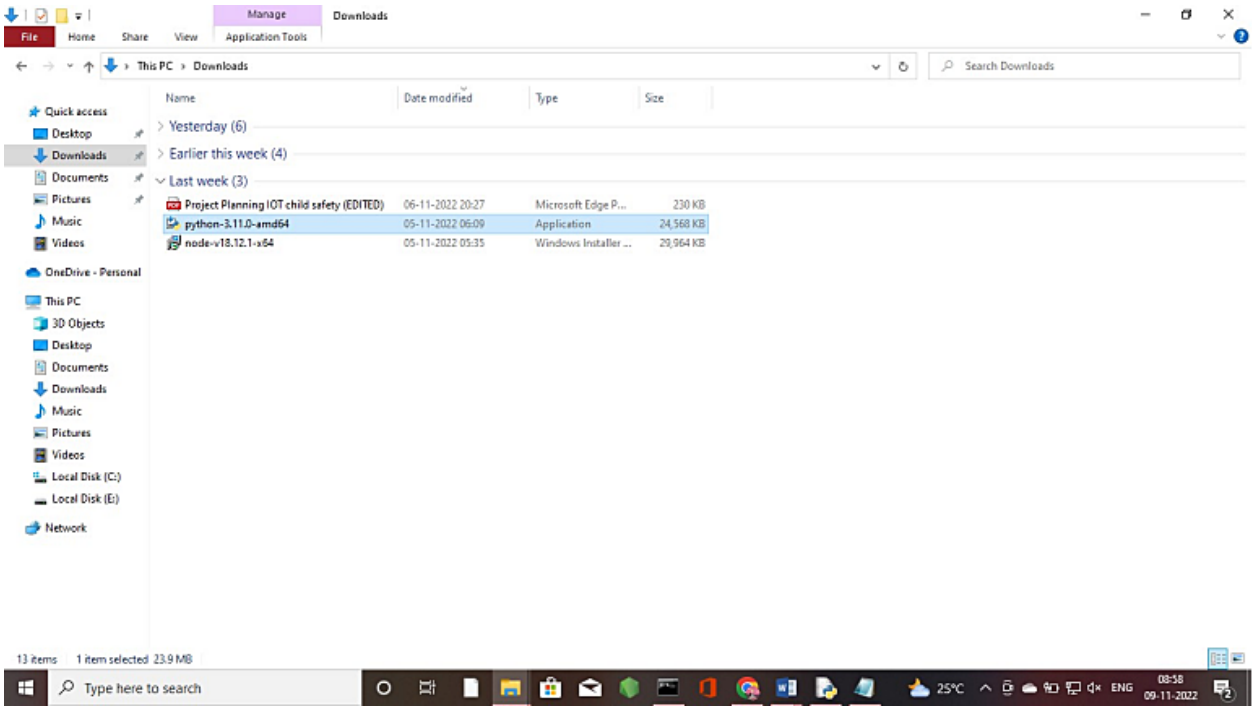
7.3 CREATE A DATABASE IN CLOUDANT DB AND DEVELOP THE PYTHON SCRIPT

USN 11: Launch the Cloudant DB and Create database to store the location data

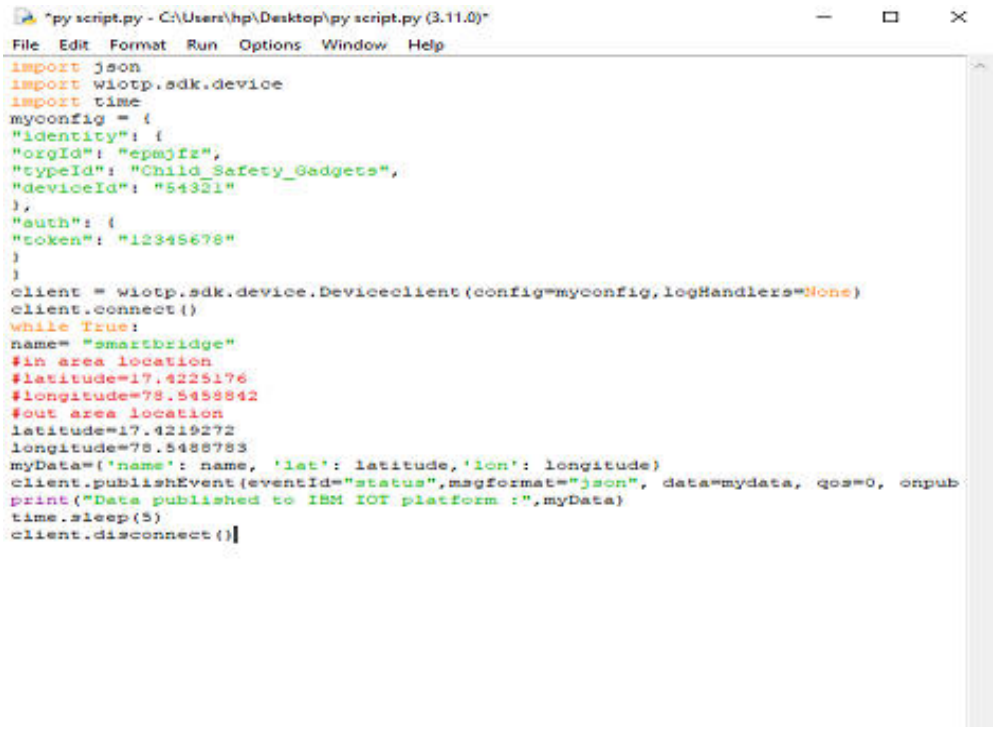




