

PROJECT REPORT

IBM NALAIYATHIRAN

PROJECT NAME: IOT BASED SAFETY GADGET FOR CHILD
SAFETY MONITORING AND NOTIFICATION

TEAM ID: PNT2022TMID07742

TEAM MEMBER: Uma Makesan.A

Mugundhan. M

Keerthivasan. U

Prakash. A

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1. INTRODUCTION

Internet of Things (IOT) is the latest technology that connects entire world. It establishes connectivity (through internet) among the various devices or services or systems in order to little by little make automation development in all areas.

Technology is the best way to solve this problem. That's the reason to develop this project that can act as a rescue device and protect at the time of danger. The motivation behind this project is an attempt to focus on a security system that is designed merely to serve the purpose of providing security to child so that they never feel helpless while facing such social challenges.

An advanced system can be built that can detect the location and health condition of child that will enable us to take action accordingly based on electronic gadgets like GPS receiver, GSM, pulse rate sensor, body temperature sensor. We can make use of number of sensors to precisely detect the real time situation of the children in critical situations. The heartbeat of a child in such situations is normally higher which helps make decisions to detect the abnormal motion of the children while she is victimized.

PROJECT OVERVIEW

The device has IoT monitoring and a GSM module that allows the child to be monitored at all times. It also has numerous sensors that are connected to a CPU and are used to detect exact signals such as heart rate, temperature, and other dangers and alert the parents. In the event of a power outage, the wearable serves as a backup. On the device, there is an additional panic button. The purpose of this button is to notify parents and the police of a child's current location whenever they are in a perilous scenario. A GPS module is utilized to access their present location, and a GSM module assists in transmitting the information via SMS to designated contacts. In this approach, the device tries to provide child safety while remaining unobtrusive.

PURPOSE

The major goal of this project is to use modern technology to create a gadget that provides "**Smart Child Safety**" to protect children, which will be far more effective than current methods in assisting victims.

LITERATURE SURVEY:

Literature Survey Based on IoT Based Safety Gadget for Child Safety Monitoring and Notification

Date	21 October 2022
Team ID	PNT2022TMID07742
Team Members	Uma Makesan.A Mugundhan.M Keerthivasan.U Prakash.A
Project Name	Project – IoT based safety gadget for child safety-monitoring and notification
Maximum Marks	

Mirjami Jutila, Esko Strömmer, Mari Ervasti, Mika Hillukkala, Pekka Karhula Juhani Laitakari (2015) Safety services for children: a wearable sensor vest with wireless charging

Wearable sensors constitute an increasing market in providing various promising opportunities for improving and controlling safety issues for children in day care and schools. This paper presents the technological enablers and requirements for building a complete end-to-end energy-efficient safety system. Our work introduces proof-of-concept for a wearable sensor vest with integrated wireless charging, designed to enhance the security of children. The wireless charging takes place in the ordinary repository for the vests, such as in a wardrobe or a coat rack, without requiring any specific actions from the user. The developed sensor vest provides information about the location and well-being of children, based on received signal strength indication, global

positioning system, accelerometer, and temperature sensors. This paper also discusses the experiences of the “safety service for children” school pilot, which utilized various sensors with end-to-end applications. Piloting and technological implementations are based on a participatory study conducted among children, teachers and parents, to gain important knowledge and understanding about the real user needs and service system usability requirements

N. Manjunatha , H. M. Jayashree , N. Komal , K. Nayana(2020) :
IoT Based Smart Gadget for Child Safety and Tracking

This paper is mainly streamer 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.

S. Rajalakshmi S. Angel Deborah, G. Soundarya, V. Varshitha, K. Shyam Sundhar (2020)
Safety Device for Children Using IoT and Deep Learning Techniques

The safety and security of children is a major problem in the current era. The children are too young to take care of themselves. We cannot monitor the children at all times in school, play area and outside place. In this paper, we discuss the concept of child safety device based on Internet of things. The aim of this device is to provide safety to the child by allowing the parent to locate the child and view their surroundings. This device can be used to monitor the temperature and motion of the child. If any problem persists, the GSM mobile communication

module automatically sends a text message to the parent as SMS. The other features of the device are emergency light and alarm buzzer which are activated when the button is pressed by the child in a distress situation to seek the attention of the bystanders.

The accelerometer and vibration sensors are used to detect the motion of the child. The camera is used to capture the environment of the child. The image taken is processed using conventional neural network (CNN) which predicts the background like play area, railway station, beach, road, or classroom. The GPS module is used to record current location of the device which is used to track the device if the child is missing. Hence, this device provides a security cover to the child in today's time.

REFERENCE

Mirjami Jutila, Esko Strömmer, Mari Ervasti, Mika Hillukkala, Pekka Karhula Juhani Laitakari *Personal and Ubiquitous Computing*

N. Manjunatha H. M. Jayashree N. Komal K. Nayana International Journal of Research in Engineering, Science and Management Volume-3, Issue-6, June-2020.

S. Rajalakshmi S. Angel Deborah G. Soundarya V. Varshitha K. Shyam Sundhar *Advances in Intelligent Systems and Computing (AISC, volume 1163).*

IDEA GATHERING

Date	21 October 2022
Team ID	PNT2022TMID07742
Project Name	Project – IoT based safety gadget for child safety-monitoring and notification
Maximum Marks	

ABSTRACT:

The overall percentage of child abuse filed nowadays in the world is about 80%, out of which 74% are girl children and the rest are boys. For every 40 seconds, a child goes missing in this world. Children are the backbone of one's nation, if the future of children was affected, it would impact the entire growth of that nation.

Due to the abuse, the emotional and mental stability of the children gets affected which in turn ruins their careers and future. These innocent children are not responsible for what happens to them. So, parents are responsible for taking care of their children. But, due to economic conditions and aim to focus on their child's future and career, parents are forced to crave money. Hence, it becomes difficult to cling to their children all the time. In our system, we provide an environment where this problem can be resolved efficiently. It makes parents easily monitor their children in real-time just by staying beside them as well as focusing on their careers without any manual intervention.

The history of wearable technology:

The origins of wearable technology date back to the 13th century when eyeglasses were first invented. In the 15th century, timepieces were created -- some of which were small enough to be worn -- but it was not until the 1960s that modern wearable technology came into exist.

The future of wearable technology

Wearable technology is becoming increasingly popular and is all set to revolutionize the future. While fitness trackers, smart devices, intelligent clothing, and VR and ARheadsets have gained widespread approval, they are only the tip of the iceberg.

EXISTING SYSTEM:

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

- > The child could not produce the exact alert command during a panic condition.
- > The command produced may not match with the previously stored command.
- > This project requires manual intervention.

