

IoT Based Safety Gadget for Child Safety Monitoring & Notification

PROJECT REPORT

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V.S.B ENGINEERING COLLEGE, KARUR

(Approved by AICTE & Affiliated by Anna University, Chennai)



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Certified that this **IBM NALAIYATHIRAN** Project report titled “**IoT Based Safety Gadget for Child Safety Monitoring & Notification**” is the bonafide record work by **DIWAKAR S (922519104039)**, **DINESHBABU P (922519104035)**, **DHASARATH KP (922519104033)** and **ASHOK BHARATHI K (922519104018)** for **IBM-NALAIYATHIRAN** in **VII** semester of **B.E.**, degree course in **Computer Science and Engineering** branch during the academic year of 2022-2023

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Project Report

1. INTRODUCTION

Basically, children cannot complain about abusements which they face in their daily life to their parents. They can't even realize what actually happens to them at their age. It is also difficult for parents to identify their children are being abused. Since to prevent children before being attacked, an autonomous real-time monitoring system is necessary for every child out there. In this system, the collected values from every sensor like temperature sensor, pulse rate detection sensor, metal detection sensor, and the location value from GPS are used to detect the status of the child and alerts the respective guardians using GSM accordingly. Among the enormous applications enabled by the IOT(Internet of Things), smart and secure monitoring system is a particularly important one. IOT is getting upgrading day by day simultaneously its security is also important. As IOT is the vast concept it includes many types of subtopics in which we are working on the small project named as "Smart and Secure IOT Based Child Monitoring System". Main motive of this project is to solve the problems of baby guardian and also secure the baby from entering the danger zone. As soon as the baby enters the danger zone the guardian will be notified through the various methods either by SMS system or via the warning buzzers. Warning buzzers are also bifurcated in three types according to the danger faced by the baby. Warning buzzers are also of different colored LED's. When the baby is near the danger zone it will alert the guardian by blinking with red LED and if the baby is far away from the danger zone then yellow LED will blink similarly when baby is in intermediate of the danger zone green LED will specify the guardian. This project includes radar sensors, Wi-Fi module, image processing, temperature sensors and display device. For operating purpose we are connecting our device to the baby and alerts as well as notifications will be given to the guardians display device.

1.1 Project Overview

The Internet of Things (IoT) plays a major role in everyday life. The major difference between IoT and embedded systems is that a dedicated protocol/software is embedded in the chip in case of embedded system, whereas, IoT devices are smart devices, which are able to take decisions by sensing the environment around the device. The development of sensor technology, availability of internet connected devices; data analysis algorithms make IoT devices act smart in emergency situations without human interventions. So, IoT devices are applied in different fields such as agriculture, medical, industrial, security and communication applications. IoT systems are useful within a system to do deeper automation, analysis, and integration. IoT contributes to technology by advances in software, hardware and modern tools. It even uses existing and upcoming technology in the fields of sensing, networking and robotics. IoT brings global changes by its advanced elements in the social, economic, and political impact of the users. Child and women safety is a challenging problem nowadays due to antisocial elements in the society. The crime rate is increasing day by

day. Schools and working places need high surveillance for ensuring the safety of children and women. Smartphones are playing a major role for ensuring safety, where some mobile based applications provide alert systems. During the emergency, mobile apps alert the control room of nearby police stations or caretakers of children. The literature shows that location tracking devices are available in the market, but it does not provide the complete solution to the problem. The solution to this problem is to design an IoT device, which senses the child's location and environment and during an emergency, it should send the alert to the parents automatically. - IOT is getting upgraded day by day simultaneously its security is also upgraded. In this proposed system, we are mainly focusing on child remote monitoring system also we are using the radar devices as well as obstacle sensors which will detect the alert when the child enters the danger zone or else he/she is approaching towards harmful object then alert will be given to the caretaker through the mobile using an alarm or notification. For sensing purpose we are using Waterproof Ultrasonic Obstacle Sensor which are placed in the simple locket that is given to the baby so that locket will give alert to the caretaker through the mobile and for battery backup we are using solar panel through which the energy will get stored in the caretaker's shoes and this energy will be dependent on the steps covered by the caretaker. In this proposed system a general method for rapid peak detection is used for depth/height measurement. First, the signals curve is equal divided and maximum and minima values in each segmentation are collected. The repeated maximum and minima values are removed and all fake peaks are merged in the case of ensuring true peaks remained. Experimental results showed that: compared with traditional methods, the proposed method is more accurate and faster in peak detection, and suitable for a variety of waveforms.

1.2 Purpose

Gadgets aren't all bad and full of violent games to waste your child's time. In fact, a lot of them can really help your child with homework and other aspects of education. For example, there are musical apps to help your child to read notes, learn musical terms and practise better. Mathematics apps will test your child's arithmetic in a fun and colourful way, and e-readers and programs such as iBooks will encourage your child to read more and to become a faster reader. If you use the gadgets properly, they can be a good aid in teaching your child some responsibility. In order to do this, you need to tell your child that he can use them for fun if he behaves well all week. You could even take it a step further and have a reward chart. For every five stars he receives on the chart, he is allowed another half an hour of watching the television or playing on his iPad. Whatever you do, don't freely give your child the gadgets all the time, since this will only teach him that it's easy to get whatever he wants and he doesn't have to do well in something in order to get what he wants. You could also encourage him to work harder at school with the promise of the latest tablet or smartphone at Christmas if he achieves the results he's aiming for. The child safety gadget system acts as a smart device. Child's surroundings can be located with the help of accurate and precise real-time location. Surrounding environment temperature, SOS light along with Distress buzzers are provided in this system. This helps in locating their child.

2.LITERATURE SURVEY

The Author describes [1] the present era with equal rights, where both men and women are taking equal responsibility in their respective works. Hence women are given equal competition next to men in all fields, they are assigned works in both the even and odd shifts. Every single day women and young girls from all walks of life are being assaulted, molested, and raped. The streets, public transport, public spaces in particular have become the territory of the hunters. Because of these reasons women can't step out of their house. The only thought haunting in every woman's mind is when they will be able to move freely on the streets even in odd hours without worrying about their security. In critical situations the women will not feel insecure or helpless if they have some kind of safety device with them.

The Author describes[2] IoT devices serve as possible entry points for attackers to breach a company's network, which is why robust security measures are needed to protect them. Today, IoT's scope has expanded to include traditional industrial machines and has equipped them with the ability to connect and communicate with a network. You can find IoT technologies being used for various purposes like medical devices, education, business development, communications, and so on. Before we dive deeper into understanding IoT security, let's shine some light on IoT devices.

The Author describes[3] a recent GSMA intelligence survey that revealed that ninety-eight percent of enterprises want an end-to-end security solution that protects data integrity and confidentiality from IoT devices where data is collected, to the cloud where it is stored and processed. Seventy-two percent of enterprises consider device-to-cloud security as a very important feature when selecting a solution. The most common method of protecting data from devices to the cloud is Transport Layer Security (TLS), or Datagram Transport Layer Security (DTLS2). This is especially true of IoT devices. Often the credentials needed to establish this TLS layer are stored in insecure locations in the IoT device. Credentials for access to mobile networks have, on the other hand, been securely stored in tamper-resistant hardware since the inception of GSM networks and SIM cards in the 1990s.

The Author describes[4]Human safety has become one of the most targeted fields for the researchers, owing to its grave importance and the increased competition in the market for human safety gadgets. Hundreds and thousands of human safety devices (HSD) are being developed because of the rapid advancement in the field of Internet of things (IoT) that involve sensing technologies, embedded systems, wireless communication technologies, a variety of sensors etc. An essential function of these devices is human activity recognition (HAR). Present human safety devices continuously track human activities with the help of sensors and track down any unusual activity by performing sensor data analysis (SDA)using machine learning (ML) algorithms. This paper aims at reviewing the latest reported systems for human safety and listing down the various sensors that can be used in human safety devices to detect unusual activities along with the machine learning algorithms that are used for the sensor data analysis.

2.1 Existing problem

Nowadays, the crime rate associated with children keeps increasing due to which draw people attention regarding child safety. This research is conducted to propose a child security smart band utilizing IoT technology. Online questionnaires and semi-structured interviews are methodologies used to collect data. The online questionnaire gains feedback by sending questions electronically, where answers need to be submitted online. In the semi structured interview, researchers meet and ask respondents some predetermined questions while others being asked are not planned in advanced. Through information obtained, a smart band has been proposed to monitor the safety of children. By this, parents know what is happening remotely and can take actions if something goes wrong. The future improvements of this device will be adding functions and software to make it work like a phone such as messaging, gallery, Google, YouTube, meanwhile, adding more child security features so that child safety is guaranteed.

2.2 References

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- 2.Gandhi, Usha Devi, et al. "HloTPOT: surveillance on IoT devices against recent threats." Wireless personal communications 103.2 (2018): 1179-1194.
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2.3 Problem Statement Definition

The main benefit of this gadget compared to other gadget is that it can be used in any of smart mobile phones and does not need a very costly mobile phone and not a highly technical human. The main idea of this gadget safety system is to aid the parents in finding their child very easily. In the current scenario, there are lot of gadget that monitors the routine behavior and activities of children and also help to find the child using Wireless Fidelity (Wi-Fi) and Bluetooth services that are available on the device. But both of them seems to be an unsecured communication in between the parent and the child. Therefore, the objective of this paper is SMS (Short message service) text enabled link in between the child's gadget and

the respective parent .The main idea for achieving this is Global System of Mobile Communication (GSM). The parent has to send a text message in the form of SMS using words like “Temperature”, “SOS”, “Location”, “Buzz” etc., to the gadget system.