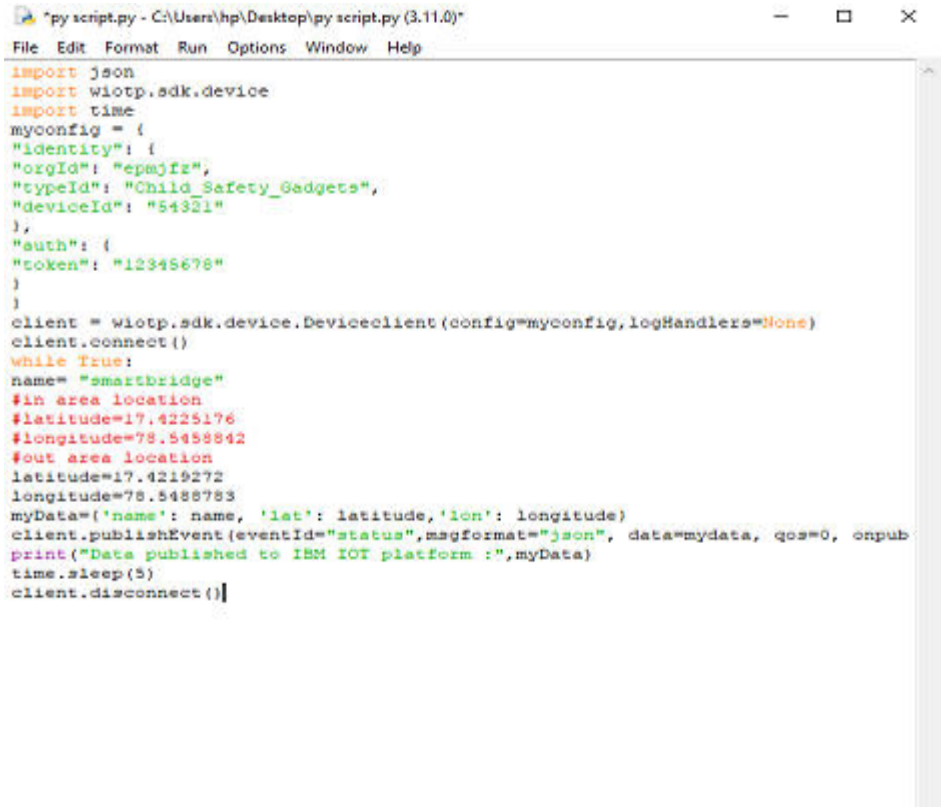
USN 12: Install the python software



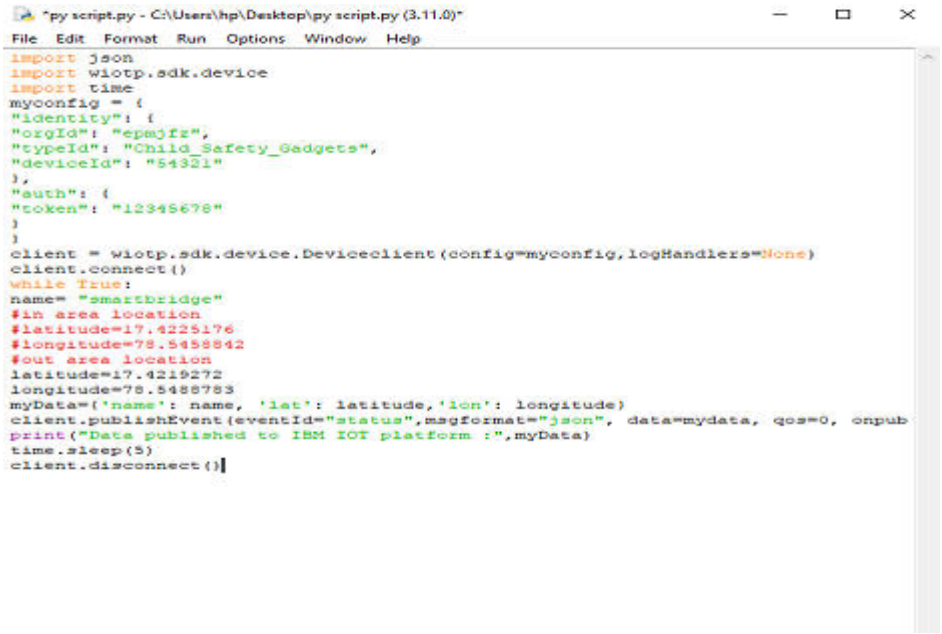
USN 13: Develop the python scripts to publish details to IBM IoT Platform