Various forms of safety gadget:

The following is a brief history showcasing the various turns wearable technology has taken over time:

Reference :

[MirjamiJutila, Esko Strömmer, Mari Ervasti, Mika Hillukkala, PekkaKarhulaJuhani Laitakari](#)*Personal and Ubiquitous Computing*

N. Manjunatha H. M. Jayashree N. Komal K. Nayana International Journal of Research in Engineering, Science and Management Volume-3, Issue-6, June-2020

S. [Rajalakshmi](#) S. [Angel Deborah](#) G. [Soundarya](#) V. [Varshitha](#) K. [ShyamSundhar](#) Advances in Intelligent Systems and Computing (AISC, volume)

IDEATION & PROPOSED SOLUTIONS

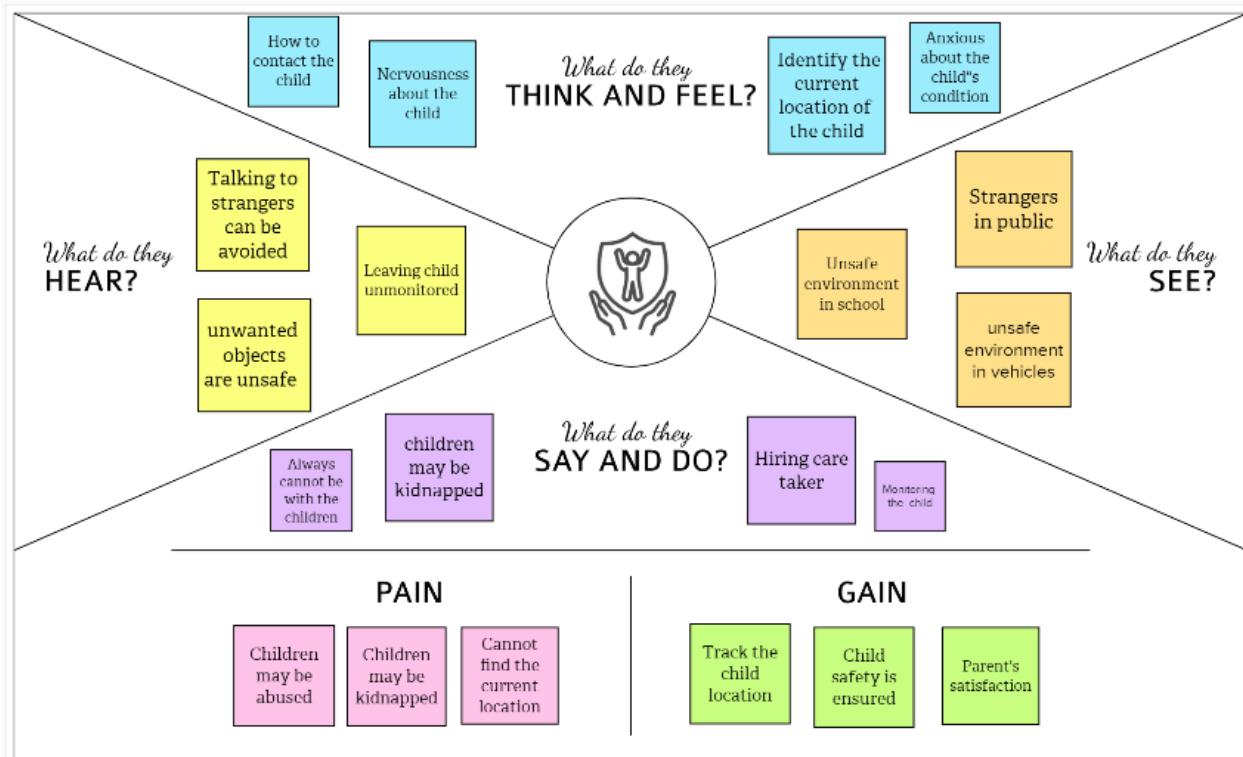
EMPATHY MAP

User: End users/customers

Scenario: Child Safety Monitoring and Notification

1

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



Share your feedback

BRAINSTORMING SESSION

1. DEFINING PROBLEM STATEMENT:

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.

BRAIN STORMING:

PRAKASH A

Excessive worries of parents regarding their children.

Some hazardous rays causes health issues to the child

GPS device is not very accurate in giving locations. Accuracy problem like sudden jumps or movements even if the child is placed still.

Alerting parent when the child passes a range

MUGUNDHAN M

Body temperature
pulse rate may be
incorrect sometimes.

Issues conserving
with accuracy takes
place

If the GPS tracking is lost
,the location of the child
is unidentified ,so we
are forced in search of
other way...

maintain a record of
the child's location

UMA MAKESAN A

When the database
crashes, the malfunction
of gadgets may occur

Regular monitoring of
the performance is
difficult

When the child
unknowingly leaves the
gadget somewhere ,
the location will be
mistracked

To reduce interrupt
and to get correct
information , we need
advanced components

KEERTHIVASAN U

Device heat may affect the
child and causes health
issues.

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

3. GROUP IDEAS:

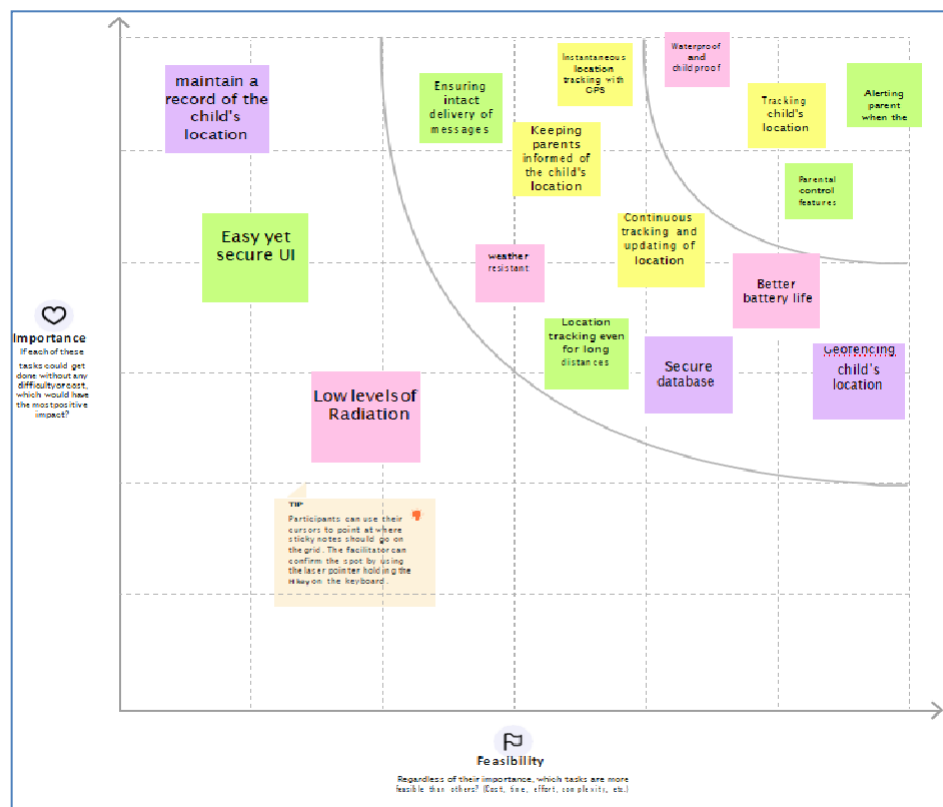
Based on location:

- *GPS device is not very accurate in giving locations. Accuracy problem like sudden jumps or movements even if the child is placed still.
- *As with any GPS enabled device there is risk and concern of hacking which is insecure for the child.
- *The device should be built in such a way that the child's location access is only in the hands of the parent/guardian.