The gadget device sends an acknowledgement in the form of a text showing the location of the child and will provide the atmospheric temperature, so that the parents can have a track if the temperature does not suit the child. The next measure that can be taken is by using a SOS Light that is bright. Distress alarm buzzer present on the gadget device can also be activated by the parents through SMS text to display the SOS signal very clearly and rings an alarm which the nearby public can immediately react to the safety of the child till the parents come or they can try to reach he parents and assist in locating the child



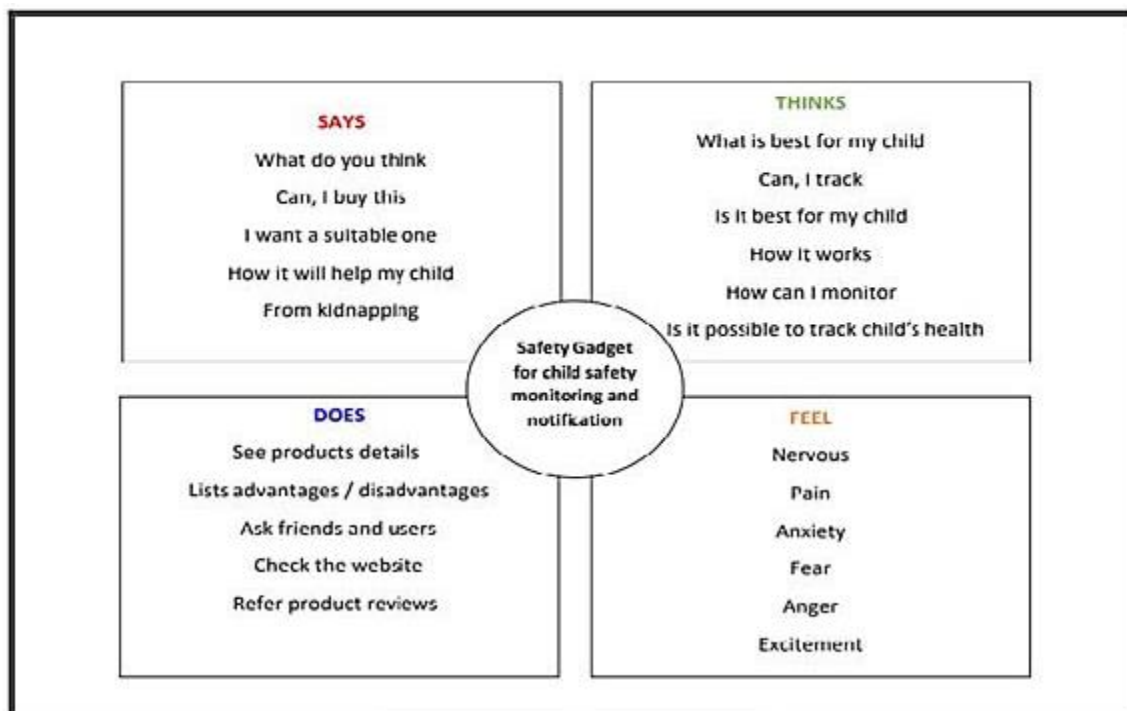
Problem Statement (PS)	I am(Customer)	I’m trying to	But	Because	Which makes me feel
PS-1	Parent	Track and Monitoring	It is Difficult to monitor	It shows only the location but it does not monitor	Scared
PS-2	Parent	Track and Monitoring	It is difficult to find location	It shows only the approximate location	Feared

3. IDEATION & PROPOSED SOLUTION

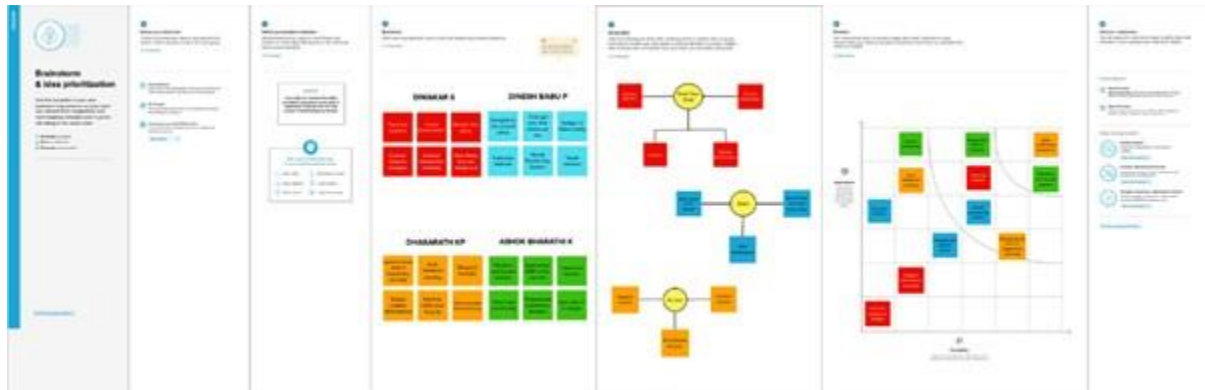
It consists of inbuilt Wi-Fi, GSM, GPS and Bluetooth modules. The link it one board is similar to the Arduino board and it is termed as all-in-one prototyping board for

safety and IoT devices. The link it one is a robust development board for the hardware and also used for industrial applications. Different components such as temperature sensor, heartbeat sensor, panic button, contact switch are connected to the link it ONE board along with built in GSM, GPS modules. Safety gadget consists of BEACON and BLE packet is transmitted through it, this packet is received by binding gadget which has BLE receiver module, the packet usually contains information such as identification number, signal strength etc. Temperature is one of the most commonly measured variables. For measuring body temperature of the child DS18B20 temperature sensor is used. The heartbeat sensor is used in the proposed system for measuring the pulse rate. There is a heartbeat/pulse sensor which is combined to simple optical heart rate sensor with amplification and nullification circuitry making it is fast and easy to get reliable pulse reading. The GSM/GPRS block is activated with a SIM card on the board. They mainly differ based on bandwidth and RF carrier frequency. GSM network consists of mobile station, base station subsystem network and operation subsystem. The GPS module is provided for identifying the location of the child. GPS module receives the signals from satellites. The latitude and longitude of the location can be identified by the GPS module. The device sends the monitored parameters data such as temperature and pulse rate to cloud. If any abnormalities occurs in temperature or pulse rate readings, a SMS and call triggers to the parent/caretaker mobile phone immediately and also updated to the mobile app only for the registries mobile no. We can use mobile application, cloud and database as the back end of storing and retrieving information and also a device for monitoring.

3.1 Empathy Map Canvas



3.2 Ideation & Brainstorming



3.3 Proposed Solution

S.No.	Parameter	Description
1	Problem Statement (Problem to be solved)	Nowadays, the crime rate associated with children keeps increasing due to which draws people's attention regarding child safety. This research is conducted to propose a child security smart band utilizing IoT technology. A smart band has been proposed to monitor the safety of children. By this, parents know what is happening remotely and can take actions if something goes wrong.
2	Idea / Solution description	The future improvements of this device will be adding functions and software to make it work like a phone such as messaging, gallery, Google, YouTube, meanwhile, adding more child security features so that child safety is guaranteed. 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.

3	Novelty / Uniqueness	<p>provides a tracking solution for the parent to keep tracking their child's location outdoors by using GPS as it allows them to determine the exact location of the child. It, therefore, helps to minimize this tragedy to</p> <p>reoccur in the future. Our main contribution is to preserve the privacy of an end-user while enhancing the accuracy of the child's location to 3 m.</p>
4	Social Impact / Customer Satisfaction	Monitoring customer satisfaction allows early identification of problems relating to the quality, performance and functionality of the product or services and unmet customer expectations.
5	Business Model (Revenue Model)	The revenue model helps to find children by tracking and monitoring by parents(customer) strategies such as to track the location, environmental situation and some response from the child by sensors and Therefore adding additional features by customer feedback. According to that, the revenue will be decided.
6	Scalability of the Solution	<p>The security requirements of a child-care and safety service and establish a conceptual model satisfying the requirements. Based on the system model, we propose a privacy-preserving location supporting protocol for a child-care and safety service using wireless sensor networks.</p> <p>While addressing the above problems, our protocol can be operated over various networks (e.g., Wi-Fi and UWB) providing an RSSI (received signal strength indication) without any modification. Through performance and security analysis of our protocol, we show that our protocol is efficient and secure. More precisely, our protocol reduces the computation and communication overhead of the existing infrastructures to support better scalability.</p>

3.4 Problem Solution fit



Following are the functional requirements of the proposed solution.

FR No	Functional Requirements	Description
FR-1	Notification System	Parents want to be notified when their child is too faraway from them.
FR-2	Secure personal information/Privacy	Encryption of data,Any personal data should be deleted as soon as the child is found by theparents;alternatively interviewees suggested data maybe stored for upto 24h
FR-3	Local Ranging/Positioning	GPS is a common and available technology; however itisunreliable and should not be expected to work forindoor applications.
FR-4	VoiceNavigation	Interviewees prefer to be guided by either voice or map navigation. Generally a map was preferredhowever two users preferred a car-like voicenavigation.

FR-5	Variable Sensitivity	The device should be attractive to the child (colourful design). Alternatively the device should be embedded in clothing or somehow locked
FR-6	Early Alarm	The alarm sensitivity should be adjusted by the parent; this is preferred to a fixed alarm sensitivity setting.

