IOT BASED SAFETY GADGET FOR CHILD SAFETY MONITORING & NOTIFICATION

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Team ID	PNT2022TMID11128
Team Leader	MD.Yogashree
Team Member	S.Vanmathi
Team Member	S.Viswabharathi
Team Member	V.Vishnupriya

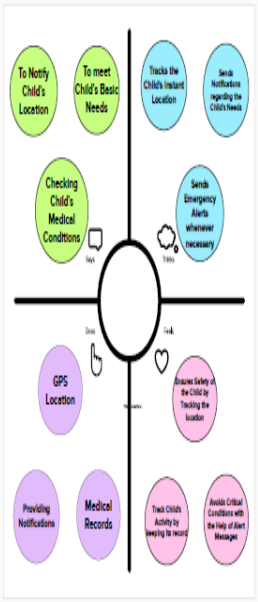
PROJECT OBJECTIVE:

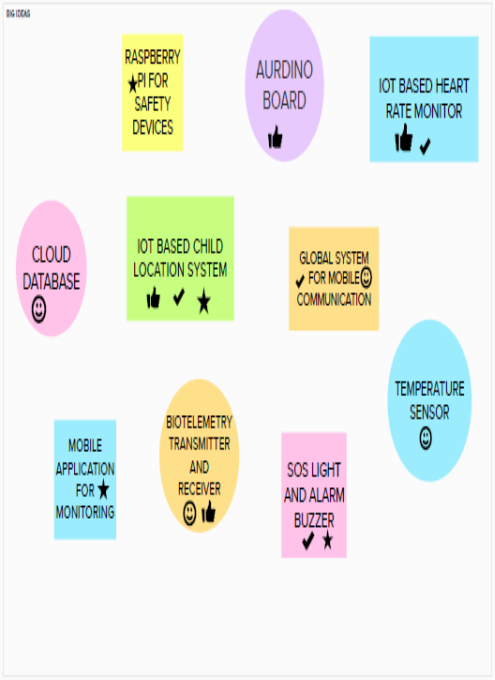
Child tracker helps the parents in continuously monitoring the child's location. They can simply leave their children in school or parks and create a geofence around the particular location. By continuously checking the child's location notifications will be generated if the child crosses the geofence.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

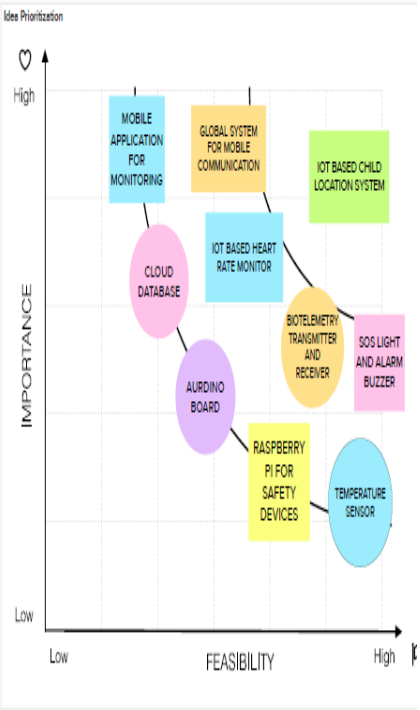
Empathy Map

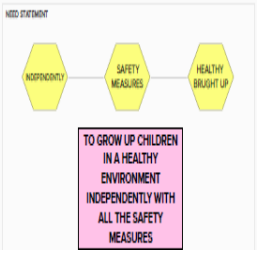
Dive into the mind of the user for focused product development

Build empathy and keep your focus on the user by putting yourself in their shoes.









IOT BASED SAFETY GADGET FOR CHILD SAFETY MONITORING & NOTIFICATION

TEAM DETAILS:

Team Leader:

- **Yogashree MD, Department of ECE**

Team Members:

- **Vanmathi S, Department of ECE**
- **Vishnupriya V, Department of ECE**
- **Viswabharathi S, Department of ECE**

Project Info:

System Required:

RAM-Minimum 4GB Processor-Min. Configuration OS-Windows/Linux/MAC

Description:

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.

Literature Survey:

- ✓ M Nandini Priyanka, Smart IOT Device for Child Safety and Tracking and Exploring Engineering (IJITEE) "International Journal of Innovative Technology".

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

- ✓ Lai Yi Heng, IoT-based Child Security Monitoring System, Asia Pacific University of Technology and Innovation, Technology Park, Bukit Jalil, Kuala Lumpur, Malaysia.

  Children's involvement in crime is on the rise today, which makes people more concerned about child protection. The goal of this research is to suggest an Internet of Things-based smart band for child safety. Data collection techniques include semi-structured interviews and online questionnaires. By providing questions electronically and requiring respondents to submit their responses online, the online survey collects feedback. In a semi-structured interview, the researcher meets the respondents and poses some preset questions while posing others that were not before thought of. A smart band has been proposed to monitor children's safety based on the information obtained. Parents can take action if something goes wrong because they are aware of what is going remotely thanks to this. In the future, this device will be improved by adding features and software to create.

- ✓ Mr. Raghavendrachar S, Wearable Safety Device for Children, Published by ijraset in the year of 2022-04-13.

  In recent years, attacks on children have increased at an unprecedented rate, leaving the victims in dangerous situations with little opportunities to contact their relatives. The major objective of this project is to develop a child-safe smart wearable device that makes use of cutting-edge technologies. This tactic is therefore seen as the children's wearable sending an SMS to their parents or guardians. Through the use of a GSM module, this initiative uses cutting-edge technology to protect the child, making sure that they do not feel alone as they cope with such societal difficulties. The wearable will have an Arduino Nano, GSM, GPS, temperature sensor, heartbeat sensor, and a panic button.

- ✓ Kaushik Gupta, Child Montoring System – TAGSY, Student, Department Of Information Technology, Thakur Shyamnarayan Degree College, Mumbai, Maharashtra, India in the year of april 2022.

  Today's environment is dependent entirely on technology, thus author ought to be ready to address any issue with contextually appropriate IT solutions. This concept suggests a clever Internet of Things-based gadget that can lessen parents' anxiety over knowing the whereabouts of their kids in real-time. The project's goal is to develop a system that will enable parents to monitor their kids when they aren't in their immediate care. This is accomplished by having the child wear a covert WFPS-enabled device that is linked to the parents' smartphone over a mobile network. This child monitoring device enables remote monitoring or tracking of the youngster and their activities. This mechanism has a crucial function. It keeps tabs on the kids' security.

- ✓ Anwaar Al-Lawati, RFID-based System for School Children Transportation Safety Enhancement, Proceedings of the 8th IEEE GCC Conference and Exhibition, Muscat, Oman, 1-4 February, 2015.

  In order to improve child safety during everyday transit to and from school, this paper describes a system to track pick-up and drop-off of school children. The bus unit and the school unit are the two basic components of the system. When a child enters or exits the bus, the equipment on the bus can detect it. This information is given to the school department, which determines which of the kids missed the bus or got off early and sends out an alert message in response. A web-based database-driven application that was designed for the system facilitates management and gives authorised individuals relevant information about the kids. To verify the functionality of the suggested system, a full prototype was created and put to the test.

- ✓ Prakriti Agarwal, Survey on Child Safety Wearable Device Using IoT Sensors and Cloud Computing, International Journal of Innovative Science and Research Technology, feburary 2020.

  Due of a child's fragility and the greater prevalence of crimes against children, child safety is a key concern in any community. In order to help parents assure their children's safety, a smart wearable Internet of Things sensor network for tracking a child's environment can be created. Additionally, a method for tracking the child must be included. The fact that this wearable device can be accessible from any mobile device and doesn't require a lot of technological expertise from the user to use is a benefit of its design. This device's objective is to make it easier for a parent or guardian to find their child and ensure their well-being.

- ✓ N. Manjunatha, IoT Based Smart Gadget for Child Safety and Tracking, International Journal of Research in Engineering, Science and Management Volume-3, Issue-6, June-2020.

  This study focuses on designing a device that can track a child's whereabouts using GPS, as well as having a panic button that can warn the parent by using a GSM module to call for help. Android parental software is created to control and track the device at any time. Smart gadget device is always linked to parental phone, which can receive and make calls as well as send and receive SMS on gadget via GSM module. Wireless technology is also implemented on device, which is useful to bind the gadget within a region of monitoring range; if gadget moves out of monitoring range, alert will be triggered on binding gadget, helping you keep a virtual eye on child.

- ✓ Dipali Badgujar, Smart and Secure IoT based Child Monitoring System, INTERNATIONAL RESEARCH JOURNAL OF ENGINEERING AND TECHNOLOGY.

  IOT is continually improving, and at the same time, its security is improving. In this proposed system, the primary focus is on child remote monitoring. We also use radar devices and obstacle sensors to detect alerts when children enter danger zones or are approaching dangerous objects. Alerts are then sent to the caregiver via mobile device in the form of an alarm or notification. We use a basic necklace that is handed to the baby for sensing purposes, with a waterproof ultrasonic obstacle sensor installed inside of it so that the locket may inform the caregiver via a mobile device, and a solar panel for battery backup.

- ✓ Mohammad Jahangir Alam, Child tracking and hidden activities observation system through mobile app, Indonesian Journal of Electrical Engineering and Computer Science, june 2021.

  Information technology is causing the world to change quickly, and everyone is working hard to keep up with this race through their employment and businesses. Nowadays, parents spend more time at work than they do at home, yet they are constantly concerned and afraid for their kids because of the misuse of technology and the law and order situation in the nation. In order to relieve their burden, parents want to be able to follow and monitor their child's whereabouts and activities from any location. But due to a variety of factors, it is not always possible for parents to personally watch over their children. This study outlines a technology that will enable parents to track their kids' whereabouts and activity using a mobile phone.