Based on data:

- *Maintain a record of the child's location
- *Ensure a secure database
- *Geo fencing child's location

4. PRIORITIZE :



IdeationPhase
Define the Problem
Statements

Date	19 September 2022
Team ID	PNT2022TMID07742
Project Name	Project – IoT based safety gadget for child safety-monitoring and notification
Maximum Marks	2 Marks

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	A Parent	Monitor my child's condition	Information can't be tracked persistent	Device turned off (low battery)	concerned
PS-2	A Parent	Locate my child's location	Accuracy problem causes	GPS antenna do not have potential to send strong signals in that location	Tensed

Project Design Phase-I

Date	24 September 2022
Team ID	PNT2022TMID07742
Project Name	Project – IoT based safety gadget for child safety-monitoring and notification
Maximum Marks	2 Marks

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Child safety and tracking is major significant as number of crimes on children occurs. hence parents are more concerned on their kids.
2.	Idea / Solution description	A smart IoT device for child safety and tracking is developed to help the parents to locate and monitor their children. Device is interfaced with temperature, heartbeat, touch sensors and also GPS, GSM & digital camera modules. Using this device parents can easily observe their children.
3.	Novelty / Uniqueness	The system automatically alerts the parents via message whenever the child is out of safety zone and sends another notification if the child comes under the safety zone. Panic button is placed in the device in order to alerts the parents if the child is in danger;
4.	Social Impact / Customer Satisfaction	This mechanism makes parents confident on their child safety and makes children feel secured.
5.	Business Model (Revenue Model)	This device is weightless, accessible, compatible and is useful for the customers. so it increases the revenue of the business.
6.	Scalability of the Solution	The ability to support an increasing number of connected devices, users, application features, and analytics capabilities, without any degradation in the quality of

service.

proposed solution fit:

Project Title: IoT Based Safety Gadget for Child Safety Monitoring and Notification

Project Design Phase-I - Solution Fit Template

Team ID: PNT2022TMID01040

Define CS, fit into	<div>1.CUSTOMER SEGMENT(S) Who is your customer? Working parents of (0-5)years kids. CS</div>	<div>6. CUSTOMER CONSTRAINTS CC What constraints prevent your customers from taking action or limit their choices of solutions? limited CPU,memory and power resources,security constraints,health issues,accuracv problem,poor data</div>	<div>5. AVAILABLE SOLUTIONS AS Which solutions are available to the customers when they face the problem or need to get job done that they have tried in past?Pros and cons? Detecting and preventing machine failures,Standards and intelligent analysis of actions,improve security issues,</div>	Explore AS, differ	
	<div>2. JOBS-TO-BE-DONE / PROBLEMS J&P Which jobs-to-be-done (or problems) do you address for your customers? IMPROVE SAFETY AND SECURITY,DON'T RELY ON CLOUD TECHNOLOGIES,UPDATE YOUR IoT DEVICE REGULARLY,consider security solution and tools</div>	<div>9. PROBLEM ROOT CAUSE RC What is the real reason that this problem exists?what is the back story behind the need to this job? Escalated cyberattacks,malware,vul nerabilities,complex environments,5G connectivity,heavy use of GPS.</div>	<div>7.BEHAVIOUR BE What does your customer do to address the problem and get the job done? Portable browsers and proxy sites to address the issues of the customers directly and develop a customer centric culture, collect feedback regularly to avoid problems</div>		
Focus on J&P Tap into BE understand RC	Identify strong TR & EM	<div>3. TRIGGERS TR What triggers customers to act? seeing their neighbour monitoring their child , need to be proactive</div>	<div>10. YOUR SOLUTION By avoiding technical difficulties and data interrupt child can be located accurately and precise condition can be monitored SL</div>	<div>8.CHANNELS OF BEHAVIOUR CH 8.1 ONLINE Contact the support team and they can use the functionality guideline video to correct the malfunction and by directly giving feedback 8.2 OFFLINE Use the manual to effective use of gadget and correct the malfunctions</div>	1 u i p o
		<div>4. EMOTIONS: BEFORE / AFTER EM Anxious,worried,lost, insecure > confident, ease,calmness,relaxed.</div>			

Project Design Phase-II

REQUIREMENT ANALYSIS

Date	13 October 2022
Team ID	PNT2022TMID07742
Project Name	IoT Based Safety Gadget for Child Safety Monitoring and Notification
Maximum Marks	4 Marks

Functional Requirements

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 Form Registration through Gmail Registration through LinkedIn
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	App installation	Installation through link Installation through play store
FR-4	Location History	Used to detect the location precisely Point –to-point location can be seen in the app

FR-5	GPS tracking	In order to track the location, GPS module needs to be implemented.
FR-6	Battery Life	<p>Since the gadget works on the basis of battery life, the life of the battery should be long lasting.</p> <p>So the main aim is to provide additional battery(spare), which is used when they forgot to charge the battery</p>

Non-functional Requirements:

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

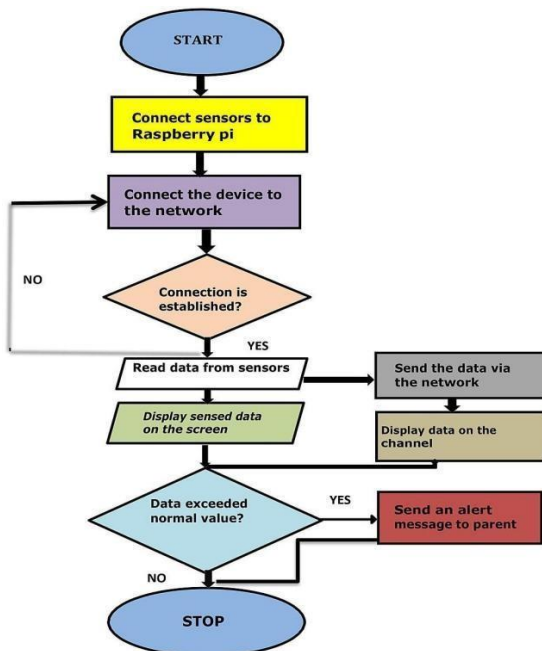
NFR No.	Non-Functional Requirement	Description
NFR-1	Usability	Since it uses GSM, which helps to inform the current situation and danger accurately and immediately to parents.
NFR-2	Security	<p>Provides assurance to parents(specially working parents) about the security of their child</p> <p>Develop the parents to monitor and locate the location of the child</p>
NFR-3	Reliability	<p>Easy to access and to use</p> <p>Easy to handle</p> <p>Portable</p>

NFR-4	Performance	Instance notification is sent to the child's parent immediately Location of the child is stored for the future use
NFR-5	Availability	Amber alert GPS Accessing of location
NFR-6	Scalability	Gives more confident to the parents about child safety Easily approaching the child with the help of GSM

PROJECT DESIGN

Data Flow Diagram

Date	20 October 2022
Team ID	PNT2022TMID07742
Team Leader	Prakash.A
Team Member	Uma Makesan.A Mugundhan.M Keerthivasan.U Prakash.A
Project Name	IoT based safety gadget child monitoring and notification
Maximum Marks	4



TECHNOLOGY ARCHITECTURE

Technology Stack (Architecture & Stack)

Date	20 October 2022
Team ID	PNT2022TMID07742
Project Name	Project – IOT based safety gadget for child safety monitoring and notification
Maximum Marks	4 Marks

TECHNICAL ARCHITECTURE:



Table-1: Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	The communication protocol being used in the proposed solution might act as an interface the way like Wi-Fi, Bluetooth and ZigBee	MIT app
2.	Application Logic	The data to be collected and sent to the authenticator's(parent) via GSM providing the GPS coordinates to easily locate access and monitor the child	IBM Watson STT service, python etc
3.	Database	Data to be segregated and secured in the form of relational DBMS	MySQL
4.	Cloud Database	IBM	IBM Cloud ant
5.	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local File system
6.	External API-1	To access the children location	GPS location monitoring etc
7.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration	Cloud Foundry

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	The proposed solution being framed in the form an android application providing the enduser an easy surveillance of their children (preferably usersare parents)	UI/UX design development
2.	Security Implementations	The developed application should be accessible in the way it can only respond to the commentsof the relevant users	Encryptions, IAM Controls.
3.	Scalable Architecture	The app format comes the way easier to handle and operate.	Yet to be done
4.	Availability	The developed solution tends to be available in the market at any time	Yet to be done
5.	Performance	Highly proper and betterment functionalities are to be ensured in the designed solution	Yet to be done

USER STORIES

Use the below template to list all the user stories for the product.