USN 14: Integrate the device id, authentication token in python script

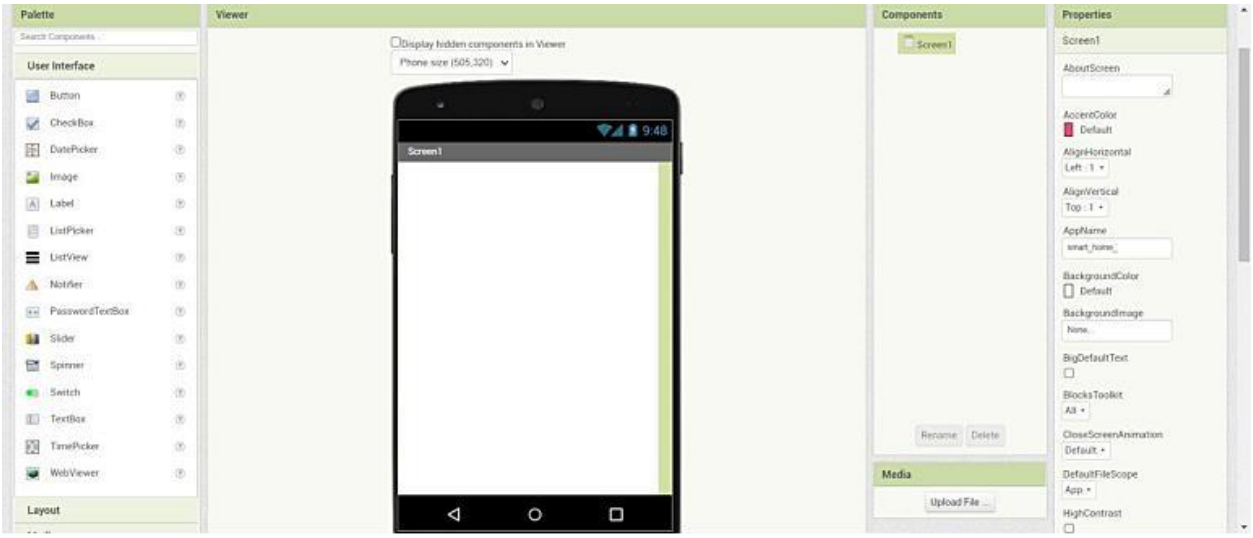


USN 15: Develop the python code for publishing the location (latitude & longitude) to IBM IoT Platform