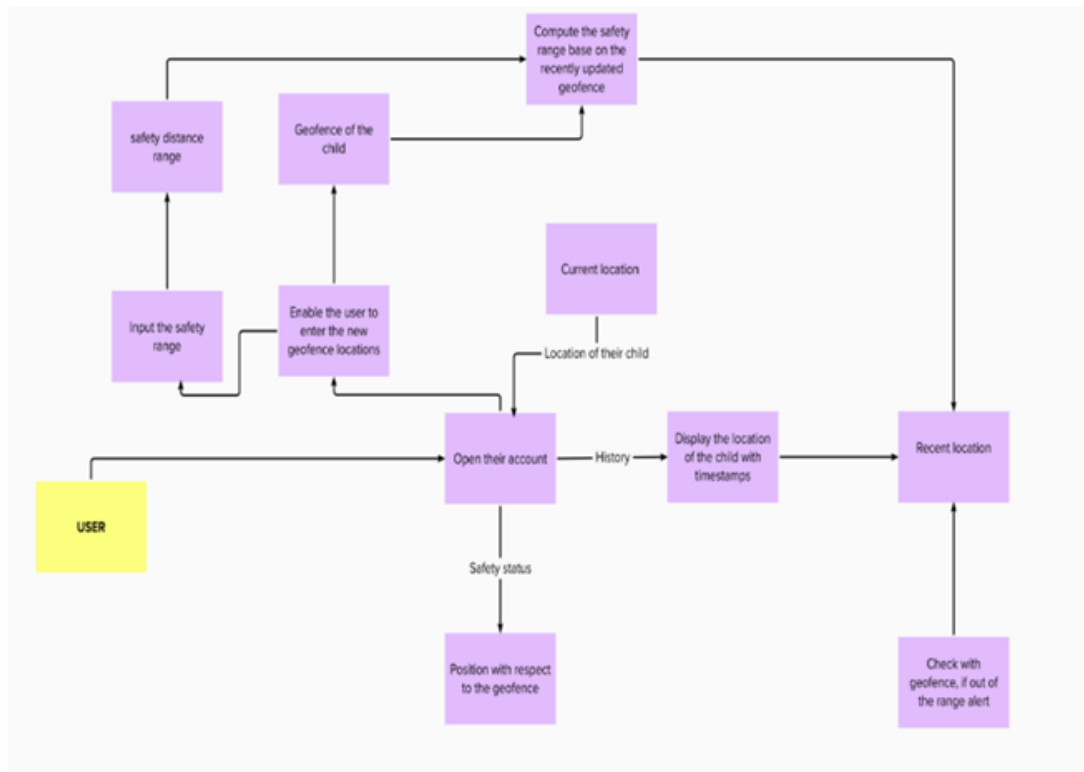
4.2 Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	How easy is it for a customer to use the system?
NFR-2	Security	How well are the system and its data protected against attacks?
NFR-3	Reliability	How often does the system experience critical failure? eg: the system must perform without failure in 95 percent of use case
NFR-4	Performance	How fast does the system return results?
NFR-5	Availability	How is the user availability time compared to downtime?

5. PROJECT DESIGN

5.1 Data Flow Diagrams



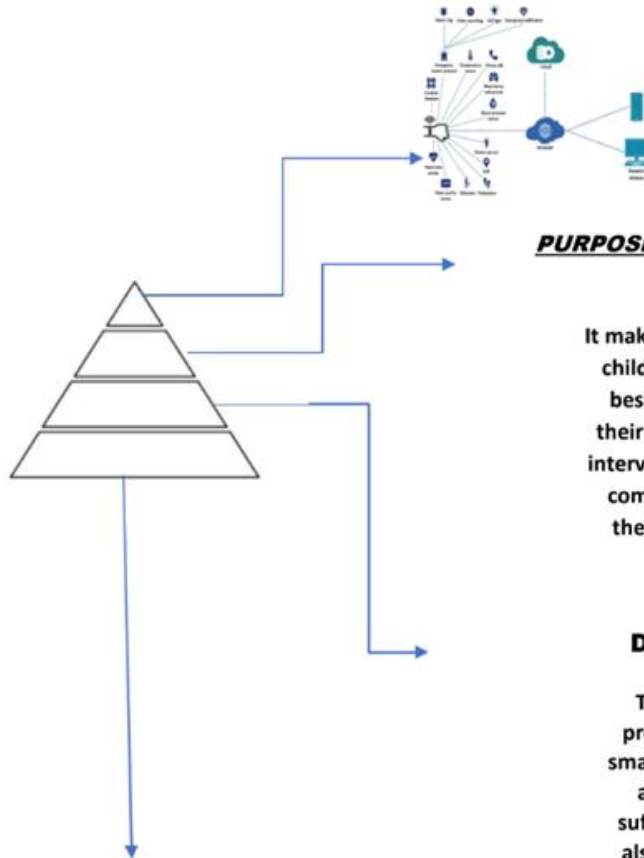
5.2 Solution & Technical Architecture

In our system, we automatically monitor the child in real time using

Internet of Things, with the help of GPS, GSM, and Raspberry Pi. This system requires network connectivity, satellite communication, and high-speed data connection when we use a web camera and GPS to monitor. A portable device which will have a pressure switch. As soon as an assailant is about to attack the person or when the person senses any insecurity from a stranger, he/she can then put pressure on the device by squeezing or compressing it. Instantly the pressure sensor senses this pressure and a conventional SMS, with the victim's location will be sent to their parents/guardian cell phone numbers stored in the device while purchasing it, followed by a call. If the call is unanswered for a prolonged time, a call will be redirected to the police and the same message will be sent. Additionally, if the person crosses some area which is usually not accessed by the person then a message with the real-time location is sent to the parent/guardian's phone via conventional SMS.

In the existing system, we use a voice recognition module in which the alert commands from the child are stored and kept for

further reference. If the same child delivers the same command, it will compare with the alert command which was previously stored and sets an emergency level according to the alert command. If the temperature level exceeds the room temperature then the alert message will be sent using GSM to the specified users. The Pulse sensor is used to detect any abnormal feelings experienced by the child like fear, anxiety, nervousness, drowsiness and several other illnesses which manipulate the normal heart rate. The GSM has a SIM which is used to send an alert message or an alert call to the trusted peoples. GPS is used to track the live location and it is used when needed. The server will search the respective device ID from the database and search for respective contacts according to that device ID and help in alerting the registered guardians. The Temperature sensor is used to sense the surrounding temperature of the device. If the temperature level exceeds the room temperature then the alert message will be sent using GSM to the specified users. The Pulse sensor is used to detect any abnormal feelings experienced by the child like fear, anxiety, nervousness, drowsiness and several other illnesses which manipulate the normal heart rate. These values are used to alert the specified guardians through SMS using GSM. When the user receives these alert messages from that device, they can turn on the web camera placed in that device, with which they can visually monitor the status of that child through the live video stream.



PURPOSE OF CHILD MONITORING DEVICES

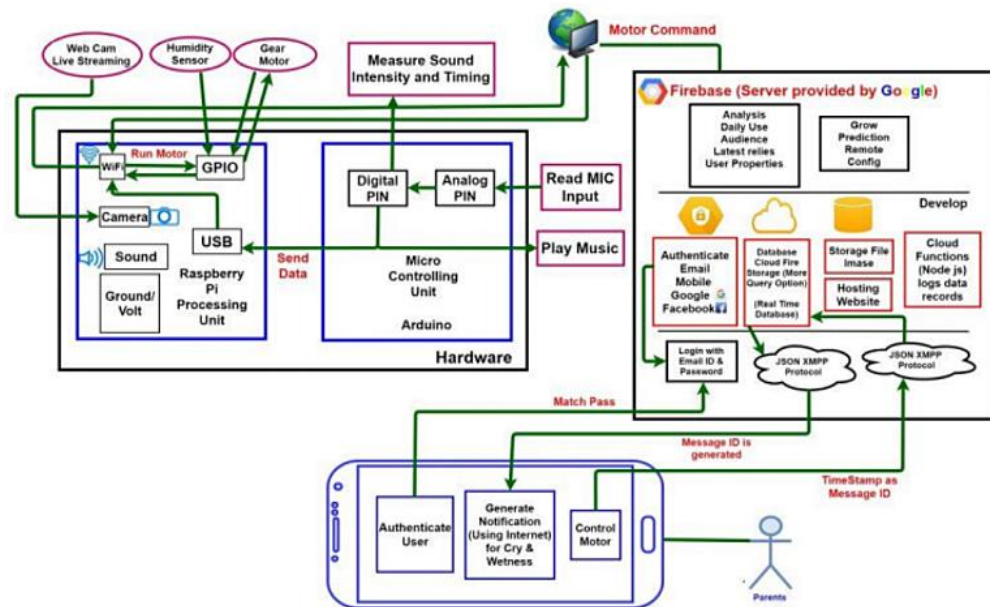
It makes parents to easily monitor their children in real time just like staying beside them as well as focusing on their own career without any manual intervention. Basically, children cannot complain about abusements which they face in their daily life to their parents.

DEVICE LIFETIME:

The device uses solar charging unit is proposed to overcome the limitation of small battery life so that the device will be always charged up. When there isn't sufficient solar energy battery back up is also available. This can be used for over long period without any limitations. The device can be used all the time unless any physical damage takes place.

FUNCTION:

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.



The server will search the respective device ID from the database and search for respective contacts according to that device ID and help in alerting the registered guardians. The Temperature sensor is used to sense the surrounding temperature of the device. If the temperature level exceeds the room temperature then the alert message will be sent using GSM to the specified users. The Pulse sensor is used to detect any abnormal feelings experienced by the child like fear, anxiety, nervousness, drowsiness and several other illnesses which manipulate the normal heart rate. These values are used to alert the specified guardians through SMS using GSM.

5.3 User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user) and (Web user)	Registration	USN-1	As a user, I can register my account by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered myself	I can receive confirmation Email & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the application through google account	I can register & access the dashboard with google account Login	High	Sprint-2
	Login	USN-4	As a user, I can log into the application by entering user id & password		High	Sprint-1
	Dashboard					
Customer Care Executive	Login		As I enter I can view the working of the application and scan for any glitches and monitor the operation and check if all the users are authorized	I can login only with my provided credentials	Medium	Sprint - 3
Administrator	Login		Maintaining and making sure the database containing the locations are secure and accurate and updated constantly.	I can login only with my provided credentials	High	Sprint - 3

6. PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	User Registration	USN-1	Registration through website Registration through app	2	High	Diwakar S Dineshababu P Dhasarath KP Ashokbharathi K

Sprint-1	User Confirmation	USN-2	Confirmation via Email Confirmation via OTP	1	High	Diwakar S Dineshbabu P Dhasarath KP Ashokbharathi K
Sprint-2	User login	USN-3	Setting up User Id and password	2	Low	Diwakar S Dineshbabu P Dhasarath KP Ashokbharathi K
Sprint-1	Interface with the Device	USN-5	Connecting the device with the registered app with the device ID.	1	High	Diwakar S Dineshbabu P Dhasarath KP Ashokbharathi K
Sprint-2	Setting Geo-location	USN-6	Creating the Geo-location area in the map	2	Low	Diwakar S Dineshbabu P Dhasarath KP Ashokbharathi K
Sprint-3	Database	USN-7	Location history is stored in the cloud. Can be accessed from the dashboard.	2	High	Diwakar S Dineshbabu P Dhasarath KP Ashokbharathi K
Sprint-4	Tracking location	USN-8	Tracking the location through app. Tracking the location through website.	2	High	Diwakar S Dineshbabu P Dhasarath KP Ashokbharathi K

Project Tracker, Velocity & Burndown Chart:

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	20	31 Oct 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	07 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	14 Nov 2022

6.2 Sprint Delivery Schedule

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.