- ✓ Digambar Jadhav, Missing Person Detection System in IoT, 2017 International Conference on Computing, Communication, Control and Automation (ICCUBEA).

  The rate of missing persons has increased as a result of India's rapid economic expansion. India needs to pay special attention to finding the missing and recognising them in order to reduce the number of people who go missing. The Internet of Things (IoT) is a collection of mechanical, electronic, and human devices that are linked together and equipped with the ability to share data. The Internet of Things (IoT) is a network of sensors where data is transferred over a system without the need for any type of human-to-human or human-to-PC connection. We suggest an innovative IoT platform for missing person detection. The suggested structure would be implemented over the entire smart city or region. This framework allows for the identification of missing people, the transmission of live photographs of those who have been found missing.

Problem-Solution fit canvas 2.0

IOT Based Safety Gadget for Child Safety Monitoring and Notification

Define CS, fit into CC

1. CUSTOMER SEGMENT(S) — CS

Who is your customer?

Based on our problem statement, working parents of children from 0 years up to 10 years.

6. CUSTOMER CONSTRAINTS — CC

What constraints prevent your customers from taking action or limit their choices of solutions?

Child tracker application is on budget and it's with the new facilities and it would work only with network connection and it is available on all smart devices.

5. AVAILABLE SOLUTIONS — AS

Which solutions are available to the customers when they face the problemor need to get the job done? What have they tried inthe past? What pros & cons do these solutions have?

If the notification option is not working then the parents will get an emergency call or message in their mobile and through this message they can know the child location.

Explore AS, differentiate

Focus on J&P, tap into

2. JOBS-TO-BE-DONE / PROBLEMS — J&P

Which jobs-to-be-done (or problems) do you addressfor your customers?

By using child tracker application requires quite anumber of jobs like, it should maintain the exact location and send the notification to the child's parents mobile.

9. PROBLEM ROOT CAUSE — RC

What is the real reason that this problem exists? What is the back story behind the need to do this job?

The most important reason for monitoring each child's location ,to notify the child's safety by using our child tracking application.

7. BEHAVIOUR — BE

What does your customer do to address the problem andget the job done?

The customer could get help from the help option in the settings of the application and if theyare facing any issues they can make a report in that option and the authorities would look into the problem.

Focus on J&P, tap int C

Identify strong TR & EM

3. TRIGGERS — TR

What triggers customers to act? i.e. seeing their neighbour installing

By a real incident, parents of the child is working then the child would be in a day care center. To ensure the safety of the child the parent would have the child tracker application to watch their child's activities. At the day care center other parents would find the child tracker attractive and they would start using it.

4. EMOTIONS: BEFORE / AFTER — EM

How do customers feel when they face a problem or ajob and afterwards?

Before

The customers would feel anxious at first then they would try tothink of an solution to solve it themselves.

10. YOUR SOLUTION — SL

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

If you are working on a new business proposition, then keep it blank until you fill inthe canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour.

The main ideology of our solution is to help the parents in continuously monitoring the child location and to ensure child safety. The child tracker sent notification to their parents or caretaker about child location.

8. CHANNELS of BEHAVIOUR — CH

ONLINE

What kind of actions do customers take online?

In online mode, the child tracker application will notify the child's location to their parent.

OFFLINE

What kind of actions do customers take offline?

In offline mode, the customers can directly send a feedbackmail or message to the manufacturer

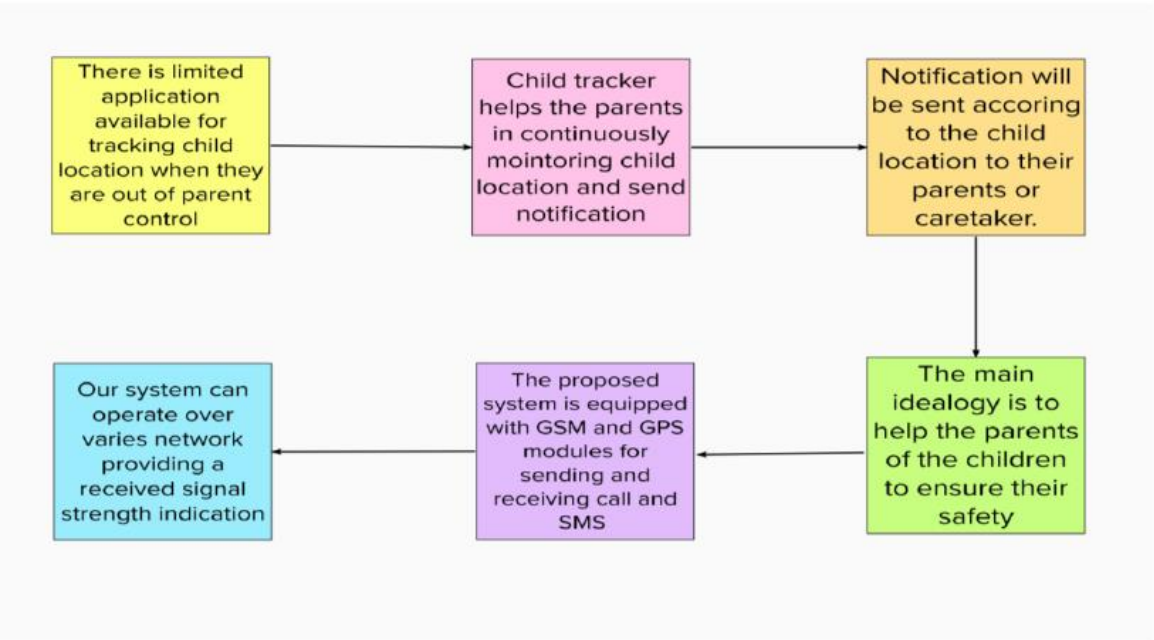
Extract online & offline CH of BE

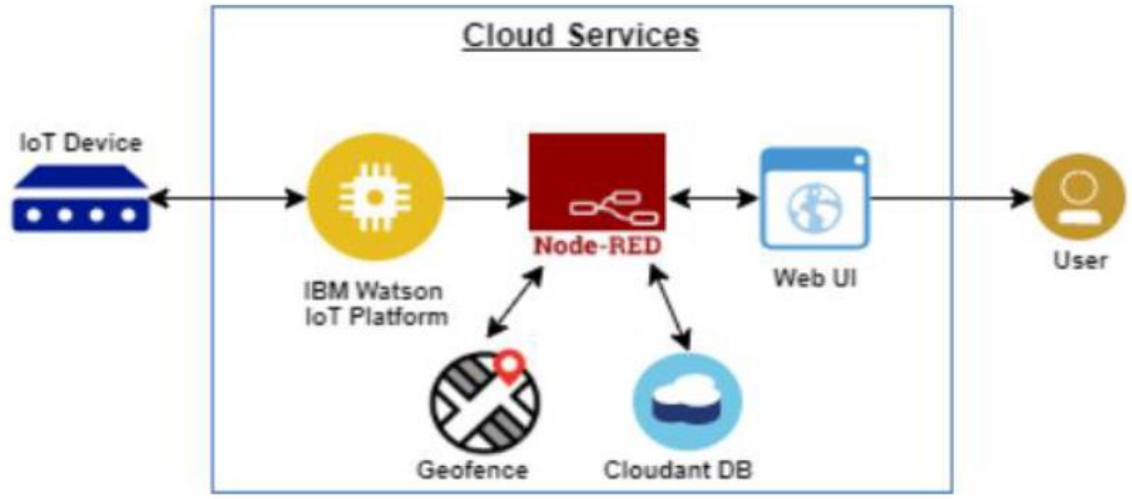
AMALTAMA

Proposed Solution Template:

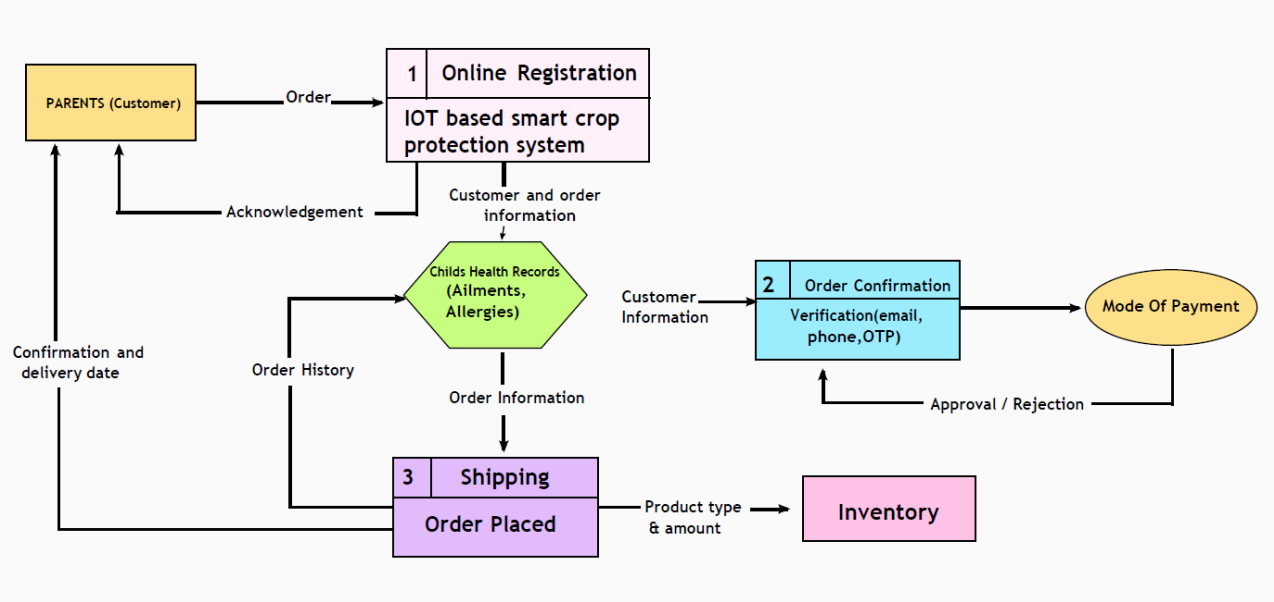
Project team shall fill the following information in proposed solution template.