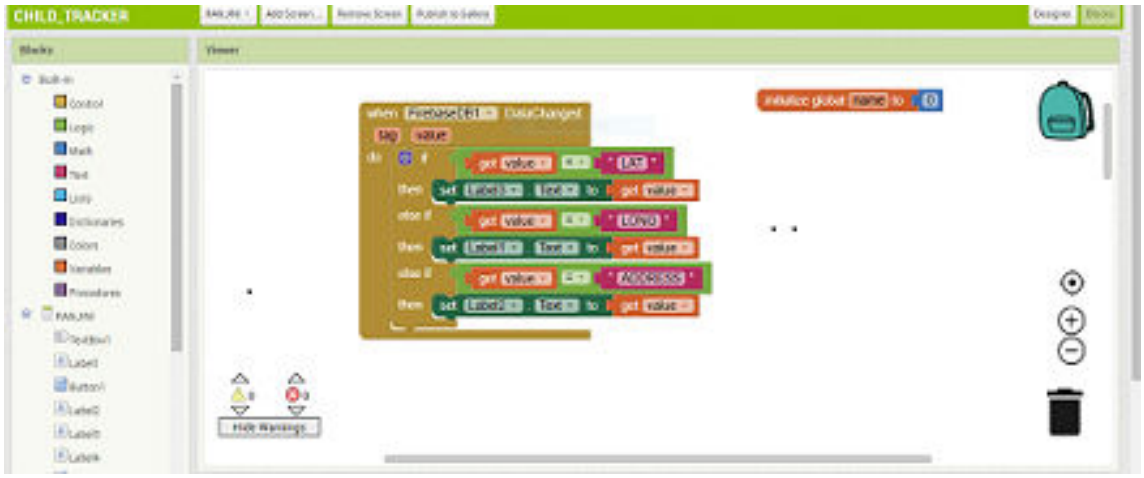


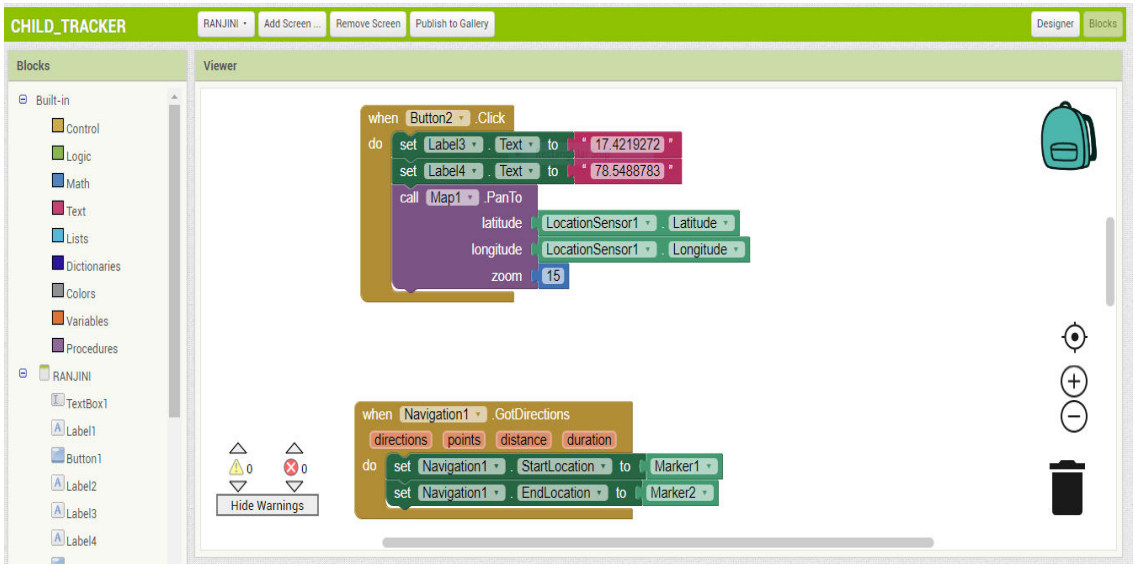
7.4 CREATE THE MOBILE APPLICATION