Panic 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.

Stay Connected Feature:

Stay connected feature is used to trigger call and predefined 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.

Boundary monitoring system:

This is used to track the safety gadget using the binding gadget by implementing signal strength concept as soon as the safety gadget moves far away from the BLE listener gadget then an alert is provided to itself. Listener device and broad cast device

Alert SMS to Caretaker When Panic button is Pressed

A panic button is attached to Arduino; pushing the panic button causes Nano to retrieve the live GPS location using the GPS module via serial connection, process the GPS data, and communicate the live location coordinates to the caretaker by SMS using the GSM module. A call will also be made to the caretaker using an automated system.

Periodic Update of heart beat SpO2 and Temperature

A max30100 sensor is attached to Nano, which measures the user's heart rate and spo2 and provides data to Nano on a regular basis, after which the data is processed in the Nano. Nano uses the GSM module to deliver frequent updates to the caregiver via SMS.

Fall Detection and Alert

Nano is connected to an accelerometer, which sends acceleration values to the Nano. When the user falls, there will be a large spike in acceleration, which will be detected by the Nano. Nano will retrieve the live GPS location using the GPS module via serial communication, process the GPS data, and send the live location coordinates to the caretaker via SMS, indicating the possibility of the user falling. In addition, an automatic call will be made to the caretaker.

Temperature Sensor

It is used to determine the temperature of the child's immediate environment. To achieve average accuracies, the LM35 Sensor does not require any external trimming. The LM35 is temperature-calibrated directly in degrees Celsius (Centigrade). It can be directly connected to an Arduino. The output of the LM35 sensor can either be fed into a comparator circuit and used as a temperature controller, or it can be used as a temperature indicator by using a simple relay. The LM35 gadget runs between 4 and 30 volts and has a temperature range of 55°C to 150°C. It provides a 0.5°C precision guarantee (at 25°C), is low-cost due to wafer-level trimming, and has a current draw of less than 60 mA

6.3 Reports from JIRA:

Browser tabs: Inbox (1,551) - sdiwakar2804@j... IBM IBM-EPBL/IBM-Project-39928-1f... Iot Based Safety Gadget for Child Safety Monitoring and Notification

URL: pnt2022tmid33322.atlassian.net/jira/software/projects/IBSGFCSMA/boards/2/backlog

Jira Software | Your work | Projects | Filters | Dashboards | People | Apps | Create

Search: [Search]

IBSGFCSMA Software project

PLANNING

- Roadmap
- Backlog
- Board

DEVELOPMENT

- Code
- Project pages
- Add shortcut
- Project settings

You're in a team-managed project. Learn more

Projects / Iot Based Safety Gadget for Child Safety Monitoring and Notification

Backlog

IBSGFCSMA Sprint 1 24 Oct - 29 Oct (4 issues)

IBSGFCSMA-16 User Registration	REVIEW	DS
IBSGFCSMA-17 User Confirmation	REVIEW	AK
IBSGFCSMA-18 App permission	REVIEW	DK
IBSGFCSMA-19 Interface with the device	REVIEW	DP

+ Create issue

IBSGFCSMA Sprint 2 31 Oct - 5 Nov (2 issues)

IBSGFCSMA-20 User login	REVIEW	DS
IBSGFCSMA-21 Setting Geo-location	REVIEW	DP

+ Create issue

23°C Mostly sunny

Browser tabs: Inbox (1,551) - sdiwakar2804@j... IBM IBM-EPBL/IBM-Project-39928-1f... Iot Based Safety Gadget for Child Safety Monitoring and Notification

URL: pnt2022tmid33322.atlassian.net/jira/software/projects/IBSGFCSMA/boards/2/backlog

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IBSGFCSMA Software project

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Backlog

IBSGFCSMA Sprint 3 7 Nov - 12 Nov (1 issue)

IBSGFCSMA-22 Database	REVIEW	AK
-----------------------	--------	----

+ Create issue

IBSGFCSMA Sprint 4 14 Nov - 19 Nov (1 issue)

IBSGFCSMA-23 Tracking location	REVIEW	DK
--------------------------------	--------	----

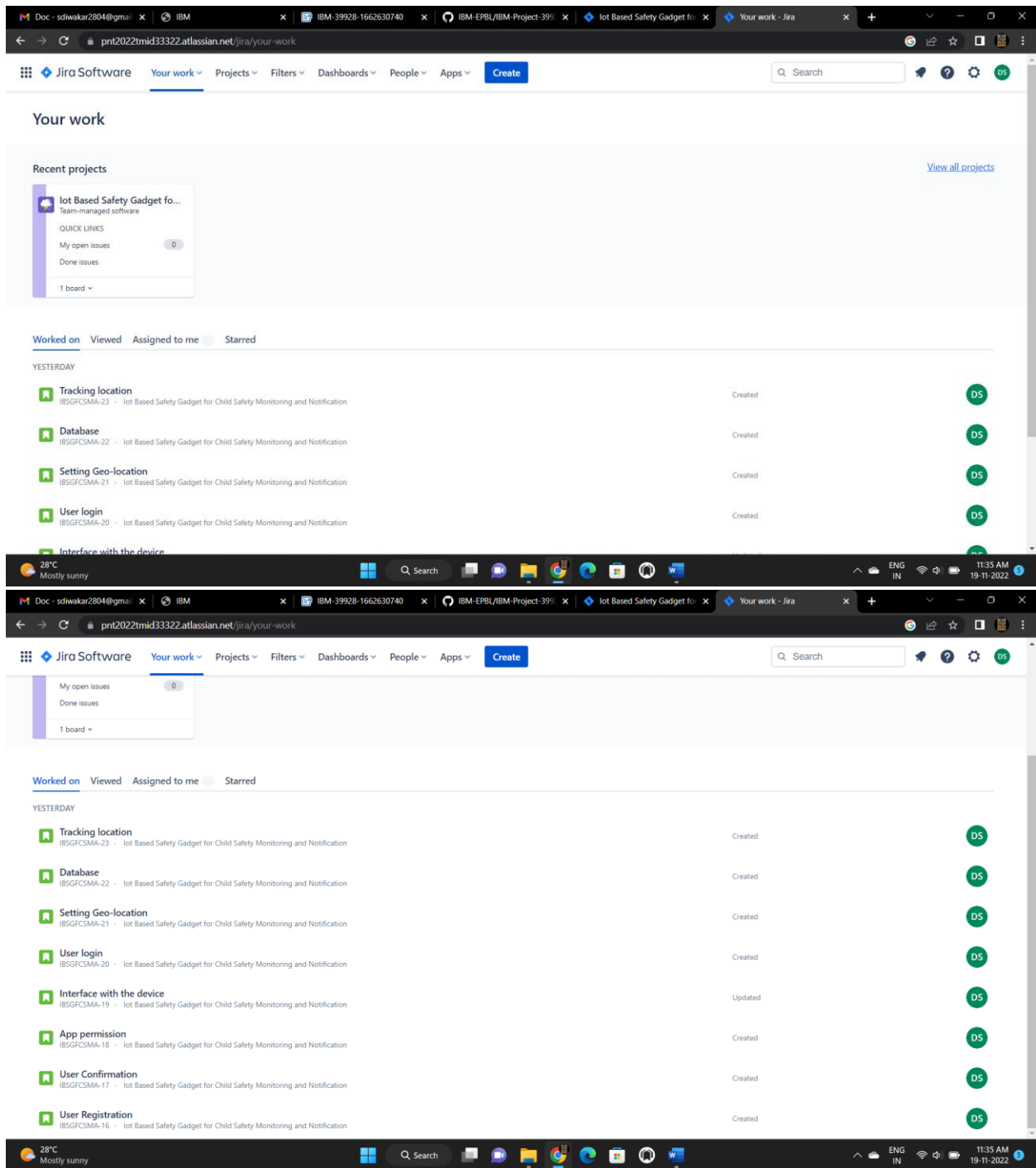
+ Create issue

Backlog (0 issues)

Your backlog is empty.

+ Create issue

23°C Mostly sunny



Report From Jira Sprint Is Successfully Completed.

7. CODING & SOLUTIONING (Explain the features added in the project along with code)

Login page of parent's application to get information about child's condition:

```
<!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: #3b363e;
}
button {
background-color: #7a869a;

width: 100%;
color: black;
padding: 15px;
margin: 10px 0px;
border: none;
cursor: pointer;
}
form {
padding: 37px 200px 38px 200px;
}
input[type=text], input[type=password] {
width: 100%;
margin: 8px 0;
padding: 12px 20px;
display: inline-block;
border: 2px white;
box-sizing: border-box;
}
button:hover {
opacity: 0.7;
}
.cancelbtn {

width: auto;
padding: 10px 18px;
margin: 10px 5px;
```



```

}
.container {
padding: 25px;
background-color: #4d617e;
}
.center{
    color:white;
    padding-right: 100px;
}
</style> </head>
<body>
<center class="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>

```

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="C:\Users\Diwakar\OneDrive\Documents\IBM
PROGRESS\comjs.js"></script>
</head>
<body
style="
height: 100%;
margin: 0">
<div
font-weight: 300;
font-family: -apple-system, BlinkMacSystemFont, 'Segoe UI', Roboto,
Oxygen, Ubuntu, Cantarell, 'Open Sans', 'Helvetica Neue',
sans-serif;

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>
</body>
</html>

```

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.dat
    a=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" !=typeof a) 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,

```

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=GHSAT0AAAAAABR46HVJ5M5L3QGFRZRQXOISYUJ
UWAA"