Sl. No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	There is limited application available for tracking child when they are out of parents control and let kidnapping or missing cases occurred.
2.	Idea / Solution description	Child tracker helps the parents in continuously monitoring the child's location. By continuously checking the child's location notifications will be generated if the child crosses the geofence.
3.	Novelty / Uniqueness	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.
4.	Social Impact / Customer Satisfaction	The main ideology is to help the care taker of the children to ensure their safety and also with the social responsibility to reduce child abuse.
5.	Business Model (Revenue Model)	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
6.	Scalability of the Solution	Our system can operated over various network providing a received signal strength indication and without any modification.


There is limited application available for tracking child location when they are out of parent control
Child tracker helps the parents in continuously mointoring child location and send notification
Notification will be sent accoring to the child location to their parents or caretaker.
The main idealogy is to help the parents of the children to ensure their safety
The proposed system is equipped with GSM and GPS modules for sending and receiving call and SMS
Our system can operate over varies network providing a received signal strength indication


Cloud Services
IoT Device
IBM Watson IoT Platform
Node-RED
Web UI
User
Geofence
Cloudant DB

PHASES	PHASE 1 MOTIVATION	PHASE 2 Ideas	PHASE 3 Features	PHASE 4 FUTURESCOPE	PHASE 5 CONCLUSION
ACTIVITIES PERFORMED	To design a modest child safety device	children's perspective GPS, GPRS, and GSM are utilised for location tracking and speed monitoring.	also utilised the geofence, temperature, heartbeat, and touch sensors	An SMS is sent to the Parents' mobile phone and an MMS with a picture taken by the serial camera is also sent the if the sensor is detects any abnormal values.	It provides efficient monitoring of child with the help of GPS and GSM based technology
EMOTIONS	Convivial	Parents are content to utilize the devices for their kids.	Parents are content to utilize the devices for their kids.	Parents are content to utilize the devices for their kids.	The proposed approach enables parent-child communication.
OVERALL EXPERIENCES	Amazed	Amazed	Amazed	Amazed	Amazed
CUSTOMER EXPECTATIONS	Simple to wear the device	Using a location tracker, parents can monitor their kids in real time.	It gives parents access to their child's location, heart rate, and surroundings in real time, as well as a buzzer for emergencies.	tracking and child safety programmers assist parents in finding and keeping an eye on their kids.	The parents are continuously kept informed about their child.



Functional Requirements:

Following are the functional requirements of the proposed solution.

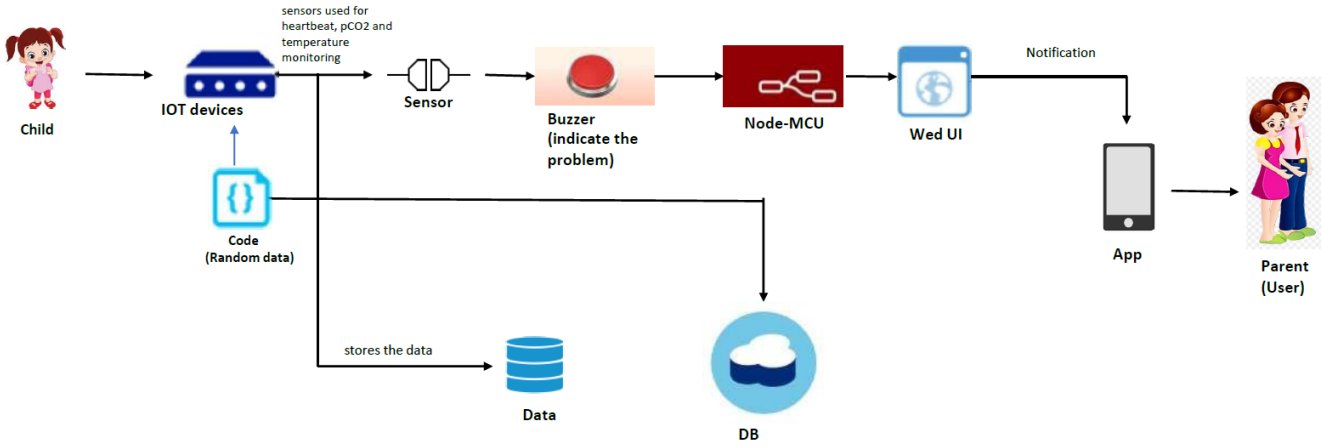
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	**User Requirements**	Cost friendly device. Detect location easily. Easy to use the device.
FR-2	**User Registration**	Manual Registration Through webpageRegistration Through Form Registration Through Gmail
FR-3	**User Confirmation**	Confirmation via Email Confirmation via OTP
FR-4	**Payment Options**	Cash on Delivery Pay via Net Banking/UPI Credit/Debit/ATM Card
FR-5	**Product Delivery**	The Product will be delivered to the customer at the door step on time.
FR-6	**Product Feedback**	Through Webpage Through Google forms Through Email

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Have a clear product instruction and self- explanatory manual. Easier to use. Our product usage is to track the child location and sent notification.
NFR-2	**Security**	To avoid the critical situation of the child by using GPS location and by our gadget the child location can be easily detected and the information will be saved in gadget.
NFR-3	**Reliability**	Hardware requires a checking and service Immediate alert is provided in case of any system failure
NFR-4	**Performance**	Simple to wear the gadget and tracking the child location constantly and deliver the information to the child's parent through notification.
NFR-5	**Availability**	All the features will be available when the use requires. It depends on the need of the child's parents and the customization the user has done.
NFR-6	**Scalability**	Our system can operated over various network providing a received signal strength indication and without any modification.

Solution Architecture Diagram:



Architecture and data flow of the **IoT Based Child Safety Application**

PROJECT PLANNING PHASE

PROJECT MILESTONE

Date	21 October 2022
Team ID	PNT2022TMID11128
Project Name	IOT based safety gadget for child safety monitoring & notification
Maximum Marks	4 marks

S.NO	ACTIVITY TITLE	ACTIVITY DESCRIPTION	DURATION
1	Understanding the project requirement	Assign the team members and create repository in the Github, Assign the task to each members and teach how to use and open and class the Github and IBM career education	1 WEEK
2	Starting of project	Advice students to attend classes of IBM portal create and develop an rough diagram based on project description and gather of information on IOT and IBM project and team leader assign task to each member of the project	1 WEEK
3	Attend class	Team members and team lead must watch and learn from classes provided by IBM and NALAYATHIRAN and must gain	4 WEEK

Project Planning Phase

Sprint Delivery Plan

Date	21 October 2022
Team ID	PNT2022TMID11128
Project Name	IOT based safety gadget for child safety monitoring & notification
Maximum Marks	8 Marks

Product Backlog, Sprint Schedule, and Estimation (4 Marks)

Use the below template to create product backlog and sprint schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	2	High	Vanmathi S
Sprint-1		USN-2	As a user, I will receive confirmation email once I have registered for the application	1	High	Yogashree MD
Sprint-2		USN-3	As a user, I can register for the application through Facebook	2	Low	Vishnupriya V
Sprint-1		USN-4	As a user, I can register for the application through Gmail	2	Medium	Viswabharathi S
Sprint-1	Login	USN-5	As a user, I can log into the application by Entering email & password	1	High	Yogashree MD

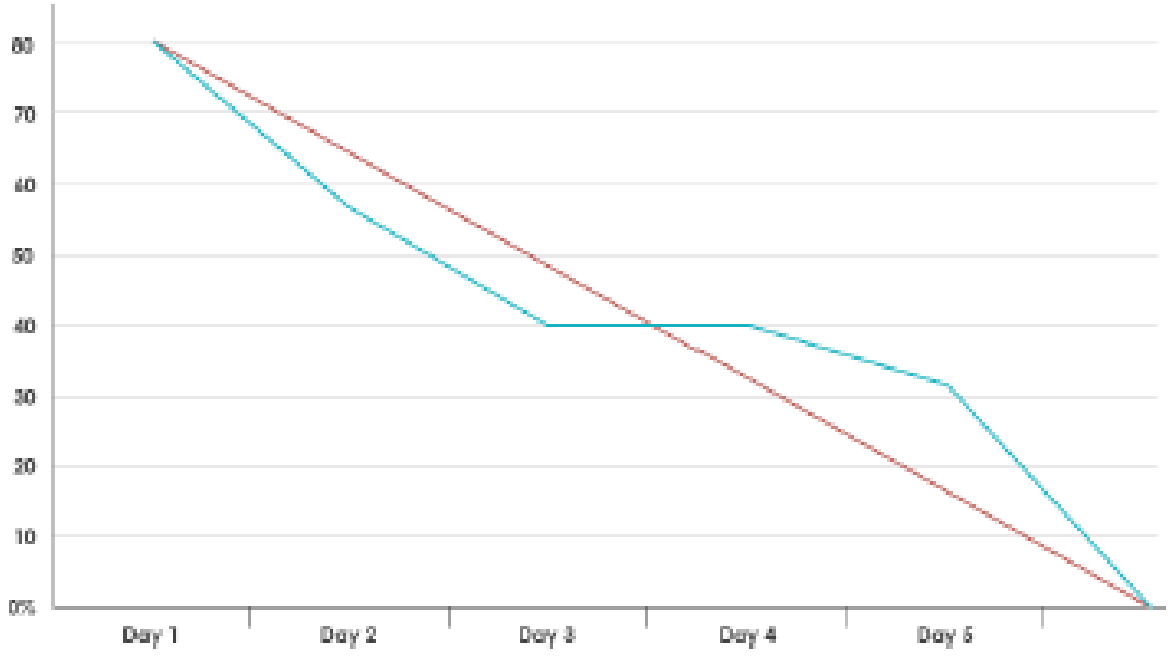
Project Tracker, Velocity & Burndown Chart: (4 Marks)