USING MIT APP INVENTOR

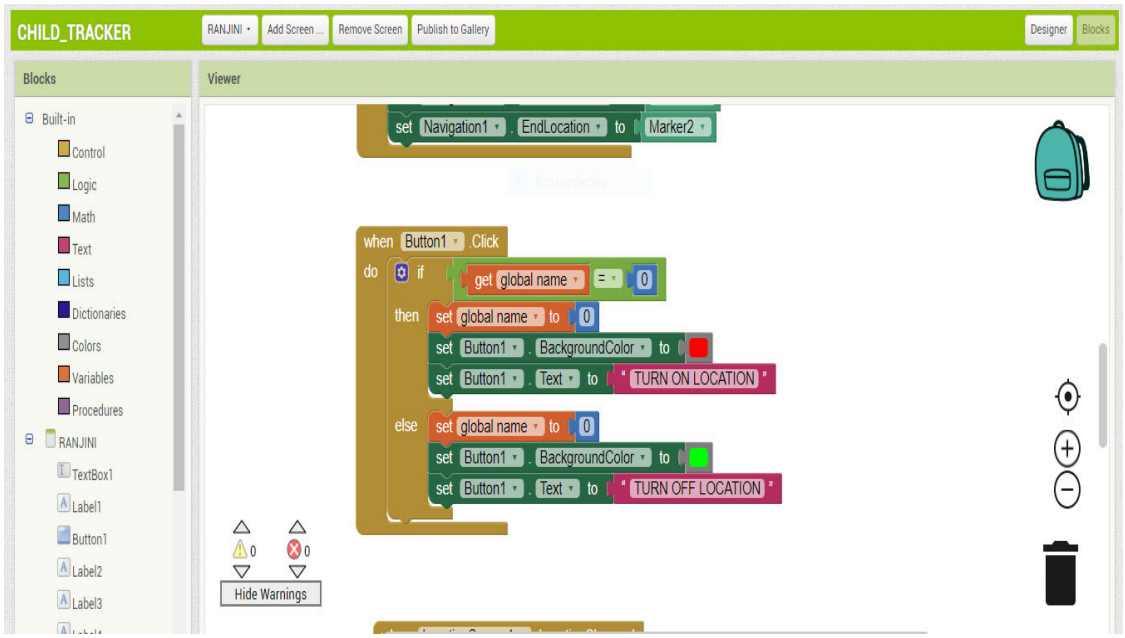
CREATE APP IN MIT APP INVENTOR