User Type	Functional Requirement(Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1 (FATHER)	As a user, I can register by entering my email, and password, and confirming my password. I can access the location of my children using the credentials provided as a father.	I can access my account/dashboard and receive a confirmation email & Click confirm	High	Sprint-1
		USN-2 (MOTHER)	As a user, I can register by entering my email, and password, and confirming my password. I can access the location of my children using the credentials provided as a Mother.	I can access my account/dashboard and receive a confirmation email & Click confirm	High	Sprint-1
		USN-3 (GUARDIAN/ CARETAKER)	As a user, I can also monitor the children's activities using a safety gadget monitoring system.	I can access my account/dashboard and receive confirmation email & clickconfirm	Medium	Sprint-1

	Login	USN-4	As a user, I can log into the application by entering My email & Password.	I can access my account / dashboard.	Medium	Sprint-2
	Dashboard	USN-5	As a user, I can fix the geofence for my child's location so that I will receive alerts if my child crosses the geofence.	I can monitor the current location of my child.	High	Sprint-2
Customer (Web user)	Registration	USN-1 (FATHER)	As a user, I can register by entering my email, and password, and confirming my password. I can access the location of my children using the credentials provided as a Father.	I can access my account/dashboard and receive a confirmation email & click confirm	High	Sprint-1
		USN-2 (MOTHER)	As a user, I can register by entering my email, and password, and confirming my password. I can access the location of my children using the credentials provided as a Mother.	I can access my account/dashboard and receive a confirmation email & click confirm	High	Sprint-1
		USN-3 (GUARDIAN/CARETAKER)	As a user, I can also monitor the children's activities using a safety gadget monitoring system.	I can access my account/dashboard and receive a confirmation email & Click confirm	Medium	Sprint-1

User Type	Functional Requirement(Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
	Login	USN-4	As a user, I can log into the application by entering my email & password.	I can access my account/dashboard.	Medium	Sprint-2
	Dashboard	USN-5	As a user, I can fix the geofence for my child's location so that I will receive alerts if my child crosses the geofence.	I can monitor the current location of my child.	High	Sprint-2
Customer Care	Dashboard	USN-6	As a customer care service person, whenever I receive a complaint, I forward the complaint and ensure that the complaint is resolved.	I can keep track of all the complaints and the status of the complaints received.	Medium	Sprint-3
Administrator	Admin Dashboard	USN-7	As an administrator, I will take care of all the payment processes, queries and complaints, and login credentials.	I can access all the customer details, payment details, and complaints received.	High	Sprint-4

CUSTOMER JOURNEY MAP

IOT BASED SAFETY GADGET FOR CHILD SAFETY MONITORING AND NOTIFICATION



SCENARIO

To continuously monitor the child's location and alert when the child is in danger.



Entice

How does someone initially become aware of this process?



Enter

What do people experience as they begin the process?



Engage

In the core moments in the process, what happens?



Exit

What do people typically experience as the process finishes?



Extend

What happens after the experience is over?

Steps

What does the person (or group) typically experience?



Interactions

What interactions do they have at each step along the way?

- * People: Who do they see or talk to?
- * Places: Where are they?
- * Things: What digital touchpoints or physical objects would they use?



Goals & motivations

At each step, what is a person's primary goal or motivation? ("Help me..." or "Help me avoid...")



Positive moments

What steps does a typical person find enjoyable, productive, fun, motivating, delightful, or exciting?



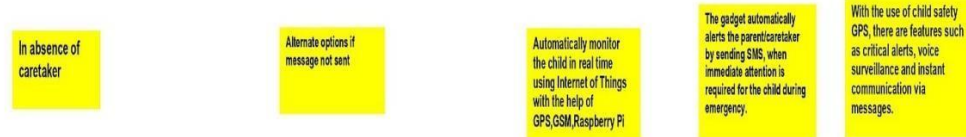
Negative moments

What steps does a typical person find frustrating, confusing, upsetting, costly, or time-consuming?



Areas of opportunity

How might we make each step better? What ideas do we have? What have others suggested?



Project Planning Phase
Project Planning and scheduling
(Product Backlog, Sprint Planning, Stories,
Story points)

Date	03 November 2022
Team ID	PNT2022TMID07742
Project Name	Project - IoT Based Safety Gadget for Child Safety Monitoring & Notification
Maximum Marks	8 Marks

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

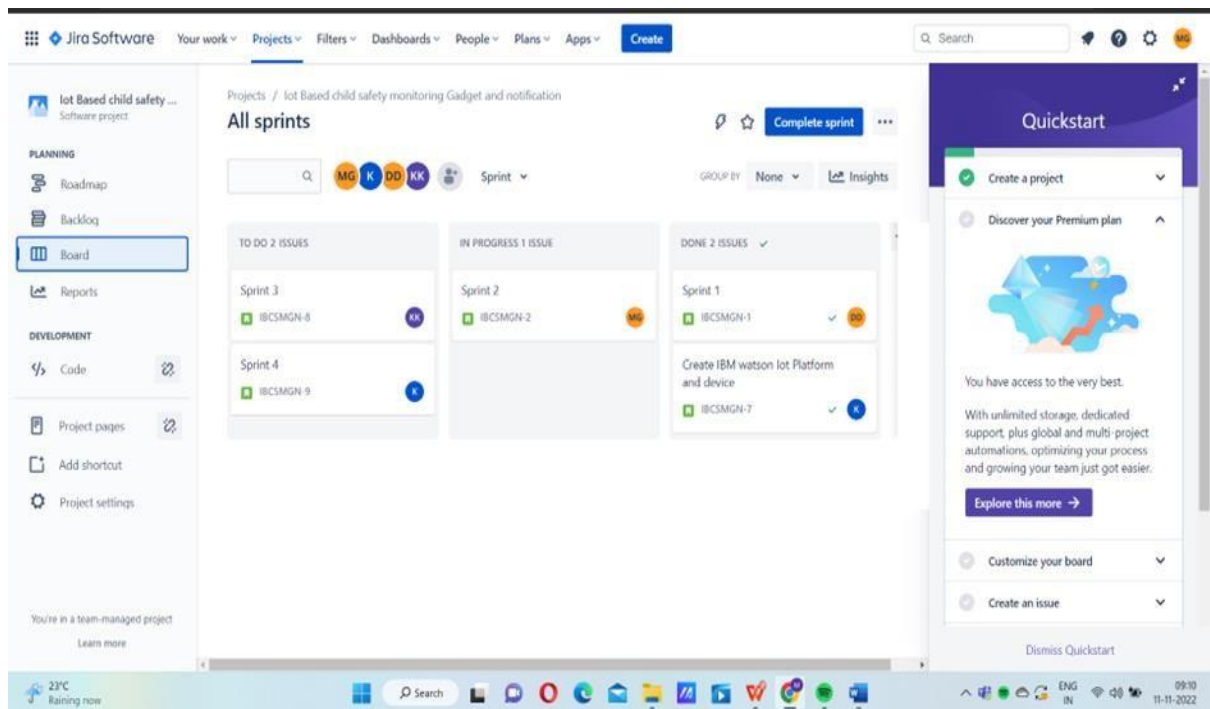
Use the below template to create product backlog and sprint schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a parent/guardian,I can register for the application by entering my email, and password, and confirming my password.	2	High	Prakash.A
Sprint-1	User confirmation	USN-2	As a parent/guardian, I will receive a confirmation email onceI have registered for the application	1	High	Uma Makesan.A
Sprint-2		USN-3	As a parent, I will receive the connection, and location in SMS/mail once I have entered the application.	1	High	Keerthivasan.U
Sprint-1		USN-4	As a parent/guardian,I can register for the application through Gmail	2	Medium	Mugundhan.M
Sprint-1	Login	USN-5	As a parent, I can log into the application byentering email & password	1	High	Uma Makesan.A