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	30	30 Oct 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	50	06 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	50	07 Nov 2022

Velocity:

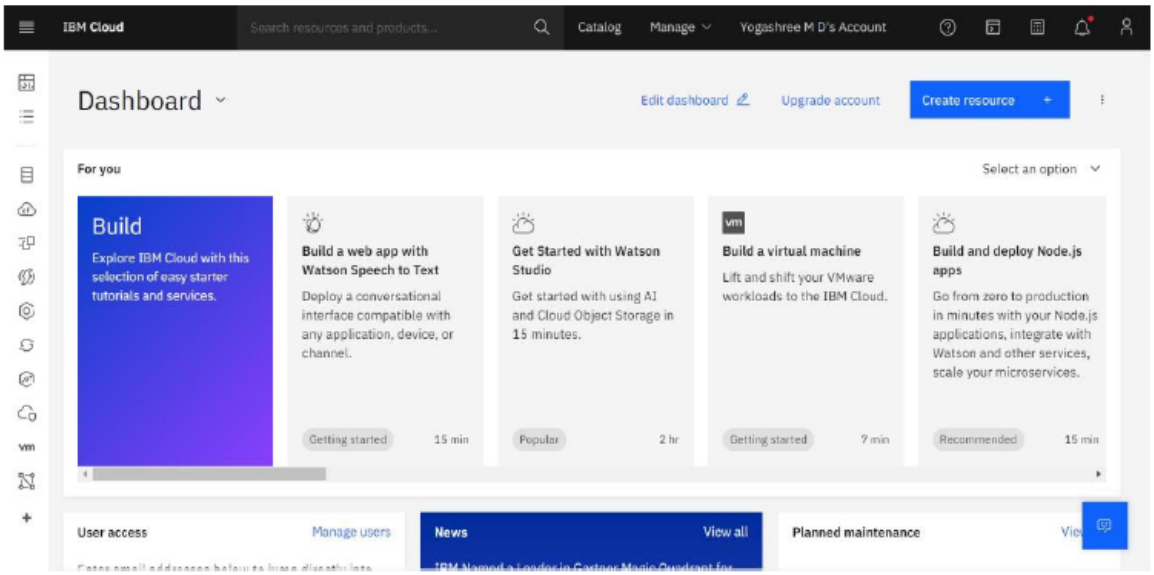
$$AV = \frac{sprint\ duration}{velocity} = \frac{20}{10} = 2$$

Burndown Chart:



Team ID	PNT2022TMID11128
Date	18 November 2022
Project Title	IOT Based SafetyGadget for Child Safety Monitoringand Notification

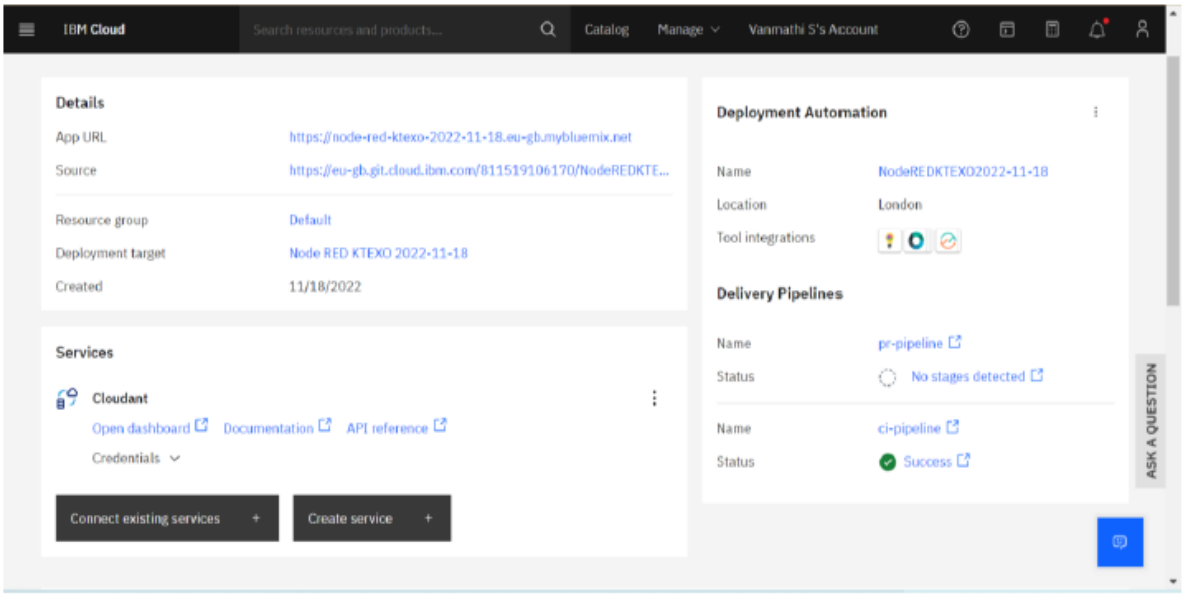
IBM SERVICES :



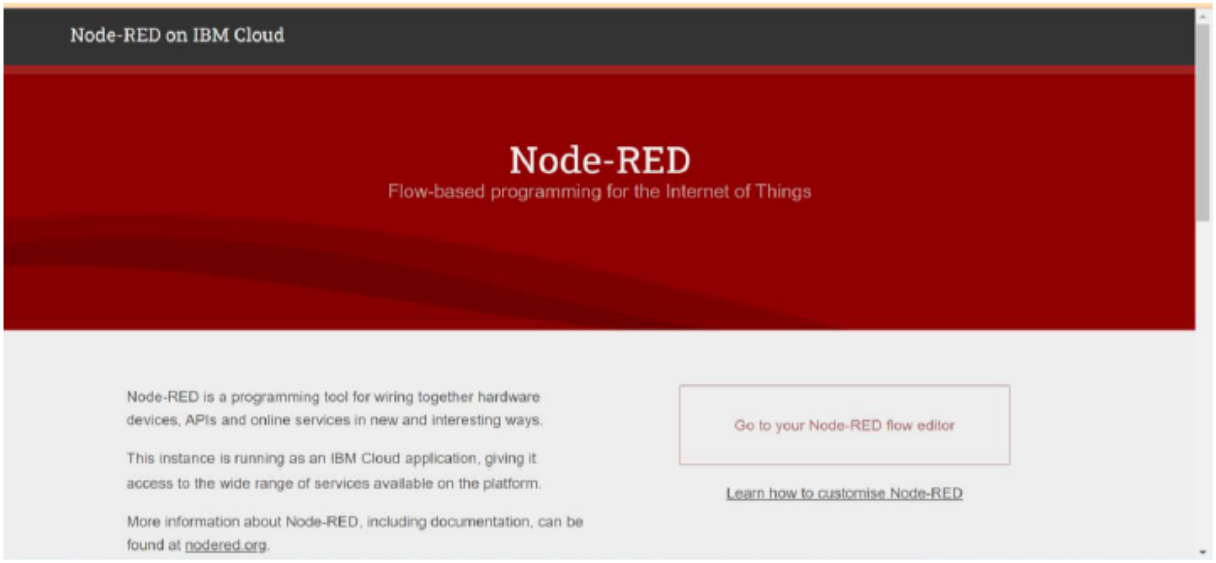
CREATE NODE-RED SERVICE

Date	18 November 2022
Team ID	PNT2022TMID11128
Project Name	IoT Based Safety Gadget for Child Safety Monitoring & Notification

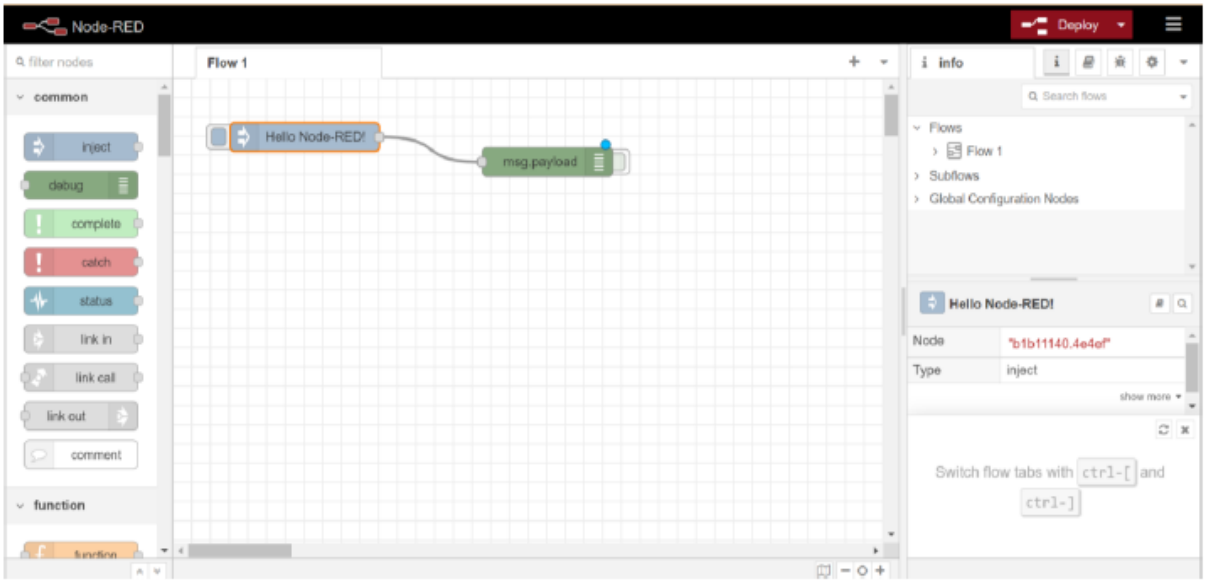
STEP 1:



STEP 2:

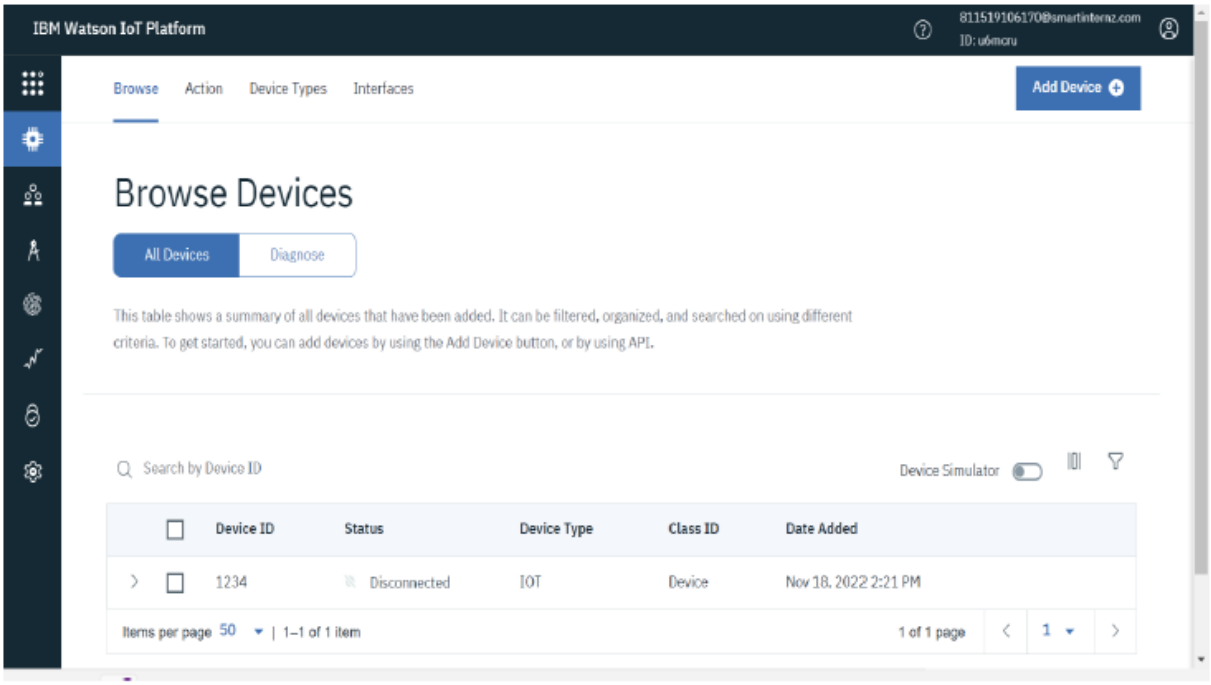

Node-RED on IBM Cloud
Node-RED
Flow-based programming for the Internet of Things
Node-RED is a programming tool for wiring together hardware devices, APIs and online services in new and interesting ways.
This instance is running as an IBM Cloud application, giving it access to the wide range of services available on the platform.
More information about Node-RED, including documentation, can be found at nodered.org.
Go to your Node-RED flow editor
Learn how to customise Node-RED

STEP 3:


Node-RED
Deploy
filter nodes
Flow 1
common
inject
debug
complete
catch
status
link in
link call
link out
comment
function
Hello Node-RED!
msg.payload
info
Search flows
Flows
Flow 1
Subflows
Global Configuration Nodes
Hello Node-RED!
Node
"b1b11140.4e4ef"
Type
inject
show more
Switch flow tabs with ctrl-[and ctrl-]

CREATE IBM WATSON IOT PLATFORM AND DEVICE

Date	18 November 2022
Team ID	PNT2022TMID11128
Project Name	IoT Based Safety Gadget for Child Safety Monitoring & Notification



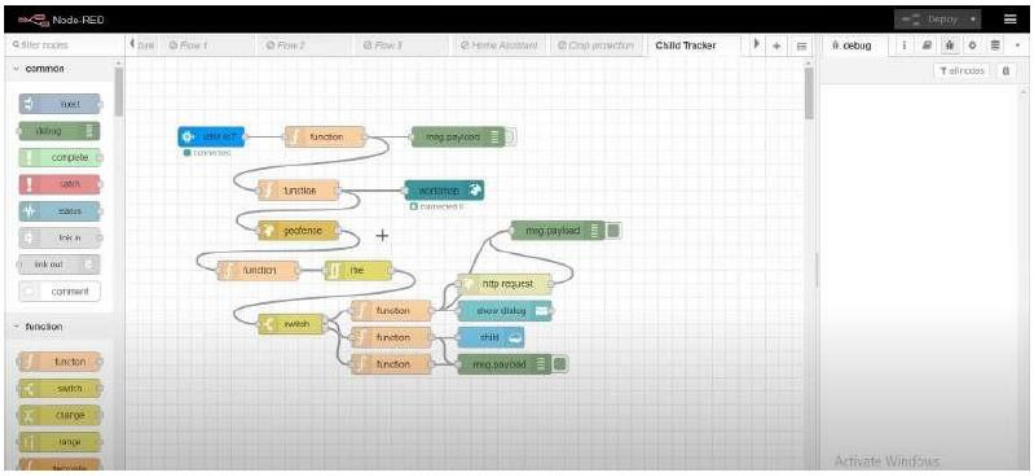
Develop The Web Application Using Node-RED

Team ID	PNT2022TMID11128
Date	18 November 2022
Project Name	IOT Based SafetyGadget for Child Safety Monitoringand Notification

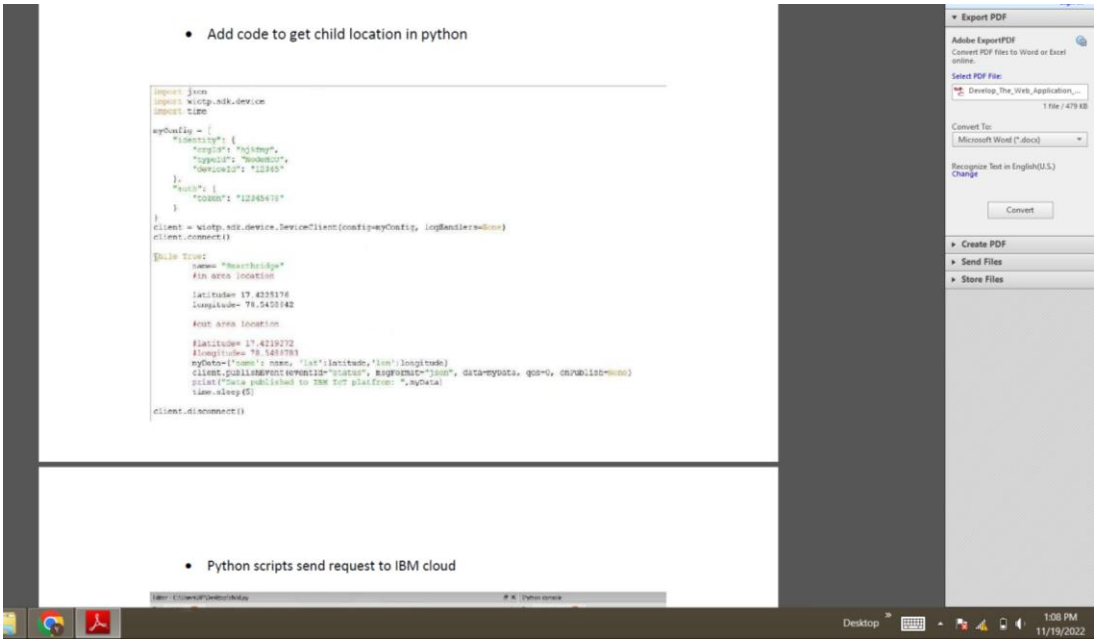
To Develop the web application using Node-RED

Steps :