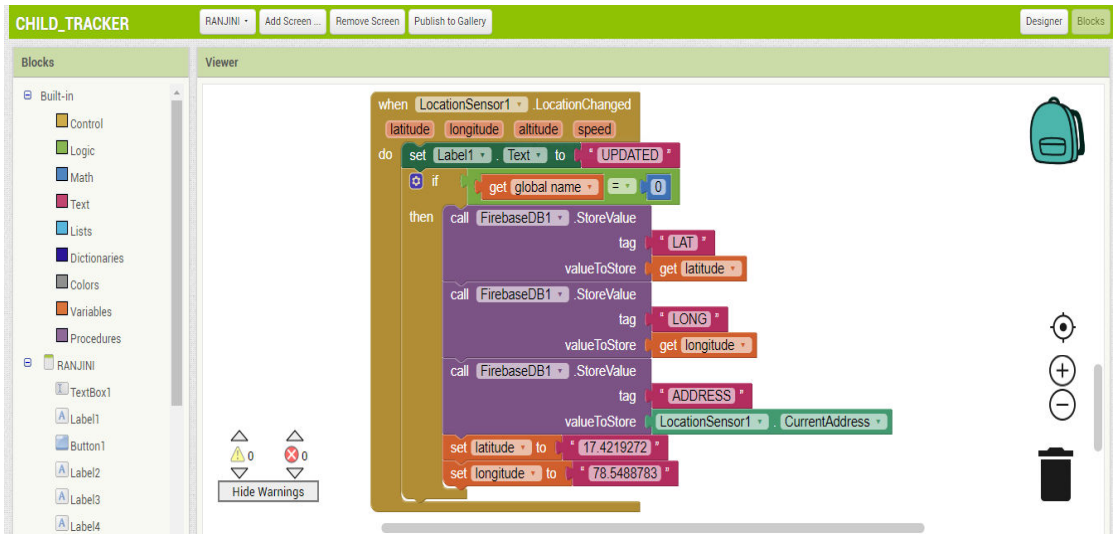


BLOCK CONFIGURATION





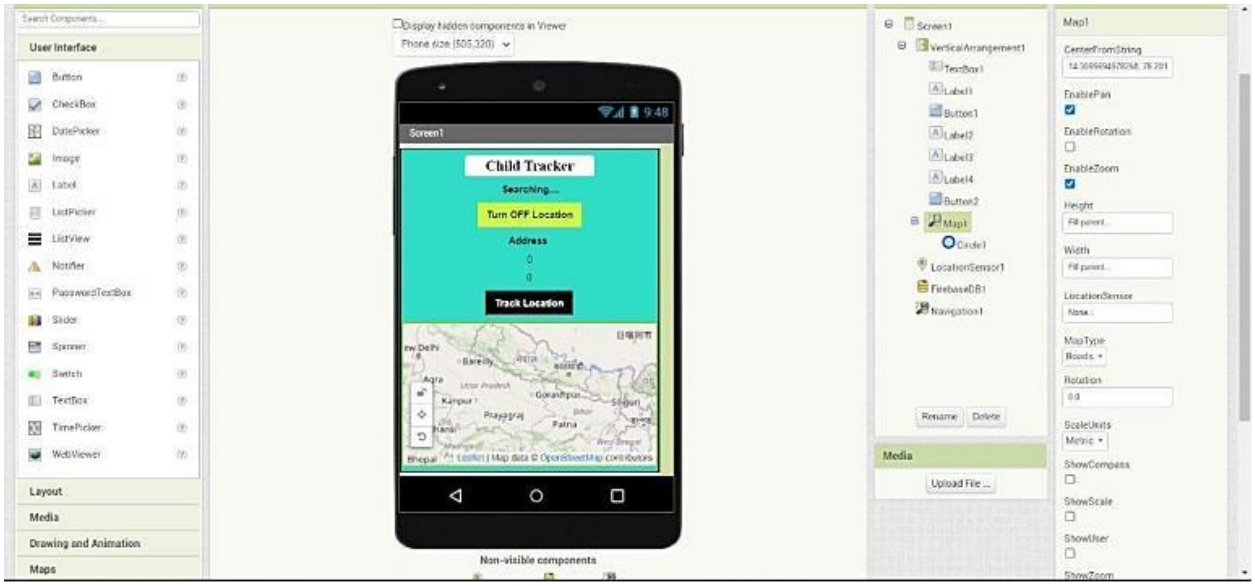