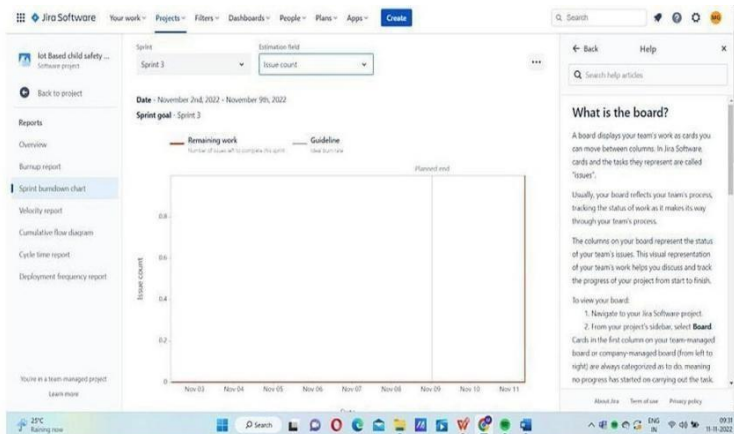
Project Tracker, Velocity & Burndown Chart: (4 Marks)

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	4 Days	24 Oct 2022	27 Oct 2022	20	29 Oct 2022
Sprint-2	20	5 Days	28 Oct 2022	01 Nov 2022	20	04 Nov 2022
Sprint-3	20	8 Days	02 Nov 2022	09 Nov 2022	20	11 Nov 2022
Sprint-4	20	9 Days	10 Nov 2022	18 Nov 2022	20	19 Nov 2022

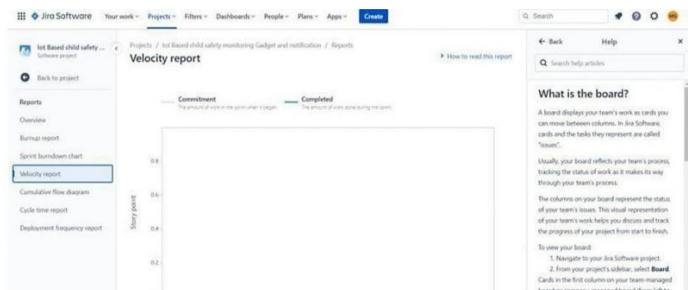
JIRA SOFTWARE:



SPRINT BURNT REPORT:



VELOCITY REPORT:



The screenshot shows the Jira Roadmap interface. At the top, there's a navigation bar with 'Jira Software' and various filters like 'Your work', 'Projects', 'Filters', 'Dashboards', 'People', 'Plans', 'Apps', and a 'Create' button. On the left, a sidebar lists project navigation options: 'lot Based child safety...', 'PLANNING', 'Roadmap' (selected), 'Backlog', 'Board', 'Reports', 'DEVELOPMENT', 'Code', 'Releases', 'OPERATIONS', 'Deployments', 'On-call', and 'Project pages'. The main content area is titled 'Roadmap' and shows a timeline for 'Sprint 3' and 'Sprint 4' in November. A '+ Create Epic' button is prominent. The right sidebar has a search bar, a 'Help' section with 'Search help articles', and a 'Share your roadmap as an image' option. The bottom status bar indicates 'You're in a team-managed project' and provides a 'Learn more' link.

CODING AND SOLUTIONS

SPRINT 1 [REGISTRATION AND LOGIN]

```
<!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/login.css">

  <title>Sign Up</title>

  <script>

    if (window.location.hostname !==

      "localhost") {if (location.protocol !==

        "https:") {

          location.replace(

            `https:${location.href.substrin

g(location.protocol.length

)}}`

          )

        }

      }
```

```

    }
</scri
pt>

<script src="./localforage.js"></script>
</head>

<body>

<div class="wrapper">

  <div class="loginContainer">

    <span>Don't have an account?Sign up</span>

    <divclass="traditionalLoginContainer">

      <form class="signupForm" action="/" method="post">

        <input type="text" name="firstName" placeholder="First Name" id="firstName"><br>

        <input type="text" name="lastName" placeholder="Last Name" id="lastName"><br>

        <input type="text" name="username" placeholder="User Name" id="username"><br>

        <input type="radio">male<br>

        <input type="radio">female<br>

        <input type="email" name="email" placeholder="Email" id="email"><br>

        <input type="password" name="password" placeholder="Password" id="password"><br>

        <input type="phone number" name="phone number" placeholder="Phone number"
id="phonenumber"><br>

        <input class="loginButton" type="submit" value="Sign Up">

      </form>

    </div>

    <div class="loginWithFireContainer">

```

</div>

<aclass="hyperLink" href="<"https://appinventor.mit.edu/">Account already exists? Login ->

</div>

</div>

<script>

// Necessary for Fire OAuth to Function

const fireBroadcastingChannel = new

BroadcastChannel('fireOAuthChannel');

fireBroadcastingChannel.addEventListener('message', async event => {

let data = event.data

/**

1. @typedef {Object<string, any>}Data

2. @property {boolean} success - Whether the login was successful

3. @property {string} token - The data returned from the login i.e. Fire Token

*/

// data.token is the messagesent from the fireOAuthChannel after verification

// data.success is a booleanthat indicates whetherthe verification was successful

// data.token is the fire token

// What to do with the Fire Token?