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 #444444444;
border-radius: 6px;
width: 200px;
height: 200px;
}
</style>
<title>Fire OAuth</title>
</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=${chatRoomId}&url=${originURL}`
  let a = document.getElementById("authorizeOverLink")
  a.href = url
}

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

  null) {
    if(sessionId === undefined || chatRoomId === undefined || sessionId === null || chatRoomId ===
    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>
        

      </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() {
```

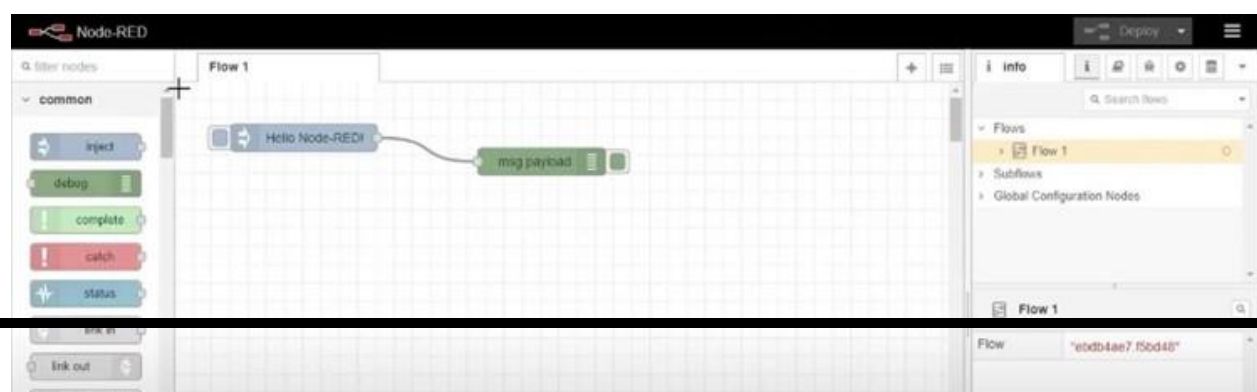
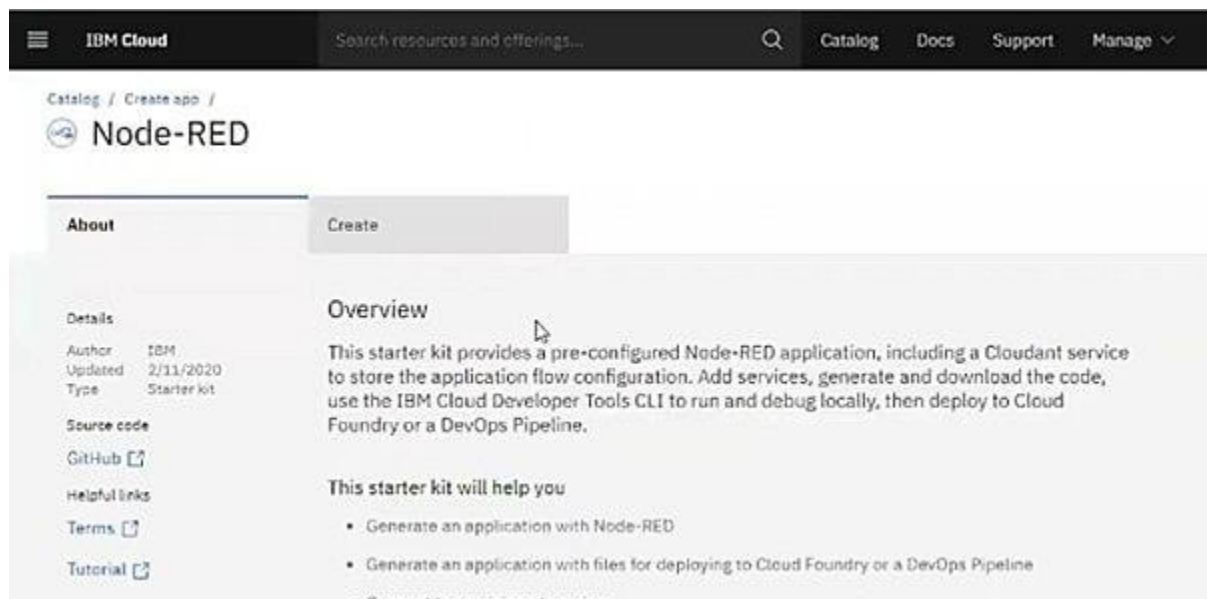
```