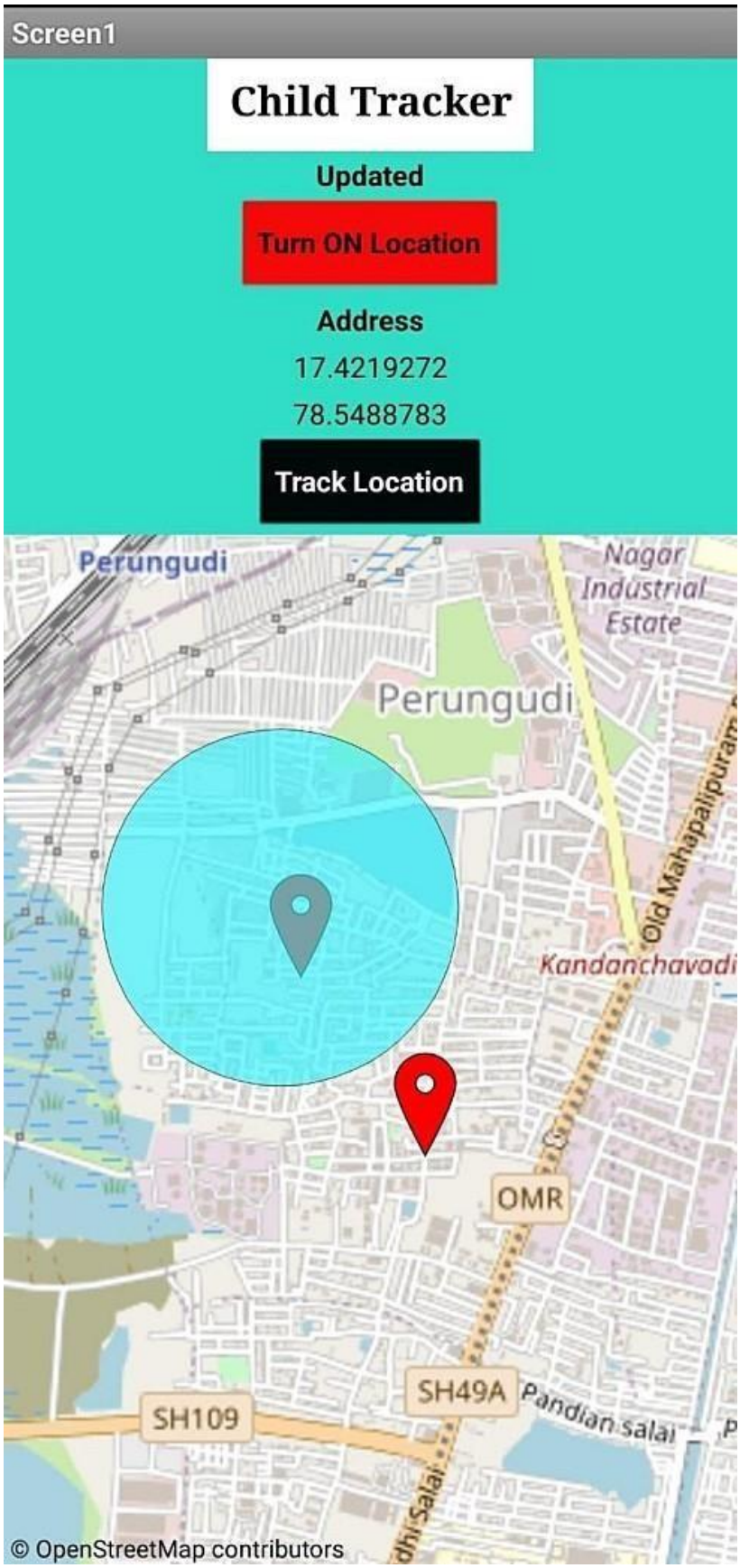


Thus, this chapter dealt with the coding and development process of proposed system.