// * Fire Token is an unique token which uniquely identifies the user who authorized your login
attemptwith Fire

// * You can use this token ONLY ONCE as it will be destroyed after the first use

// 1. Send the fire token to the Fire Server to verify the user

// - You can do that client sided or server sided

// - You need to send a POST Request to the Fire Server with the fire token

```

// at the URL: http://localhost:3003/api/tokens/verify

// - The Fire Server will verify the fire token and return a response

// - If the verification was successful - CODE (200), the Fire Server will return a response with
theuser 's data

// - If the verification was unsuccessful - CODE (400) or CODE (401), the Fire Server will
return aresponse with an error 'message'

// - You can use the data returned from the Fire Server to create a new user in your database

// This example will send the token to Fire Servers and console.log the response
console.log("%c" + `Fire Token: ${data.token}`, `color: #f1c40f; font-weight:
bold;`);constresponse =
awaitfetch('https://fire.adaptable.app/api/tokens/verify', { method:
  'POST',
  headers: {
    'Content-Type': 'application/json'
  },
  body:
    JSON.stringify({t
      oken: data.token
    })
  })
// get the response
const responseData = await response.json()
// console.log the
response
console.log(responseDat
a)

```

```

    await localforage.setItem('userData', {
        ...responseData, isFire: true
    })

    // Adding the user data to the user Database

    let database = await
    localforage.getItem("userDatabase") if (database ==
    null) {
        database = []
    }

    database.push(responseData)

    await localforage.setItem("userDatabase", database)

    // redirect to the home
    pagewindow.location.href
    = '/'

    })

function popupwindow(url, title, w,
    h) { var left = (screen.width / 2) -
    (w
    / 2); var top = (screen.height / 2) -
    (h / 2);
    return window.open(url, title, 'toolbar=no, location=no, directories=no, status=no, menubar=no,
        scrollbars = no, re-sizable = no, copyhistory = no, width= '+w+', height= '+h+', top = '+top+', left =
        '+left');
    }

    document.getElementById("fire").addEventListener("click",
        function() { popupwindow("/fireoauth.html", "Fire OAuth", 450,

```

```

        600)

    })

</script>

<script>

    // this.Website's Scripts / App Logic

    document.querySelector(".signupForm").addEventListener("submit", async(e) => {

        e.preventDefault()

        let firstName =

        document.getElementById("firstName").value let lastName

        = document.getElementById("lastName").value let

        username = document.getElementById("username").value

        let email = document.getElementById("email").value

        let password= document.getElementById("password").value

        let profilePic =

        `https://avatars.dicebear.com/api/adventurerneutral/${firstName}${lastName}.svg?backgroundColor=variant0 1`

        let data = {

            firstNa

            me,

            lastNam

            e,

            userna

            me,ema

            il,

            passwor

            d,

            profileP

            ic

        }

```

```

awaitlocalforage.setItem("userData", data)

let database = await

localforage.getItem("userDatabase")if (database ===

null) {

    database = []

}

database.push(data)

await localforage.setItem("userDatabase",

database>window.location.href = "/"

})

</script>

</body>

</html>

```

The screenshot displays the 'codingground' Online HTML Editor interface. The left pane shows the HTML code for a login form, and the right pane shows the rendered result.

HTML Code (Left Pane):

```

25 <form class="signupForm" action="/" method="post">
26 <input type="text" name="firstName" placeholder="First Name" id="firstName">
27 <br>
28 <input type="text" name="lastName" placeholder="Last Name" id="lastName">
29 <input type="text" name="username" placeholder="User Name" id="username">
30 <input type="email" name="email" placeholder="Email" id="email">
31 <input type="password" name="password" placeholder="Password" id="password">
32 <input type="phone number" name="phone number" placeholder="Phone number" id="phone
    number">
33 <input type="radio" name="gender" value="Male"> Male
34 <input type="radio" name="gender" value="Female"> Female
35 <input class="loginButton" type="submit" value="SIGN UP">
36 </form>
37 </div>
38 <div class="loginWithFireContainer">
39 <button type="button" class="fire" title="Login" id="fire">LOGIN</button>
40 </div>
41 <a class="hyperLink" href="https://careereducation.smartinternz.com/student-enroll
    -login">Already have an Account? Login /</a>
42 </div>
43 </div>
44 </div>
45 <script>
46 // Necessary for Fire OAuth to Function
47 const fireBroadcastingChannel = new BroadcastChannel('fireOAuthChannel');
48 fireBroadcastingChannel.addEventListener('message', async event => {
49   let data = event.data
50   //
51   * @typedef {Object<string, any>} Data
52   * @property {boolean} success - Whether the login was successful

```

Rendered Result (Right Pane):

The rendered form displays the following fields and controls:

- First Name: Madhumitha
- Last Name: G
- Username: Madhu1310
- Email: 211419106155@smartinternz
- Password: ****
- Phone number: 7896543456
- Gender: ☒ Female
- Buttons: SIGN UP, LOGIN
- Link: [Already have an Account? Login /](#)

The bottom of the image shows a Windows taskbar with the date 11-11-2022 and time 18:54.

| | |
|--------------|--|
| TEAM ID | PNT2022TMID07742 |
| PROJECT NAME | IOT based safety gadget for child safety monitoring and notification |
| TEAM MEMBERS | Uma Makesan.A
Mugundhan.M
Keerthivasan.U
Prakash.A |

DELIVERY OF SPRINT 2

Creating IBM Cloud Service and IBM WATSON IoT PLATFORM:

```
temp humid.py - C:/Users/GOWTHAMAN/OneDrive/Documents/temp humid.py (3.7.0)
File Edit Format Run Options Window Help

import time
import sys
import ibmiotf.application
import ibmiotf.device
import random

#Provide your IBM Watson Device Credentials
organization = "0pycss"
deviceType = "weather_Device1"
deviceId = "weather_deviceid"
authMethod = "token"
authToken = "(j!jK*nhv90KQd9!dJ"
#api key (a-illzal-mbdxq6z0s)
#api token (zSYzISuANF&F_X7gkT)
try:
    deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-method": authMethod}
    deviceCli = ibmiotf.device.Client(deviceOptions)
    #.....
except Exception as e:
    print("Caught exception connecting device: %s" % str(e))
    sys.exit()
# Connect and send a datapoint "hello" with value "world" into the cloud as an event

print("POWER ON ")
print("CHECKING CONNECTION TO IBM WATSON...")
time.sleep(2)
deviceCli.connect()
print("dear user ... welcome to IBM-IOT ")
print("You can know your child's live location and temperature ")
name=input("enter your child name:")
while True:

    temperature=random.randint(20,50)#random temperature for your child
    latitude=random.uniform(10.781377,10.78643)#random latitude for your child
    longitude=random.uniform(79.129113,79.134014)#random longitude for your child
    a="Child inside the geofence"
    b=" Child outside the geofence"
    c="High temperature"
    d="Low temperature"
    x={"your_child_Zone":a}
    y={"your_child_Zone":b}
    z={"temp_condition":c}
    w={"temp_condition":d}

    data = { 'temp' : temperature, 'lat': latitude, 'lon':longitude, 'name':name }
```

```
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:06:47) [MSC v.1914 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/GOWTHAMAN/OneDrive/Documents/temp humid.py =====
POWER ON
CHECKING CONNECTION TO IBM WATSON...
dear user ... welcome to IBM-IOT 2022-11-12 11:29:13,466 ibmiotf.device.Client
INFO Connected successfully: d:0pycss:weather_Device1:weather_deviceid

You can know your child's live location and temperature
enter your child name: MADHU
({'your_child_Zone': 'Child inside the geofence'})Published Temperature = 27 C
latitude = 10.784974615744863 %
longitude = 79.1316217625215 % to IBM Watson

Published Temperature = 27 C latitude = 10.784974615744863 % longitude = 79.1316217625215 % to IBM Watson

({'your_child_Zone': ' Child outside the geofence'})Published Temperature = 47 C
latitude = 10.785885682265294 %
longitude = 79.12934190828224 % to IBM Watson

({'temp_condition': 'High temperature'})Published Temperature = 47 C
latitude = 10.785885682265294 %
longitude = 79.12934190828224 % to IBM Watson

Ln: 56 Col: 0
```