- Open a Node-RED project

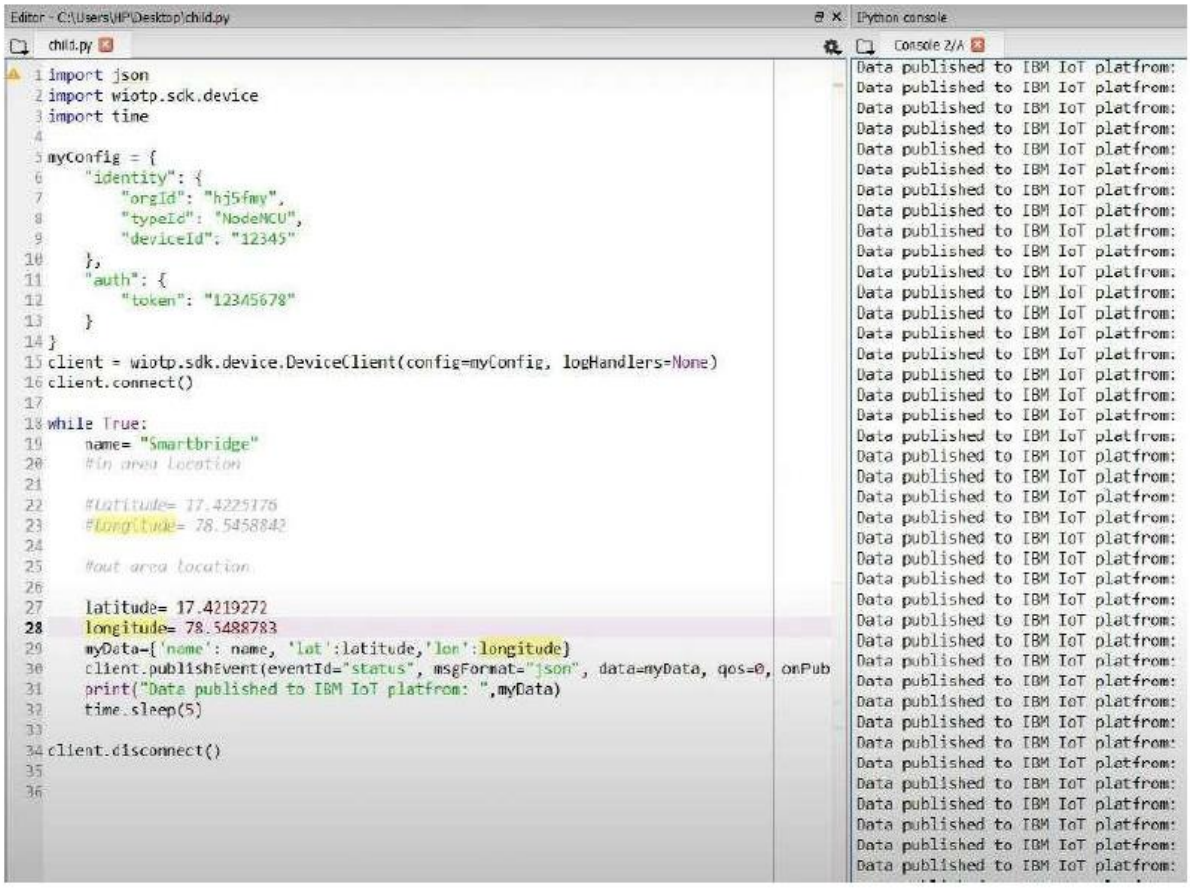


- Add code to get child location in python

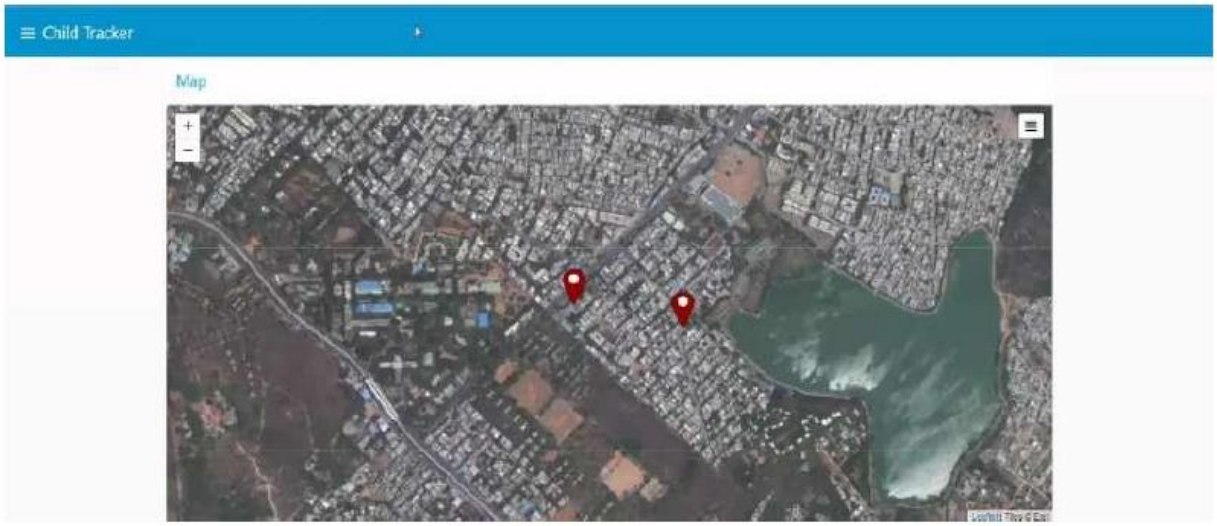


- Python scripts send request to IBM cloud

- Python scripts send request to IBM cloud



- After running the script, the web UI shows “Person is not in theparticular area”



Conclusion:

Developed the web application using Node-RED Successfully

DEVELOPING THE PYTHON SCRIPT

Date	18 November 2022
Team ID	PNT2022TMID11128
Project Name	Project - IOT Based Saftey Gadget for ChildSafety Monitoring and Notification

CODE :

LOCATION DATA:

```
import wiotp.sdk.device

import time

import random

myConfig={

"identity": (

"orgId": "gagtey",

"typeId": "GPS",

"deviceId":"12345"},

"auth": {

"token": "12345678"

}}

def myCommandCallback (cmd):

print ("Message received from IBM IoT Platform: %s" %

cmd.data['command']) m-cmd.data['command']

client= wiotp.sdk.device.DeviceClient (config=myConfig,

logHandlers=None)

client.connect()

def pub (data):

client.publishEvent (eventId="status", msgFormat="json",

data=myData, qos=0, print("Published data Successfully: %s",

myData)
```

```
while True:
myData={'name': 'Train1', 'lat': 17.6387448, 'lon':
78.4754336)
pub (myData)
time.sleep (3)
#myData('name': 'Train2', 'lat': 17.6387448, 'lon':
78.4754336)
#pub (myData)
#time.sleep (3)
myData={'name': 'Train1', 'lat': 17.6341908, 'lon':
78.4744722)
pub (myData)
time.sleep(3)
myData={'name': 'Trainl', 'lat': 17.6340889, lon': 78.4745052)
pub (myData)
time.sleep(3)
myData={'name': 'Trainl', 'lat': 17.6248626, 'lon': 78.4720259)
pub (myData)
time.sleep (3)
myData={'name': 'Trainl', 'lat': 17.6188577, 'lon': 78.4698726)
pub (myData)
time.sleep (3)
myData={'name': 'Train1', 'lat': 17.6132382, 'lon':
78.4707318)
pub (myData)
time.sleep (3)
client.commandCallback = myCommandCallback
client.disconnect()
```

QR SCANNER CODE:

```
Import cv2
import numpy as np
import time
Import pyzbar.pyzbar as pyzbar
from ibmcloudant.cloudant_v1 import CloudantV1
from ibmcloudant import CouchDbSessionAuthenticator
from ibm_cloud_ sdk_core.authenticators import
BasicAuthenticator
authenticator= BasicAuthenticator ('apikey-v2-
16u3crmdpkghhxefdikvpssoh5fwezrmuup5fv5g3ubz',
'b0ab119f45d3e6255eabb978
service Cloudant V1 (authenticator-authenticator)
service.set_service_url('https://apikey-v2-
16u3crmdpkghhxefdikvpssoh5fwezrmuup5fv5g3ubz:b0ab119
f45d3e6255eabb978e7e2f0
cap= cv2.VideoCapture (0)
font cv2.FONT HERSHEY PLAIN
while True:
frame cap.read()
decodedobjects pyzbar.decode (frame)
for obj in decodedObjects:
#print ("Data", obj.data)
a-obj.data.decode('UTF-8')
cv2.putText (frame, "Ticket", (50, 50), font, 2,
(255, 0, 0), 3)
#print (a)
try: response = service.get_document (
```

```
db='booking, doc_id = a
).get_result()
print (response) time.sleep(5)
except Exception as e:
print ("Not a Valid Ticket")
time.sleep (5)
cv2.imshow("Frame", frame)
if cv2.waitKey(1) & 0xFF==ord('q'):
break
cap.release()
cv2.destroyAllWindows ()
client.disconnect(
```

Team ID	PNT2022TMID11128
Date	18 November 2022
Project Title	IoT Based SafetyGadget for Child Safety Monitoringand Notification

Sprint 2 is about **NOTIFIACATION** of the IoT device in Parent's Web Application for gettinginformation about Child's Status.

Team ID: PNT2022TMID11128

Delivery plan sprint-1

Sprint 1 is about **LOGIN** and **DETAILING** of the IoT device in Parent's Web Application for gettinginformation about Child's Status.

Live Location Tracking:

GPS is installed on gadget to track its current location can be tracked on android app and via SMS request sent from parent phone to safety gadget. Outputs of live location tracking

Health Alert Systems:

Panic alert system on gadget is triggered during panic situation, automatic call and SMS are triggered to parental phone. The alert is also updated to the cloud for purpose of app monitoring. Fig. 4. Outputs of panic alert system.

Connected Feature:

Connected feature is used to trigger call and pre- defined SMS anytime from gadget to parental phone by just pressing a button and also parent can make SMS and call to the gadget anytime.

Health Monitoring System:

Health monitoring system is implemented using heart beat sensor, temperature sensor which is updated to the cloud and also can be monitored via app. The current value of sensors can be obtained using SMS request sent to gadget from parent phone. Outputs of health monitoring system.

Gadget Plugged or Unplugged Monitoring:

Gadget plug or unplugged is monitored using contact switch installed on smart gadget, as soon as the device is unplugged, an alert is provided to parent phone via SMS and it is also updated to cloud for app monitoring.

LOGIN:

This Coding is to built login page of parent's application to get information about child's condition.