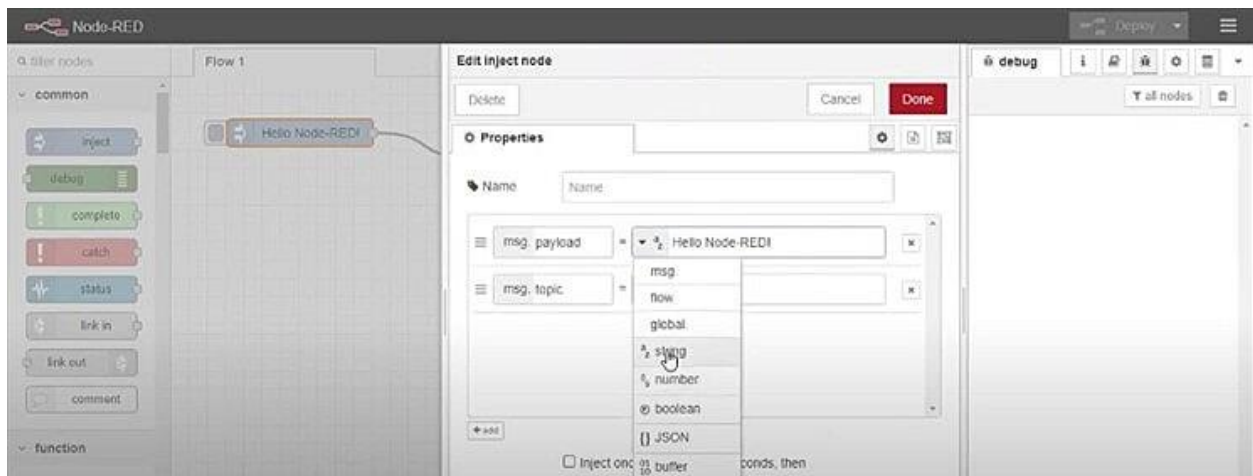
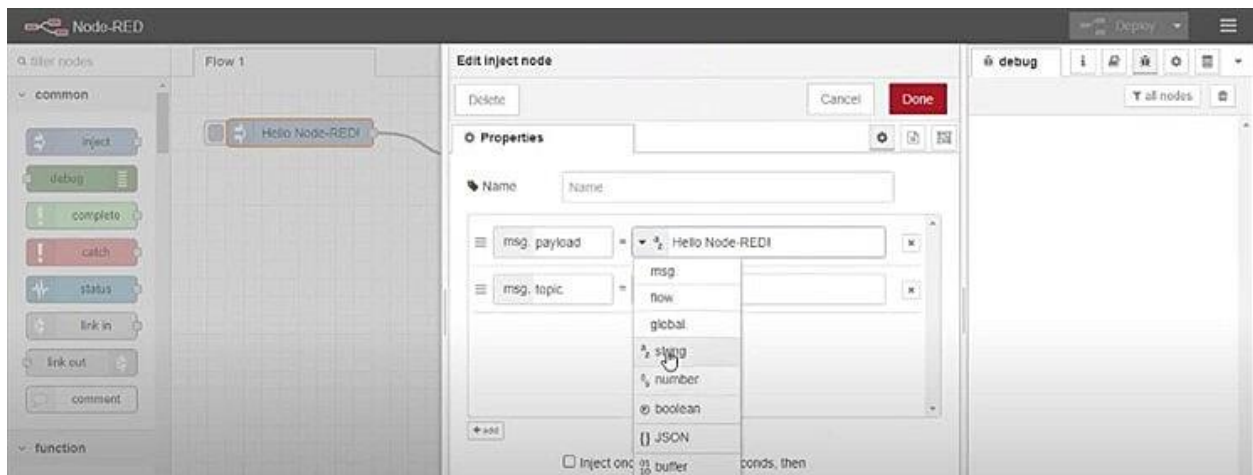
let userData = await localforage.getItem('userData')
if(userData == null) {
  window.location.href = "/login"
}
document.querySelector(".username").innerHTML = `Hello ${userData.firstName}`
document.querySelector(".profilePic").src = userData.profilePic
}
main()
document.querySelector(".logout").addEventListener("click",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

```

7.1 Feature 1

To create a web application create a Node-RED service.

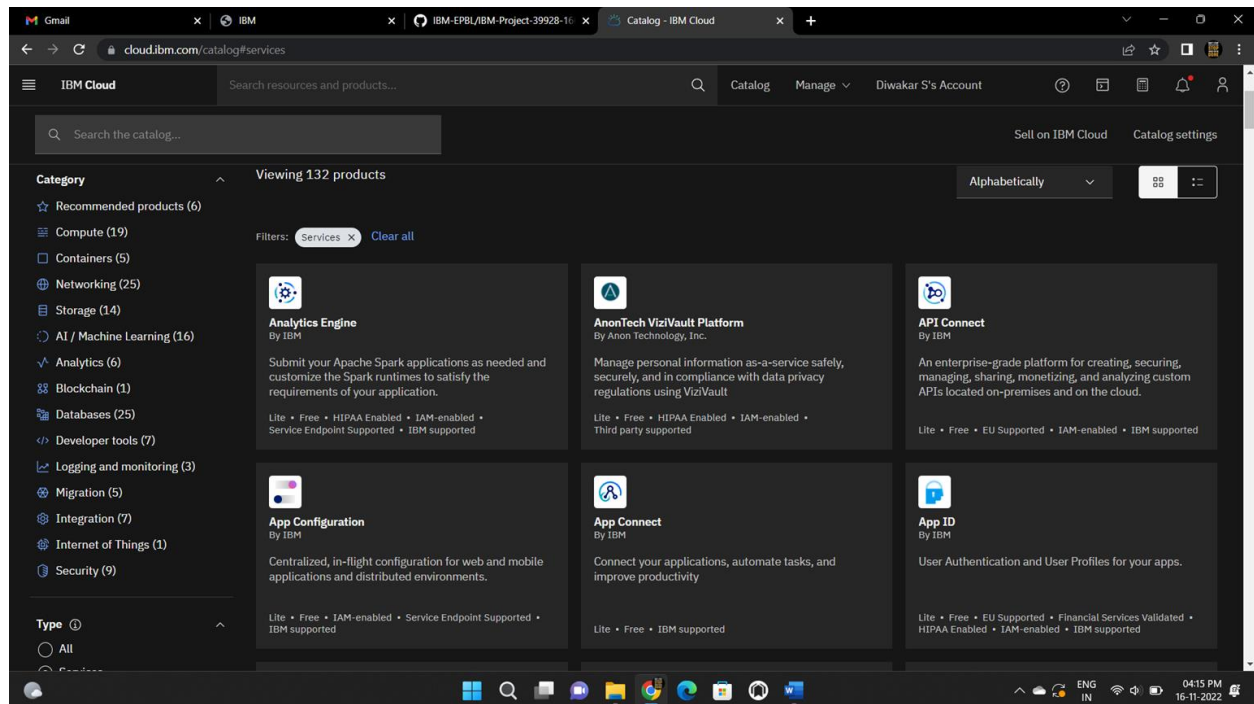
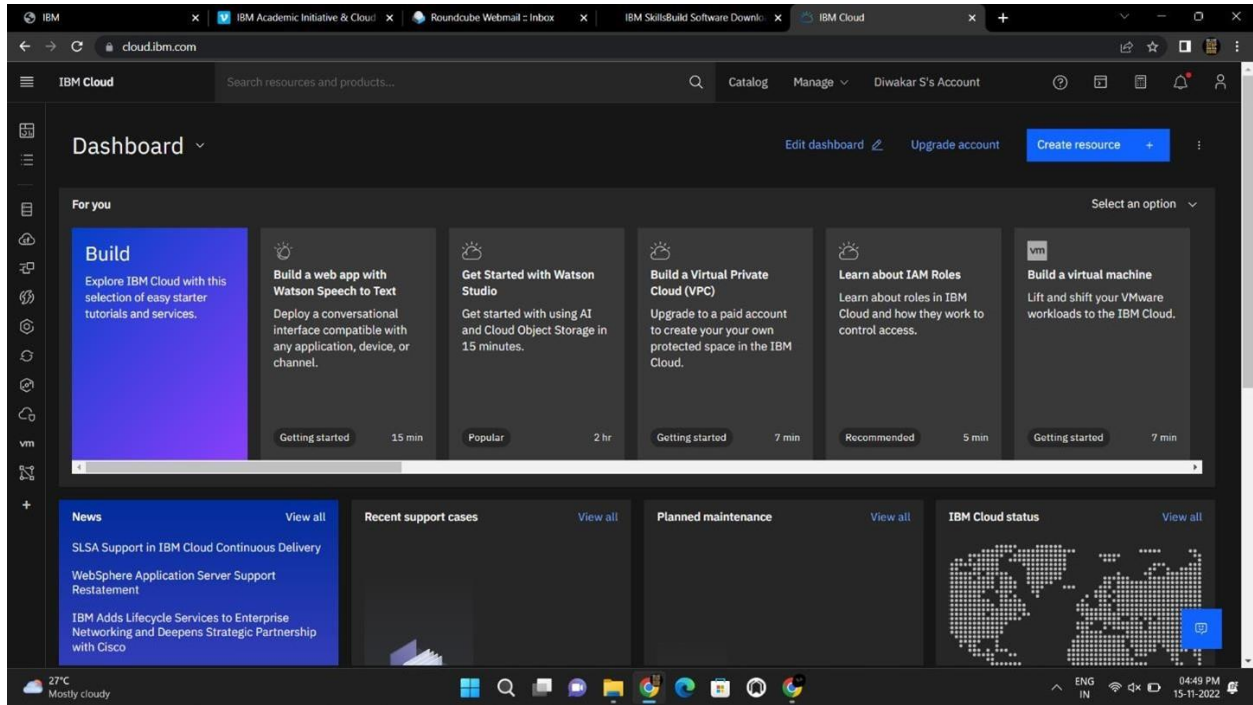




Successfully created a Node RED service on IBM Cloud

7.2 Feature 2

To create the IBM Watson IoT platform and device



Internet of Things

Compliance

IBM-enabled

Location

Frankfurt

London

Dallas

Washington DC

Related links

Docs

Terms

Plan	Features	Pricing
Lite	<p>Includes up to 500 registered devices, and a maximum of 200 MB of each data metric.</p> <p>Maximum of 500 registered devices.</p> <p>Maximum of 500 application bindings.</p> <p>Maximum of 200 MB of each of data exchanged, data analyzed and edge data analyzed.</p>	Free

The Lite service plan for Internet of Things Platform includes up to 500 registered devices, and a maximum of 200 MB each of data exchanged, data analyzed, and edge data analyzed per month.

Lite plan services are deleted after 30 days of inactivity.

Summary

Internet of Things Platform

Free

Location: London

Plan: Lite

Service name: Internet of Things Platform-bb

Resource group: Default

Existing Lite plan instance

You can have only 1 Lite plan instance of this service per resource group.

[Delete](#) your current Lite plan instance in Default resource group to create a new one, or [view the existing instance](#).

☐ I have read and agree to the following license agreements.

[Terms](#)

Create

Add to estimate

Configure your resource

Service name

Internet of Things Platform-bb

Select a resource group

Default

Tags

[Example: env:dev, version:1]

Access management tags

[Example: access:dev, proj:version:1]

Resource ID: /

Internet of Things Platform-child_safety

Active

Add tags

Details

Actions...

Manage

Plan

Connections

Let's get started with IBM Watson IoT Platform

Securely connect, control, and manage devices. Quickly build IoT applications that analyze data from the physical world.

Launch

Docs

Ready for the next level?

IBM Watson IoT Platform Journey

✓

Lite

The Lite service plan provides a lightweight, development environment to get you started with the connectivity capabilities of Watson IoT Platform.

• Free

○

Non-Production

The Non-Production service plan is a full-featured, fully-virtualized offering that enables you to explore Watson IoT Platform to see how the service can fit into your IoT environment.

• Starts at \$500 per month

○

Production

The Production service is a fully managed SaaS offering that enables you to manage and analyze enterprise IoT data.

• Includes IBM Service & Support

IBM Watson IoT Platform

Sign in

Collect data from

Equipment

and make value from it

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To provide a smooth navigation, your cookie preferences will be shared across the IBM web domains listed [here](#).

Accept all

Required only

IBM

Log in to IBM

IBMid

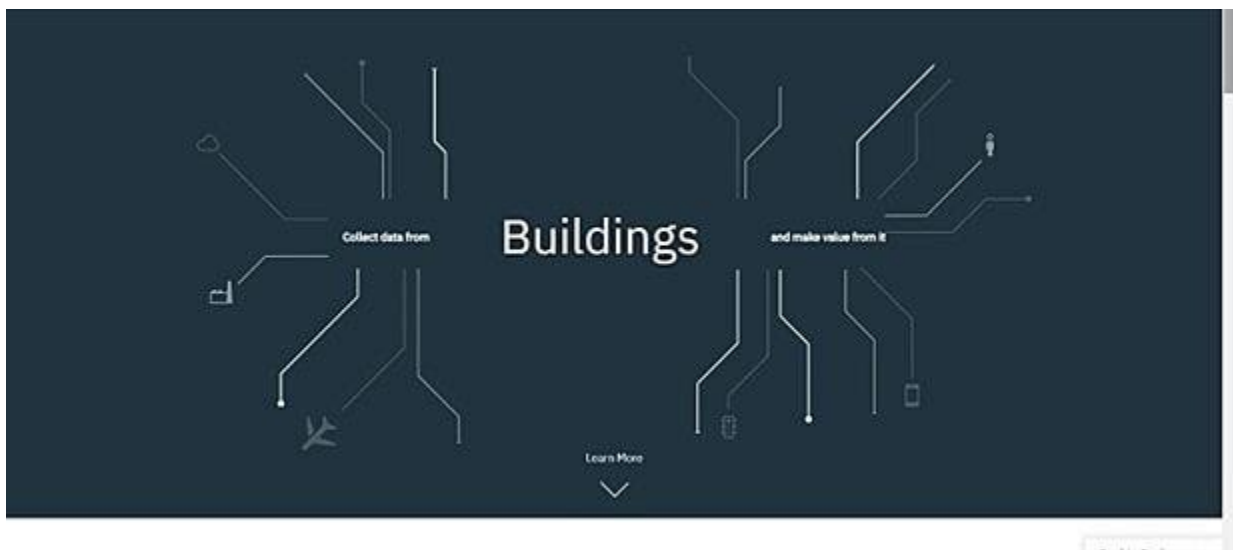
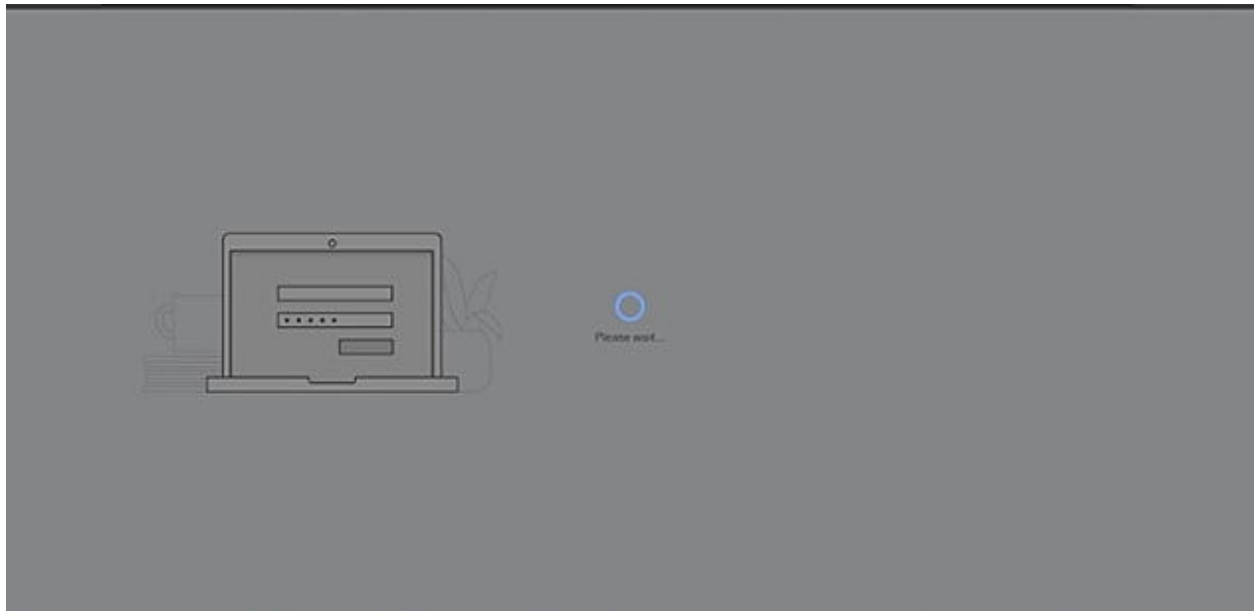
Forgot IBMid?

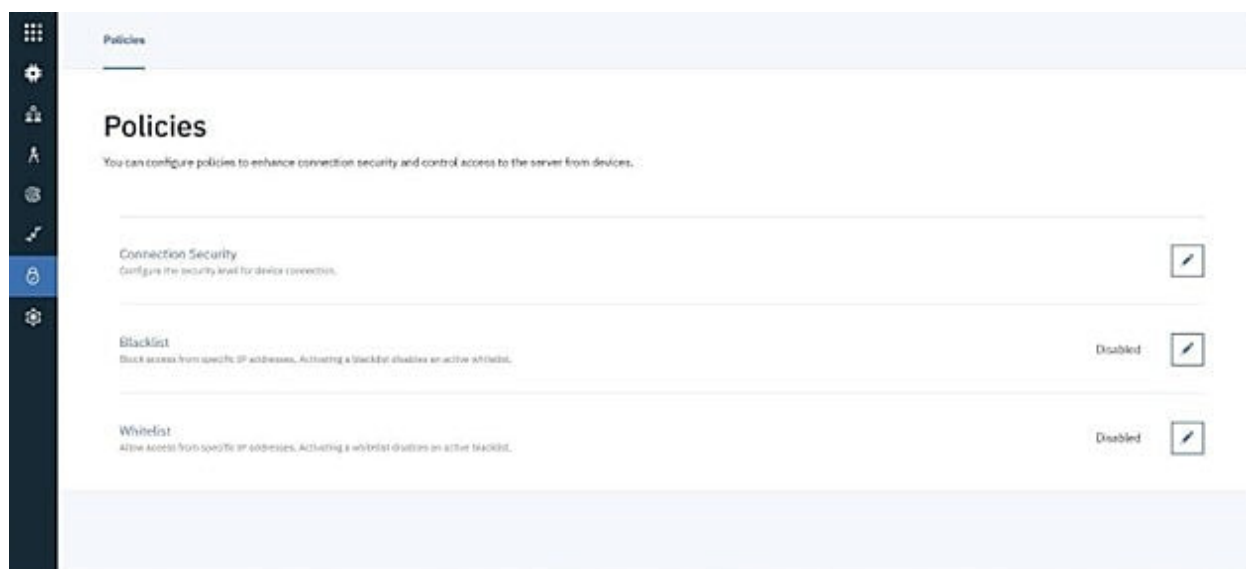
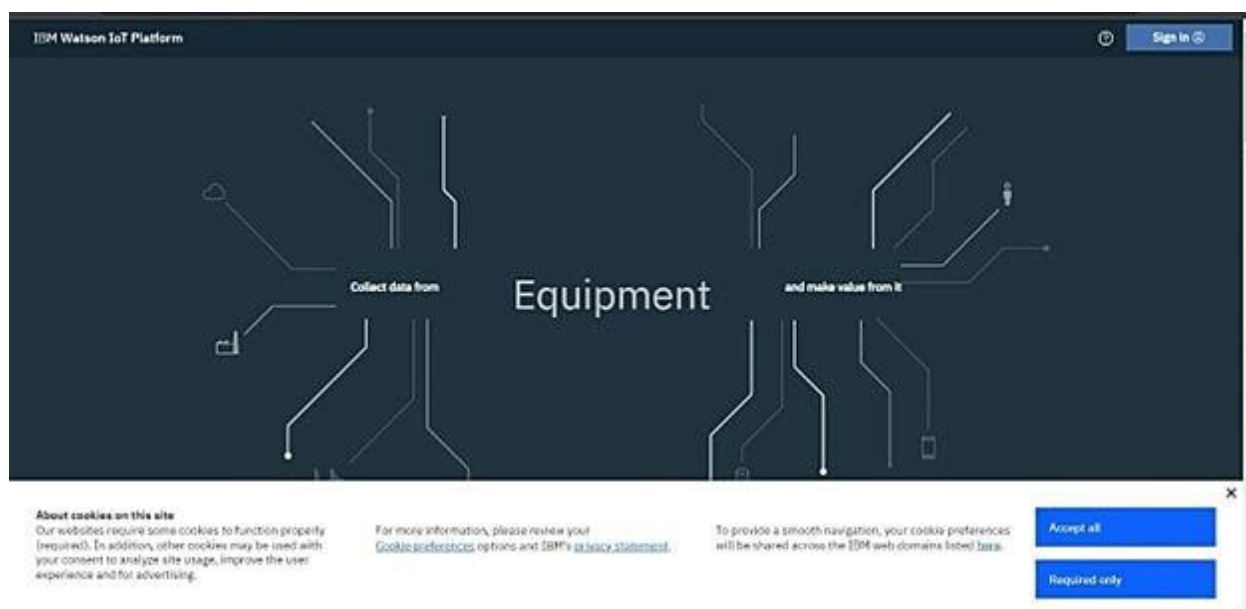
☐ Remember me

Continue

Don't have an account? [Create an IBMid](#)

Need help? [Contact the IBMid help desk](#)






Overview

Usage metrics show how much your devices and applications use Watson IoT Platform. You can view a summary of the total usage for this month and the previous month, and details of data transferred during different time periods. The metrics are refreshed every 2 hours.

Usage Summary

THIS MONTH	
0 bytes	
Data transferred inbound and outbound	

PREVIOUS MONTH
0 bytes
Data transferred inbound and outbound

Data Transferred

Data Period (months)

1	2	3	4	5	6	7	8	9	10	11	12
1	2	3	4	5	6	7	8	9	10	11	12

4,000,000 8,000,000 12,000,000

Browser Action Device Types Interfaces

Add Device

Identity Device Information Security Summary

Verify that the following information is correct then select Finish:

Device Type
NodeMCU

Device ID
199795

[View Metadata](#)

Security token
1997199520012005

Back Finish

← Back

Device Drilldown - 199795

Device Credentials

Connection Information

Recent Events

State

Device Information

Metadata

Diagnostics


Connection Logs


Device Actions

Device Credentials

You registered your device to the organization. Add these credentials to your device to establish a connection and event details.

Organization ID	qelnew
Device Type	NodeMCU
Device ID	199795
Authentication Method	usb-token-auth
Authentication Token	3997199520012005

 Authentication tokens are non-recoverable. If you lose your token, you will need to re-register your device.

Find out how to add these credentials to your device. 

← Back

Device Drilldown - 199795

Organization ID qe3owb
Device Type NodeMCU
Device ID 199795
Authentication Method use-token-auth
Authentication Token 3597199520012005

Device Credentials

Connection Information

Recent Events

State

Device Information

Metadata

Diagnostics

Connection Logs

Device Actions

Device Credentials

You registered your device to the organization. Add these credentials to your application to establish a connection and event details.