Creating and Connecting IBM cloud for Project and Python Code

Node-RED : node-red-igby-20: x IBM Watson IoT Platform x +

https://0pycss.internetofthings.ibmcloud.com/dashboard/devices/browse

IBM Watson IoT Platform contactmadhu1310@gmail.com ID: 0pycss

Browse Action Device Types Interfaces Add Device +

| Device | Status | Device Name | Type | Last Seen |
|------------------|--------------|-----------------|--------|----------------------|
| weather_device | Disconnected | weather_today | Device | Nov 11, 2022 9:30 PM |
| weather_deviceid | Connected | weather_Device1 | Device | Nov 11, 2022 9:34 PM |

Identity Device Information Recent Events State Logs

The recent events listed show the live stream of data that is coming and going from this device.

| Event | Value | Format | Last Received |
|-----------------|--|--------|-------------------|
| IoTSensorgrp... | {"temp_condition": "Low temperature"} | json | a few seconds ago |
| IoTSensorgrp... | {"your_child_Zone": "Child outside the geofence"} | json | a few seconds ago |
| IoTSensorgrp... | {"temp": 30, "lat": 10.785361477535123, "lon": 79... | json | a few seconds ago |
| IoTSensorgrp... | {"temp_condition": "Low temperature"} | json | a few seconds ago |
| IoTSensorgrp... | {"your_child_Zone": "Child inside the geofence"} | json | a few seconds ago |

Items per page 50 1-3 of 3 items 1 of 1 page

```

import

timeimport

sys

importibmiotf.application

import ibmiotf.device import

random

#Provide your IBM WatsonDevice Credentialsorganization =

"0pycss"

deviceType = "weather_Device1"

deviceId= "weather_deviceid"

authMethod = "token"


authToken = "(j!jK*nvh9OKQD9!dJ"

#api key {a-illza1-mbdxqo6z0s} #api

token {zSYzISuAWF&F_x7GkT}try:

    deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-method":authMethod,
"auth-token": authToken}

    deviceCli = ibmiotf.device.Client(deviceOptions)

#.....

except Exceptions e:

    print("Caughtexception connecting device:%s" %

```

```
str(e))sys.exit()
```

```
# Connect and send a data point "hello" with value "world" into the cloud as an event of type
```

```
print("POWERON ")
```

```
print("CHECKING CONNECTION TO IBM WATSON. ")
```

```
time.sleep(2)
```

```
deviceCli.connect()
```

```
print("dear user.....welcome to IBM-IOT ")
```

```
print("You can know your child's live location and temperature")name=str(input("enter  
your child name:"))
```

```
while True:
```

```
temperature=random.randint(20,50)#random temperature for your child
```

```
latitude=random.uniform(10.781377,10.78643)#random latitude for your child
```

```
longitude=random.uniform(79.129113,79.134014)#random longitudefor your childa="Child
```

```
insidethe geofence"
```

```
b=" Child outside the geofence"
```

```
c="High temperature"
```

```
d="Low temperature"
```

```
x={'your_child_Zone':a}
```

```
y={'your_child_Zone':b}
```

```
z={'temp_condition':c}
```

```
w={'temp_condition':d}
```

```
data = { 'temp': temperature, 'lat':latitude,'lon':longitude,'name':name}#printdata
```

```
def myOnPublishCallback():
```

```
    print ("Published Temperature = %s C"% temperature, "latitude = %s %%"% latitude,"longitude =  
    %s %%" % longitude,"to IBM Watson")
```

```
    print("\n")
```

```
    success = deviceCli.publishEvent("IoTSensorgpsdata", "json", data, qos=0,  
    on_publish=myOnPublishCallback)
```

```
    if latitude>=10.78200 and latitude<=10.786000 and longitude >=79.130000 andlongitude  
    <=79.133000:
```

```
        deviceCli.publishEvent("IoTSensorgpsdata","json",data=x,qos=0,on_publish=myOnPublis hCallback)print(x)
```

```
        print("\n
```

```
"
```

```
else:
```

```
deviceCli.publishEvent("IoTSensorgpsdata","json",data=y,qos=0,on_publish=myOnPublishCallback)print(y)
```

```
print("\n
```

```
"
```

```
if (temperature>35):
```

```
deviceCli.publishEvent("IoTSensorgpsdata","json",data=z,qos=0,on_publish=myOnPublishCallback)print(z)
```

```
print("\n
```

```
"
```

```
else:
```

```
deviceCli.publishEvent("IoTSensorgpsdata","json",data=w,qos=0,on_publish=myOnPublishCallback)
```

```
print(w)
```

```
print("\n
```

```
")
```

```
if not success:
```

```
    print("Not connected to IoTF")
```

```
    print("\n")
```

```
time.sleep(3)
```

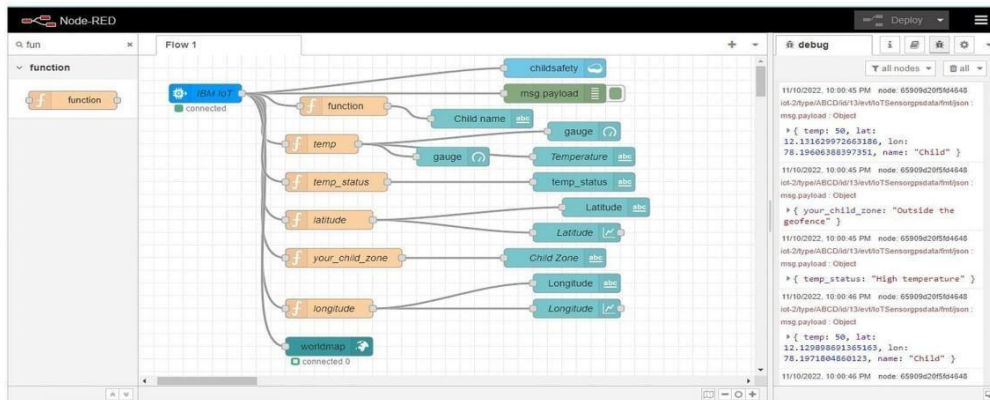
```
# Disconnect the device and application from the
```

```
clouddeviceCli.disconnect()
```

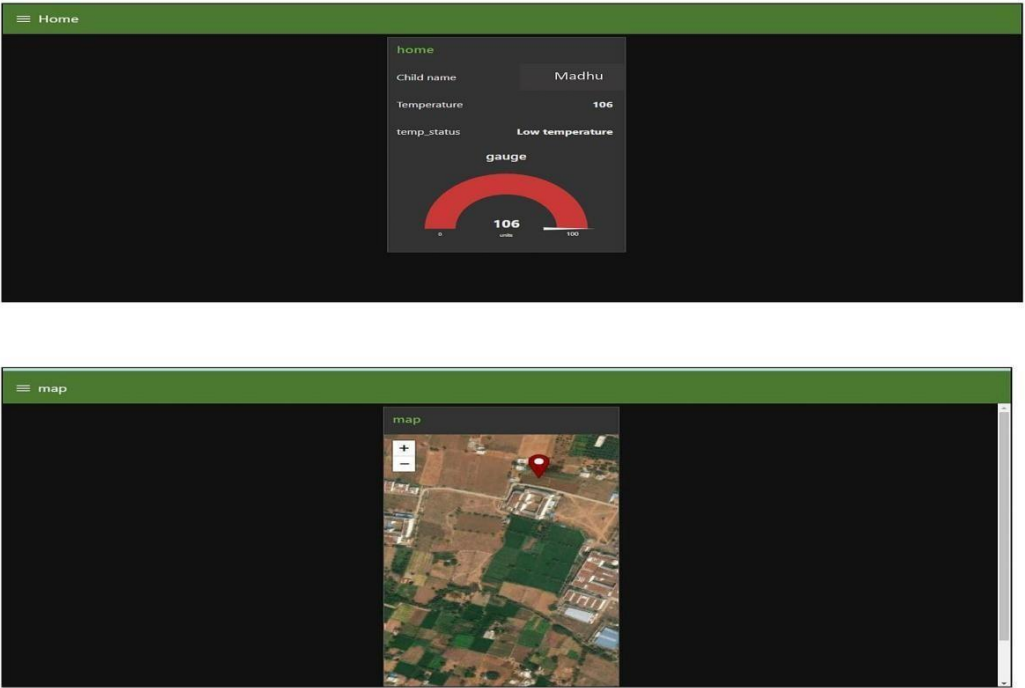
The screenshot shows the IBM Watson IoT Platform dashboard. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. The main content area displays details for a device named 'weather_device', which is currently 'Connected'. Below this, there is a table of recent events. The table has columns for 'Event', 'Value', 'Format', and 'Last Received'. The events listed are related to temperature conditions and child geofence status.