Coding:

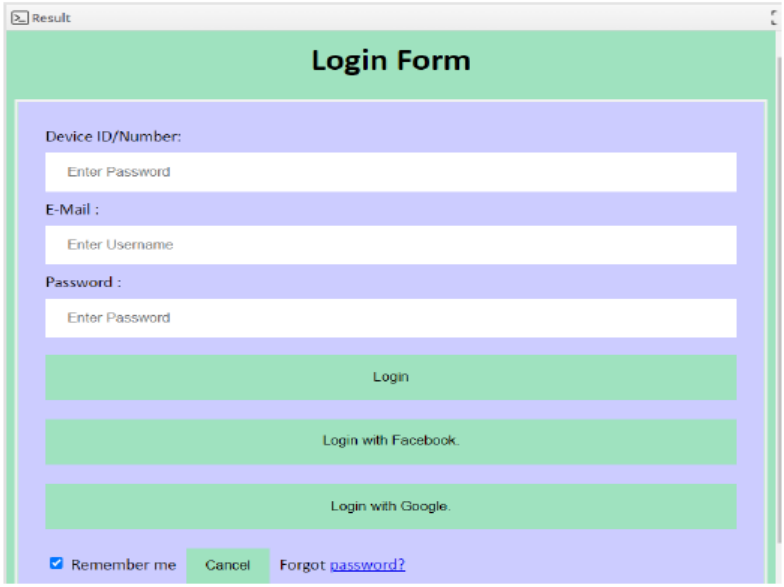
```
<!DOCTYPE html>
<html> <head>
<meta name="viewport" content="width=device-width, initial-scale=1">
<title> Login Page </title>
<style>
Body {
  font-family: Calibri, Helvetica, sans-serif;
  background-color: #9FE2BF;
}
button {
      background-color: #9FE2BF;



        width: auto; padding:
        10px 18px;margin:
        10px 5px;
    }
 .container {
        padding: 25px;
        background-color: #CCCCFF;
    }
</style> </head>
<body>
    <center> <h1> Login Form </h1> </center>
    <form>
        <div class="container">
        <label>Device ID/Number: </label>
            <input type="password" placeholder="Enter Password" name="password" required>
            <label>E-Mail : </label>
            <input type="text" placeholder="Enter Username" name="username" required>
            <label>Password : </label>
            <input type="password" placeholder="Enter Password" name="password" required>
            <button type="submit">Login</button>
            <button class="loginBtn loginBtn--facebook">Login with Facebook.</button>
            <button class="loginBtn loginBtn--google">Login with Google.</button>
```

```
        <input type="checkbox" checked="checked"> Remember me
        <button type="button" class="cancelbtn"> Cancel</button>
        Forgot <a href="#"> password? </a>
      </div>
    </form>
</body>
</html>
```

Output:



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Coding for Notification:

```
 include<WiFi.h>//library for

 wifi

 #include<PubSubClient.h>//library for MQTT

 void callback(char* subscribetopic, byte* payload, unsigned int
 payloadlength);
 //------------------credentials of IBM Account-------

 #define ORG "45z3o2"// IBM ORGANIZATION ID

 #define DEVICE_TYPE "ESP32_Controller"//DEVICE TYPE

 MENTIONED IN IOT WATSON PLATFORM #define DEVICE_ID

 "bme2"//DEVICE ID MENTIONED IN IOT WATSON PLATEFORM

 #define TOKEN

"OKZ+q@JfPWDOd6wBTj"//Token

String data3;

float dist;

//------------customize the above value-------

char server[]=ORG ".messaging.internetofthings.ibmcloud.com";//server name

char

 publishtopic[]="ultrasonic/evt/Data/fmt/json";/*topic

 name and type of event performand format in which

 data to be send*/

char

subscribetopic[]="ultrasonic/cmd/test/fmt/String

g";/*cmd REPRESENT Command tupe and COMMAND IS TEST OF FORMAT

STRING*/
```

```
char  authMethod[]="use-token-
auth";//authentication method char
token[]=TOKEN;
char  clientid[]="d:"  ORG  ":"  DEVICE_TYPE":"  DEVICE_ID;//CLIENT  ID
//-------------------------------
WiFiClient  wifiClient;//  creating  an  instance  for  wificlient
PubSubClient client(server,  1883  ,  callback  ,
wifiClient);/*calling the predefined client idby
passing parameter like server id,portand
wificredential*/
int  LED  =4;
int
trig
  =5;
  int
  echo=18;
  void
  setup()
  {
   Serial.begin
   (115200);
   pinMode(tri
   g,OUTPUT);
   pinMode(echo,
   INPUT);
   pinMode(LED,OUT
   PUT);
```

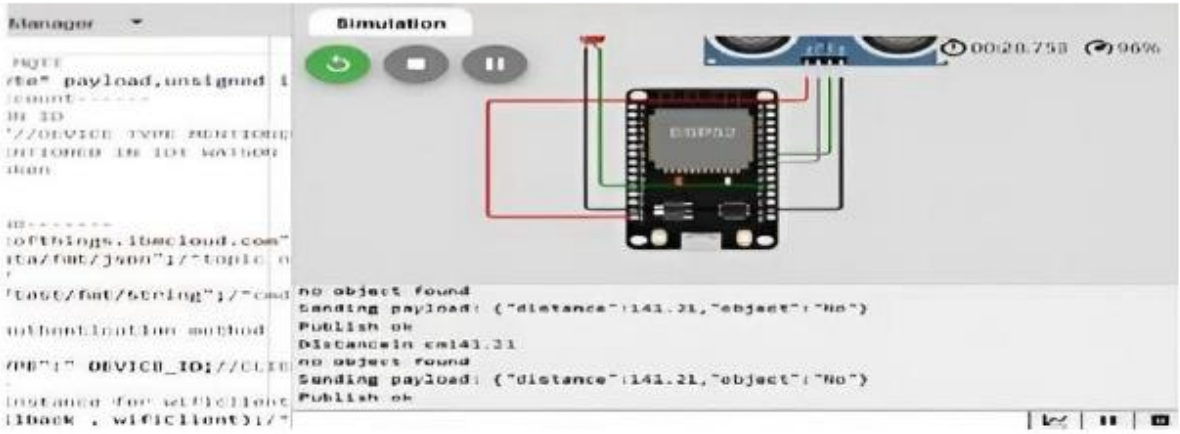
```
void loop()  {
 digitalWrite(t
 rig, LOW) ;
 digitalWrite(t
 rig, HIGH) ;
 delayMicrosecon
 ds(10);
 digitalWrite(t
 rig, LOW) ;
 float
 dur=pulseIn(echo,
 HIGH) ;  float
 dist=(dur  *
0.0343)/2;
 Serial.print("dis
 tance in cm");
 Serial.println(di
 st);
 PublishData(dist)
 ; delay(1000); if
 (!client.loop())
 {
  mqttconnect();
 }
}

/*.....................................................retrivi
ng                          to..................... cloud
```

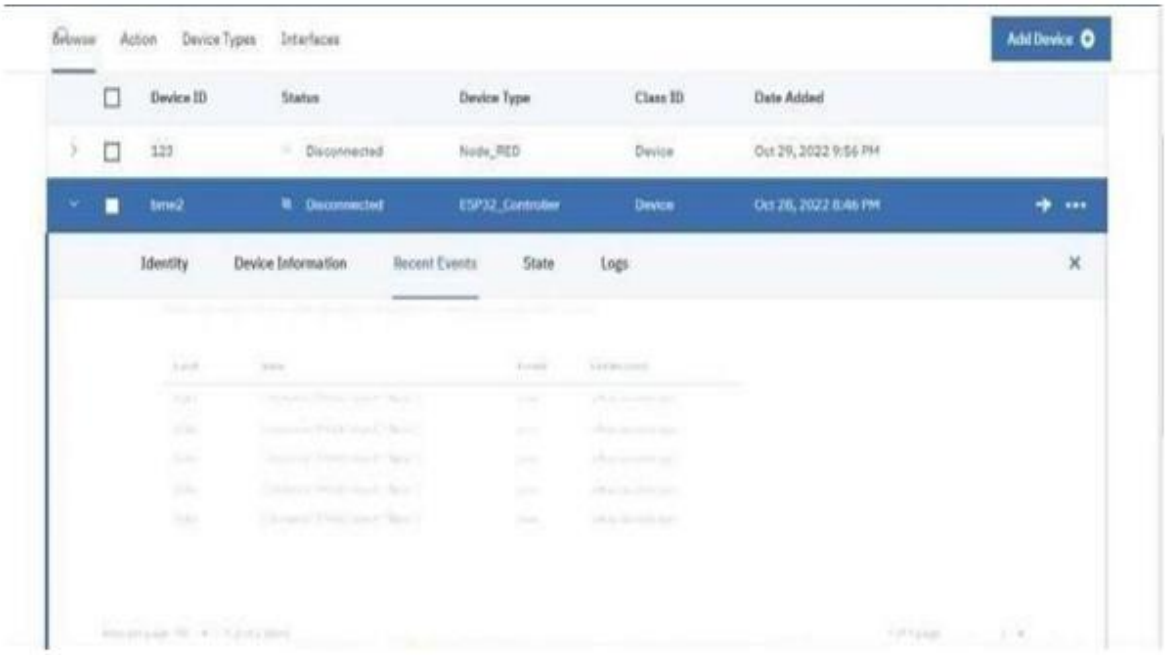
```
void PublishData(float dist){
 mqttconnect();//function
 call  for  connecting  to  ibm

 /*creating the string in form of JSON to
 update the data to ibm cloud*/String
 object;
  while(!!!client.connect(clie
  ntid,authMethod,  token)){
    Serial.print(".
    ");
    delay(500);
  }
  initManagedDevice();
  Serial.println();
 }
}
void wificonnect()//function defenition for  wificonnect
```

```
{
 Serial.println();
 Serial.print("Connecting to ");

 WiFi.begin("vivo 1816", "taetae95",6);//PASSING THE WIFI CREDIDENTIALS
TO ESTABLISH CONNECTION

 while (WiFi.status()

  !=WL_CONNECTED){

  delay(500);

  Serial.print(".");
 }
 Serial.println("");
 Serial.println("WiFi

 connected");
 Serial.println("IP

 address");
 Serial.println(WiFi.localIP

 ());
}
void

  initManagedDevice(

  ){

  if(client.subscribe

  (subscribetopic)){

    Serial.println((subscribetop

    ic));

    Serial.println("subscribe to

    cmd OK");

  }else{

    Serial.println("subscribe to cmd failed");

  }
```

```
  }
  //Serial.println("dta: "+ data3);
  //if(data3=="Near")
  //{
  //Serial.println(data3);
  //digitalWrite(LED,HIGH);
  //}
  //else //{
  //Serial.println(data3);
  //digitalWrite(LED,
  LOW);//} data3="";
}
```