ORGANIZATION ID

qe3owb

DEVICE TYPE

NodeMCU

DEVICE ID

199795

AUTHENTICATION METHOD

use-token-auth

AUTHENTICATION TOKEN

3597199520012005

⚠ Authentication tokens are non-recoverable. If you lose them, you will need to re-register the device.

Find out how to add these credentials to your device.

Browse

Action

Device Types

Interfaces

Add Device

Search by Device ID

Device Simulator

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
199795	Disconnected	NodeMCU	Device	17 Sep 2022 20:07	

Identify

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
-------	-------	--------	---------------

8. Testing:

8.1 Test Cases

Section	Total Cases	Not Tested	Fail	Pass
Client Application	10	0	3	7
Security	2	0	1	1
Performance	3	0	1	2
Exception Reporting	2	0	0	2

8.2 User Acceptance Testing

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Total
By Design	1	0	1	0	2
Duplicate	0	0	0	0	0
External	0	0	2	0	2
Fixed	4	1	0	1	6
Not Reproduced	0	0	0	1	1
Skipped	0	0	0	1	1
Won't Fix	1	0	1	0	2
Total	6	1	4	3	14

9. RESULTS

Browser tabs: Fwd: PROJECT NEW PDF, IBM, New Tab, Login Page, Fire OAuth, IOT Based Safety Gadget, +

Address bar: File | C:/Users/Diwakar/OneDrive/Documents/IBM%20PROGRESS/Log%20in.html

Login Form

Device ID/Number:

Enter Password

E-Mail:

Enter Username

Password:

Enter Password

Login

Login with Facebook

Login with Google

☒ Remember me [Forgot password?](#)


System tray: 22°C Haze, Search, ENG IN, 11:43 PM 18-11-2022

Browser tabs: Fwd: PROJECT NEW PDF, IBM, New Tab, Login Page, Fire OAuth, IOT Based Safety Gadget, +

Address bar: File | C:/Users/Diwakar/OneDrive/Documents/IBM%20PROGRESS/next.html

Login with Fire ??

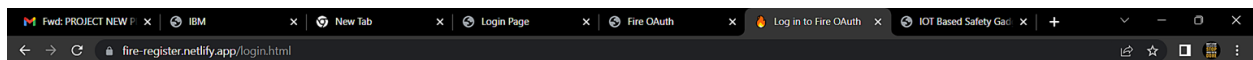
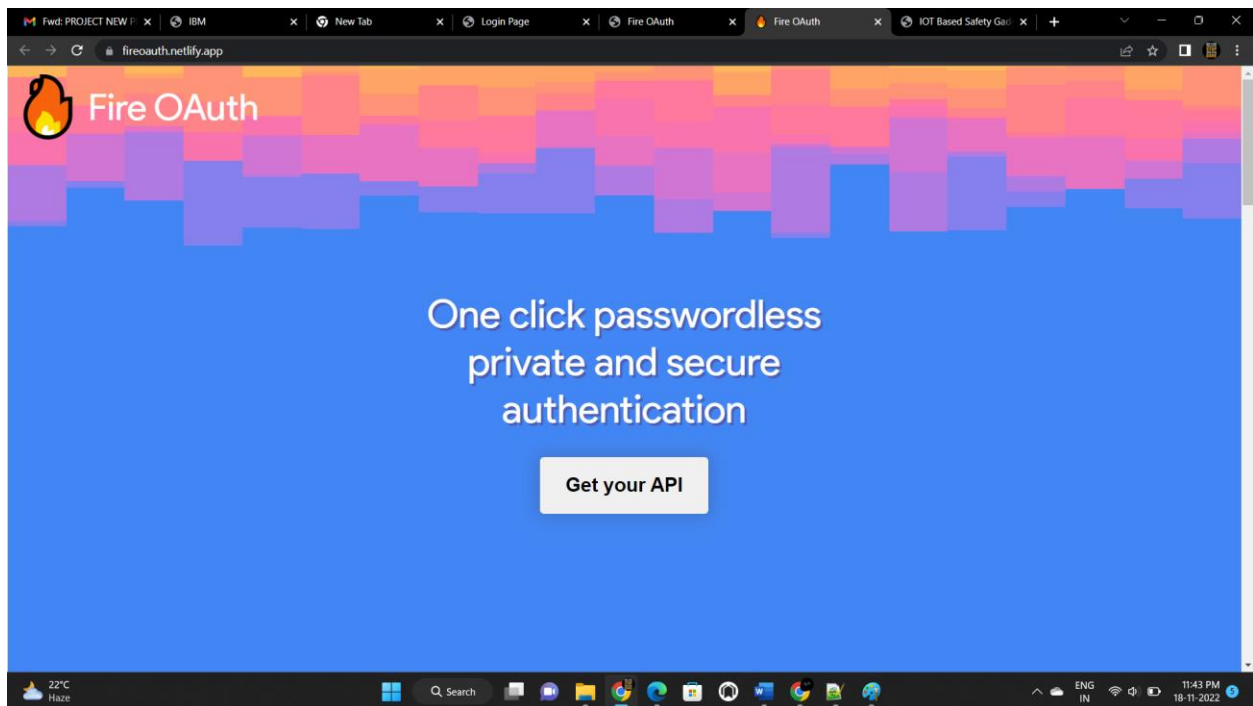
Scan QR from your Fire OAuth App??



Have Fire PWA on this device?
[Click to Authorize ??](#)

[Learn More about Fire ??](#)

System tray: 22°C Haze, Search, ENG IN, 11:43 PM 18-11-2022



Login

Login

[Need an account? Register here.](#)

9.1 Performance Metrics

The system also consists of Wi-Fi module used to implement IoT and send all the monitored parameters to the cloud for android app monitoring on parental phone. Panic alert system is used during panic situations alerts are sent to the parental phone, seeking for help also the alert parameters are updated to the cloud.

In the existing system, manual intervention was required. But in the proposed system, we make every action autonomously.

We can use both web application as well as mobile application or either one of it as the front end user interface, cloud, and database as the back end for storing and retrieving information, and a device for monitoring.

GPS is used to track the live location of the child who is wearing that device. With the help of GPS, we can easily perform Geo-fencing concept, in which we will be able to feed a particular boundary to that device.

The Temperature sensor is used to sense the surrounding temperature of the device. If the temperature level exceeds the room temperature then the alert message will be sent using GSM to the specified users.

The Pulse sensor is used to detect any abnormal feelings experienced by the child like fear, anxiety, nervousness, drowsiness and several other illnesses which manipulates the normal heart rate.

These values are used to alert the specified guardians through SMS using GSM. When the user receives these alert messages from that device, they can turn on the web camera placed in that device, with which they can visually monitor the status of that child through the live video stream.

10. ADVANTAGES & DISADVANTAGES

10.1 Advantages

Ensure 100% safety for your children with the help of the Trans Global Geomatics Personal GPS Tracking Device. Track, locate & monitor your kids 24/7 anytime anywhere. Our gps tracking system provides an instant alert if in case your children leave assigned safe zones. Mostly parents worried about their children safety if they are going to school or outside. By using Kids Gps Tracker you can know every movement of your children with the exact location. Generally, a Child's GPS Tracker reports any potential dangers and protects them in the process. It acts as a communication tool for parents and can be helpful even when traveling.

Usually, children tend to wander a lot. With the help of GPS Tracking devices, you can easily and quickly know where your children are. Whether it is a mall, park, or somewhere in the city center, you can simply find your children with our child tracking device.

Advantages of GPS Child Tracking System:

By using the Trans Global Geomatics Pvt Ltd Personal GPS Tracking Device, some of the important benefits to the parents are as follows: Know the current location Our Kids GPS Tracker provides real-time location of your children. You can track the live locations of your kids, where they are and what they are doing.

Get travel details of kids at any time:

Parents will get all the details like their kid boarding/de-boarding school bus. Also, they can get emergency alerts when the child fails to board or de-board at the other stop.

Emergency call:

Our GPS trackers have an emergency call button. In case your kids are in any danger, just they need to do is press the button to connect to you. It will be on alert state, a call can be done & a notification will be sent to family members.

Alerts:

Both the parents and school authorities can receive alerts, notifications or messages about the child's whereabouts. Even if there is any traffic jam, break down, parents will get a warning helping to take necessary actions and precautions.