CHAPTER 8

RESULT




Screen1
Child Tracker
Updated
Turn ON Location
Address
17.4219272
78.5488783
Track Location
Perungudi
Nagar
Industrial
Estate
Perungudi
Old Mahapalipuram
Kandanchavadi
OMR
SH49A
Pandian salai
SH109
© OpenStreetMap contributors

CHAPTER 9

ADVANTAGES AND DISADVANTAGES

9.1 ADVANTAGES

- A Child's GPS Tracker reports any potential dangers and protects them in the process.
- It acts as a communication tool for parents and can be helpful even when traveling.
- Usually, children tend to wander a lot. With the help of GPS Tracking devices, you can easily and quickly know where your children are.
- Parents will get all the details like their kid boarding/de-boarding school bus. Also, they can get emergency alerts when the child fails to board or de-board at the other stop.
- Prevent abduction and let your children play and walk around safely. Our Personal GPS trackers for kids are great options for parents for monitoring their children 24/7.

9.2 DISADVANTAGES

- Young children may refuse to cooperate unless allowed to play with their gadgets.
- Excess use of electronic gadgets can lead to children spending less time outdoors and limiting their social interaction.
- It may lead to poor concentration in studies and lack of interest in day-to-day activities.
- Excessive gadgets use can lead to poor health, a sedentary lifestyle, and bad eating habits.

CHAPTER 10

CONCLUSION

This research demonstrates Smart IoT device for child safety and tracking, to help the parents to locate and monitor their children.If any abnormal readings are detected by the sensor, then an SMS and phone call is triggered to the parents mobile. Also, updated to the parental app through the cloud. The system is equipped with GSM and GPS modules for sending and receiving call, SMS between safety gadget and parental phone.The system also consists of Wi-Fi module used to implement IoT and send all the monitored parameters to the cloud for android app monitoring on parental phone. Panic alert system is used during panic situations alerts are sent to the parental phone, seeking for help also the alert parameters are updated to the cloud. Boundary monitoring system is implemented on safety gadget with the help of BEACON technology, as soon as the safety gadget moves far away from the BLE listener gadget an alert is provided to itself.

This wearable device has a superior mode for viewing and locating the children\'s whereabouts with correct latitude and longitude, which is especially useful when using Google maps. This could assist to reduce the number of attacks on children while also making them feel protected and secure. The major goal of this project is to create a device that protects youngsters from risky circumstances while also assisting them in combating them.

CHAPTER 11

FUTURE SCOPE

A camera module for surveillance of the child's surrounds can be added to improve the system's performance. It's also possible to do it with a Raspberry Pi and Lily pad. It is possible to develop a more energy-efficient type that can keep the battery for a longer period of time.

This system can be further enhanced by installation of mini camera inside smart gadget for better security so that live footage can be seen on parental phone during panic situations. The system can be modified by installation of small solar panels for charging the battery of smart gadget to gain maximum battery backup.

For surveillance of the child's surroundings, to get a clearer picture of the location, this wearable can also contain a camera module incorporated in it. The camera will be collecting information in the same manner as the GPS module. It will be on stand by conserving power waiting for the particular keyword "SNAPSHOT" to be sent from the user's smart phone to the GSM shield will activate the camera to start clicking a snapshot of the surrounding and save the file temporarily on the external micro SD card. After which

Arduino UNO will access the saved image from the micro SD storage and transfer it to the GSM module which send it to the user via SMS/MMS text.

APPENDIX

Github Link :

https://github.com/IBM-EPBL/IBM-Project-15760-1659604035