Output:


Manager
Simulation
00:28.753
96%
no object found
Sending payload: {"distance":141.21,"object":"No"}
Publish ok
Distance in cm141.21
no object found
Sending payload: {"distance":141.21,"object":"No"}
Publish ok


Browse
Action
Device Types
Interfaces
Add Device
Device ID
Status
Device Type
Class ID
Date Added
123
Disconnected
Node_RED
Device
Oct 29, 2022 9:56 PM
bme2
Disconnected
ESP32_Controller
Device
Oct 26, 2022 8:46 PM
Identity
Device Information
Recent Events
State
Logs

Sprint 3

Date	18 November 2022
Team ID	PNT2022TMID11128
Project Name	IOT Based Safety Gadget for Child Safety Monitoring and notification
Maximum Marks	8 Marks

LOCAL FORAGE:

```
!function(a)
{if("object"==typeof exports&&"undefined"!=typeof module)module.exports=a();else
 if("function"==typeof define&&define.amd)define([],a);
 else{var b;
     b="undefined"!=typeof window?window:"undefined"!=typeof global?global:"undefined"!=typeof
self?self:this,b.localforage=a()}}(function(){
  return function a(b,c,d){
    function e(g,h){if(!c[g]){if(!b[g]){
      var i="function"==typeof require&&require;
      if(!h&&i)return i(g,!0);if(f)return f(g,!0);
      var j=new Error("Cannot find module '"+g+"'");
      throw j.code="MODULE_NOT_FOUND",j}var k=c[g]={exports:{}};
                        b[g][0].call(k.exports,function(a){
                          var c=b[g][1][a];return e(c||a)},k,k.exports,a,b,c,d)}
                return c[g].exports}
    for(var f="function"==typeof require&&require,g=0;g<d.length;g++)e(d[g]);
```

```
return e}({1:[function(a,b,c){(function(a){"use strict";
                                function c(){k=!0;for(var a,b,c=l.length;c;){
                                  for(b=l,l=[],a=-1;++a<c;)b[a]();c=l.length}k=!1}function
                                d(a){1!==l.push(a)||k||e()}var
e,f=a.MutationObserver||a.WebKitMutationObserver;
                                if(f){var g=0,h=new
f(c),i=a.document.createTextNode("");h.observe(i,{characterData:!0}),e=function(){i.data=g=++g%2}} else
if(a.setImmediate void ea.MessageChannel)e="document"in all"onreadystatechange in
a.document.createElement("script") function(){var b=a. document.createElement("script");b.onreadystatechange-
function()(c(),b. onreadystatechange=null,b.parentNode.removeChild
(b),b=null),a.document.documentElement.appendChild(b)}:function() (setTimeout(c,8));else{var j-new
a.MessageChannel;j.port1.onmessage=c,e-function(){j.port2.postMessage(0)}}var k,1-[];b.exports- d)).call(this,
"undefined"!=typeof global?global: "undefined"!=typeof self?self: "undefined"!=typeof window?window: {})},{}],2:
[function(a,b,c){"use strict"; function d()() function e(a){if("function" I-typeofa) throw new TypeError("resolver
must be a function"); this.states, this.queue=[], this.outcome vald
0,aldi(this,a)} function f(a,b,c){this.promise-a, "function"==typeof b&&(this.onFulfilled-b, this.callFulfilled-
this.otherCallFulfilled), "function"typeof c&&(this.onRejected=c,
```

INDEX:

```
<!DOCTYPE html>
<html lang="en" style="height: 100%; margin: 0;">
      <head>
            <meta charset="UTF-8" />
            <meta name="description" content="The Home Page after Logged In" />

       <meta name="viewport" content="width=device-width, initial-scale=1.0" />
       <title>IOT Based Safety Gadget for Child Safety Monitoring and Notification</title>
<script src="./localforage.js"></script>
       <script>
            if (window.location.hostname !== "localhost") {if
                  (location.protocol !== "https:") {
                        location.replace(
                              `https:${location.href.substring(
                                    location.protocol.length
                              )}`
                        )
                  }
            }

            async function check() {
    let data = localforage.getItem("userData")
    if (data == null) {
       window.location.href = "/login"
    }
  }
  check()
       </script>
</head>
<body
       style="
            height: 100%;
            margin: 0;
```

```
        font-weight: 300;
        font-family: -apple-system, BlinkMacSystemFont, 'Segoe UI', Roboto,
            Oxygen, Ubuntu, Cantarell, 'Open Sans', 'Helvetica Neue',
            sans-serif;
    "

    <div
        class="wrapper"
        style="
            height: 90%;
            display: flex;
            flex-direction: column;
            align-items: center;
            justify-content: center;
text-align: center;
        "
    >
        <div
            class="details"
            style="
                display: flex;
                flex-direction: column;
                align-items: center;
                gap: 20px;
                padding: 1rem;
                border-radius: 5px;
                box-shadow: 0 0 8px 0px #44444444;

              max-width: 80%;
                "
            >
                <h1 class="name" style="margin: 0"></h1>
                <div
                    class="imageContainer"
                    style="padding: 10px; height: 10rem; width: 10rem"
                >
                    <img class="image" alt="profile picture" />
                </div>
                <h2 class="email" style="margin: 0"></h2>

         <a style="text-decoration: none;text-align: center;font-size: 1.2rem;color: #0070f3;font-weight:
400;" href="./dashboard">Go to Dashboard ?</a>
            </div>
        </div>
        <script>
            async function main() {
        let name = document.querySelector(".name")
        let image = document.querySelector(".image")
        let email = document.querySelector(".email")
        let userData = await localforage.getItem("userData")
        if(userData == null) {
          window.location.href = "/login"
        }
        name.innerHTML = `Welcome ${userData.firstName} ${userData.lastName}!`
        image.src = userData.profilePic
```

```
            email.innerHTML = `Your email is: <a style="text-decoration: none;color: #0072B5;"
    href="mailto:${userData.email}">${userData.email}</a>`
        }
        main()
            </script>
    </body>
</html>
```

Sprint 4

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Team ID	PNT2022TMID11128
Project Name	**IOT** Based Safety Gadget for Child Safety Monitoring and notification
Maximum Marks	8 Marks

FIREOAUTH:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <link rel="stylesheet" href="/css/fireoauth.css">
  <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/nprogress/0.2.0/nprogress.min.css">
  <link rel="shortcut icon" href="https://raw.githubusercontent.com/tharunoptimus-
pd/firepwa/main/favicon.ico?token=GHSAT0AAAAAABR46HVJ5M5L3QGFRZRQXOISYUJU
WAA" type="image/x-icon">
  <style>
    html,
    body {
      height: 100%;
      margin: 0;
      font-family: -apple-system, BlinkMacSystemFont, "Segoe UI", Roboto, Oxygen,
```

```
      Ubuntu, Cantarell, "Open Sans", "Helvetica Neue", 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 #44444444;
        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 Fire ??</h3>


      <div class="qrAuthorize">
        <h4 class="subTitle">Scan QR from your Fire OAuth App??</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="noopener">Click to Authorize ?? </a>
      </div>

      <div class="learnAboutFire">
        <a target="_blank" href="https://fireoauth.netlify.app" rel="noopener">Learn More about Fire
 ??</a>
      </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/qrious.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=${chatRoomId}&url=${ori
ginURL}`
    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 again later ????" 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>
```

DASHBOARD:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <link rel="stylesheet" href="./css/dashboard.css">
  <title>Dashboard</title>
  <script src="./localforage.js"></script>
</head>
<body>
  <div class="wrapper">
```

```
    <div class="header">
      <span class="heading">Dashboard</span>
      <span class="right">
        <span class="username">Hello User</span>
        <span>
          <img class="profilePic" src="https://avatars.dicebear.com/api/avataaars/asdfasdfds.svg"
alt="User Profile" height="30" width="30">
        </span>
      </span>
    </div>

    <div class="actionCenter">
      <div class="action">
        <span>Create Child Card</span>
      </div>
      <div class="action">
        <span class="logout">Log out</span>
      </div>
    </div>

    <div class="childCardContainer">
      <div class="childCard">
        <div class="childCardHeader">
          <span>Child Name</span>
          <span>Age 12</span>
        </div>
        <div class="actions">

          <span>View</span>
          <span>GeoFence</span>
        </div>
      </div>
    </div>
  </div>
  <script>
    async function main() {
      let userData = await localforage.getItem('userData')
      if(userData == null) {
        window.location.href = "/login"
      }
      document.querySelector(".username").innerHTML = `Hello ${userData.firstName}`
      document.querySelector(".profilePic").src = userData.profilePic
    }
    main()
    document.querySelector(".logout").addEventListener("click", async () => {
      await localforage.setItem('userData', null)
      window.location.href = "/login"
    })
  </script>
 </body>
</html>
```