| Event | Value | Format | Last Received |
|----------------|--|--------|-------------------|
| IoTSensorgp... | {"temp_condition": "Low temperature"} | json | a few seconds ago |
| IoTSensorgp... | {"your_child_zone": "Child outside the geofence"} | json | a few seconds ago |
| IoTSensorgp... | {"temp": 30, "lat": 10.785361477535123, "lon": 79... | json | a few seconds ago |
| IoTSensorgp... | {"temp_condition": "Low temperature"} | json | a few seconds ago |
| IoTSensorgp... | {"your_child_zone": "Child inside the geofence"} | json | a few seconds ago |

NODE RED CONNECTIONS:



NODE-RED OUPUT:



RESULTS:

The image shows a Windows desktop with two terminal windows. The left window displays a Python script named `temphumid.py` (line 17.17). The script imports `time`, `sys`, `ibmiotf.application`, `ibmiotf.device`, and `random`. It defines IBM Watson credentials and a device configuration. The script uses `ibmiotf.device.Client` to connect to the Watson IoT platform. It then enters a loop where it generates random temperature and location data and sends it to the cloud using `deviceCli.publish`. The right window shows the output of the script, including a restart message, connection status, and the data points being sent to the cloud. The output shows a successful connection and the transmission of temperature data points.

```
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help

Python 3.7.0 (tags/v3.7.0:1bf9cc5093, Jun 27 2018, 04:06:47) [MSC v.1914 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
----- RESTART: C:/Users/GOWTHAMAN/OneDrive/Documents/temphumid.py -----
POWER ON
CHECKING CONNECTION TO IBM WATSON...
dear user ... welcome to IBM-IOT 2022-11-12 11:29:13.466  ibmiotf.device.Client
INFO    Connected successfully: d:\pycas\weather_device\weather_deviceid

You can know your child's live location and temperature
enter your child name: MADHU
('your_child_zone': 'Child inside the geofence')Published Temperature = 27 C

latitude = 10.784974615744863 N
longitude = 79.1316217625215 E to IBM Watson

('temp_condition': 'Low temperature')Published Temperature = 27 C

latitude = 10.784974615744863 N
longitude = 79.1316217625215 E to IBM Watson

Published Temperature = 27 C latitude = 10.784974615744863 N longitude = 79.1316217625215 E to IBM Watson

('your_child_zone': 'Child outside the geofence')Published Temperature = 47 C

latitude = 10.785085682265294 N
longitude = 79.129341908282224 E to IBM Watson

('temp_condition': 'High temperature')Published Temperature = 47 C

latitude = 10.785085682265294 N
longitude = 79.129341908282224 E to IBM Watson

data = { 'temp': temperature, 'lat': latitude, 'lon': longitude, 'name': name }
```

Node-RED: node-red-igby-20 IBM Watson IoT Platform

https://0pccs.internetofthings.ibmcloud.com/dashboard/devices/browse

contactmadhu1310@gmail.com ID: 0pccs

IBM Watson IoT Platform

Browse Action Device Types Interfaces

Add Device

weather_device Disconnected weather_today Device Nov 11, 2022 9:30 PM

weather_deviceid Connected weather_Device1 Device Nov 11, 2022 9:34 PM

Identity Device Information Recent Events State Logs

The recent events listed show the live stream of data that is coming and going from this device.

| Event | Value | Format | Last Received |
|----------------|---|--------|-------------------|
| IoTSensorgp... | {"temp_condition": "Low temperature"} | json | a few seconds ago |
| IoTSensorgp... | {"your_child_Zone": "Child outside the geofence"} | json | a few seconds ago |
| IoTSensorgp... | {"temp": -30, "lat": 10.785361477535123, "lon": 79... | json | a few seconds ago |
| IoTSensorgp... | {"temp_condition": "Low temperature"} | json | a few seconds ago |
| IoTSensorgp... | {"your_child_Zone": "Child inside the geofence"} | json | a few seconds ago |

Items per page 50 | 1-3 of 3 items

1 of 1 page

27°C Raining now

Search

ENG IN

11:30 12-11-2022

Home

latitude

100 75 50 25 0

15:31:31 15:31:51 15:32:11

longitude 79.13214936602644

longitude

100 75 50 25 0

15:27:00 15:29:00 15:31:00 15:33:00

temperature

25

0 25 50 75 100

28°C Rain off and on

Search

ENG IN

15:32 12-11-2022

The screenshot shows a web browser window displaying a Node-RED dashboard. The browser's address bar shows the URL: `node-red-igby-2022-11-09.eu.g0.myluemi.net/u/#/0?socketId=5KWmUPGwW2NuGUKAAAF`. The dashboard has a blue header bar with the text "Home".

The main content area is divided into two columns. The left column contains two line graphs. The top graph is titled "longitude" and has a y-axis labeled "latitude" ranging from 0 to 100. The x-axis shows time from 11:29:00 to 11:48:00. A data point is plotted at approximately 10.783406548304898. The bottom graph is also titled "longitude" and has a y-axis labeled "longitude" ranging from 0 to 100. The x-axis shows time from 11:29:00 to 11:48:00. A data point is plotted at approximately 79.13144114747048.

The right column contains a map titled "location". The map shows a street view of a city, with a red location pin placed on a street. The map includes labels for "Thangpou", "Thangpou", "Thangpou", and "Thangpou".

At the bottom of the dashboard, there are two text input fields labeled "your_child_zone" and "text".

The Windows taskbar is visible at the bottom of the screen, showing the time as 11:47 and the date as 13-11-2022. The taskbar includes icons for various applications, including the Start menu, Search, and several open windows.

1:23 PM | 2.7KB/s  

 Vo WiFi   37

Screen1

child safety monitoring

Temperature

98

ADVANTAGES:

- Easy availability and affordability
- Tracking is easy
- Watch your kids
- Guarantees piece of minds to caretakers.

Conclusion

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.

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 LilyPad. It is possible to develop a more energy-efficient type that can keep the battery for a longer period of time.

APPENDIX:

Github: <https://github.com/IBM-EPBL/IBM-Project-33313-1660218666>

project demo link: <https://youtu.be/uLwiguip4Dg>