Track your child even in a crowd:

Prevent abduction and let your children play and walk around safely. Our Personal GPS trackers for kids are great options for parents for monitoring their children 24/7. Our device can track a children's location as well as allow parents to set up a safe zone for their kids.

Uses of GPS Trackers for your Kids:

- Real-time tracking
- Geofence Notification
- SOS button emergency
- Location history
- School Attendance (By RFID)
- Support GPS and LBS (Location-based service) double tracking solutions.
- School bus on/off notification

10.2 Disadvantages

- 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.

11. CONCLUSION

Throughout the research, it is clearly explained the IoT concept, child safety issues and the need of using child security system. Some previous studies have been included for designing the IoT-based child security smart band. It assists parents to monitor their children remotely. In case situations happen, notifications will be sent to parents so that actions can be taken. Through this, child safety can be ensured and crime rate will be reduced. However, the proposed device is not robust enough and does not contain sufficient functions to operates like a mobile phone. Hence, the future enchantments will be adding more features, software, applications, hardware to make the proposed system capable of working more intelligently, meanwhile guarantee the safety of children. For implementing the IOT devices which ensures the complete solution for baby safety problems. A new idea to implement an automatic system for baby monitoring to remove the anxiety of the parents. This project proposes Smart IOT Devices for child safety and tracking helps the guardian/parents to locate and monitor the baby. If any abnormal values are read by the sensors then an SMS is sent to the guardian/parents mobile. Throughout the research, it is clearly explained the IoT concept, child safety issues and the need of using child security system. Some previous studies have been included for designing the IoT-based child security smart band. It assists parents to monitor their children remotely. In case situations happen, notifications will be sent to parents so that actions can be taken. Through this, child safety can be ensured and crime rate will be reduced. However, the proposed device is not robust enough and does not contain sufficient functions to operates like a mobile phone.

12. FUTURE SCOPE

In our system, we automatically monitor the child in real time using Internet of Things, with the help of GPS, GSM, and Raspberry Pi. This system requires network connectivity, satellite communication, and high-speed data connection when we use web camera and GPS to lively monitor. It is difficult to monitor when there occurs any hindrance to satellite communication or any network issue. There also occurs time delay in video streaming through the server. Hence in the future, these issues can be overcome by using Zigbee concept or

accessing the system without internet and using high-speed server transmission. The word Future resembles the word Children. As Dr. A.P.J Abdul Kalam's words "Youngsters are the future pillars of one's nation", today's children are tomorrow's youngsters, preserving their dreams and life for a better future is necessary. This system requires network connectivity, satellite communication, and high-speed data connection when we use web camera and GPS to lively monitor. It is difficult to monitor when there occurs any hindrance to satellite communication or any network issue. There also occurs time delay in video streaming through the server. Hence in the future, these issues can be overcome by using Zigbee concept or accessing the system without internet and using high-speed server transmission. The word Future resembles the word Children. Therefore, each and every parent should take care of their own children, without letting them to fall into the dark world of abuse, which entirely ruins them physically, mentally and emotionally destroying our future. Hence, considering the importance of our future, our project makes it easy for parents to track their children and to visually monitor them on regular basis, which makes them ensure the safety of their children and reduces the rate of incidents of child abuse.

One of the modules in our project is temperature sensor which is used to detect the temperature of the child as well as the surrounding temperature. If there occurs any abnormal rise or fall in temperature in the body of the child or in the surrounding it will notify the user as per the coded time delay as shown in the picture. It will show the temperature and humidity values notified to the user based on the predefined value abnormal fall or rise scenarios. For implementing the IOT devices which ensure the complete solution for baby safety problems. A new idea to implement an automatic system for baby monitoring to remove the anxiety of the parents. This project proposes Smart IOT Devices for child safety and tracking helps the guardian/parents to locate and monitor the baby. If any abnormal values are read by the sensors then an SMS is sent to the guardian/parents mobile.

13. APPENDIX

Source Code:

Source Code is Available in the Github Section

GitHub Link:

<https://github.com/IBM-EPBL/IBM-Project-39928-1660568851>

Project Demo Link:

<https://drive.google.com/file/d/1MJZf84zdXZeE4r0ADeveePlZRf0tyPBG/view?usp=drivesdk>

