**PROJECT REPORT**

1. **INTRODECTION:**

**1.1 PROJECT OVERVIEW:**

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.

**1.2 PURPOSE:**

Nowadays, crime rate associated with children keeps increasing due to which draws peoples’ attention regarding child safety. This research is conducted to propose a child security smart band utilizing IoT technology. Online questionnaire and semi-structured interview are methodologies used to collect data. The online questionnaire gains feedbacks by sending questions electronically, where answers need to be submitted online. In the semi structured interview, researcher meets and asks respondents some predetermined questions while other being asked are not planned in advanced. Through information obtained, a smart band have 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 works like a phone such as messaging, gallery, Google, YouTube, meanwhile, adding more child security features so that child safety is guaranteed.

**2. LITRATURE SURVAY:**

A. RFID-based System for School Children Transportation Safety Enhancement This paper presents a system to monitor pick-up/drop-off of school children to enhance the safety of children during daily transportation from and to school. The system consists of two main units, a bus unit, and a school unit. The bus unit the system is used to detect when a child boards or leaves the bus. This information is communicated to the school unit that identifies which of the children did not board or leave the bus and issues an alert message accordingly. The system has a developed web-based database-driven application that facilities its management and provides useful information about the children to authorized personnel. A complete prototype of the proposed system was implemented and tested to validate the system functionality. The results show that the system is promising for daily transportation safety. B. Design and Development of an IOT based wearable device for the Safety and Security of women and girl children The aim of this work is to develop a wearable device for the safety and protection of women and girls. This objective is achieved by the analysis of physiological signals in conjunction with body position. The physiological signals that are analyzed are galvanic skin resistance and body temperature. Body position is determined by acquiring raw accelerometer data from a triple axis accelerometer.

Acquisition of raw data is then followed by activity recognition which is a process of employing a specialized machine learning algorithm. Real-time monitoring of data is achieved by wirelessly sending sensor data to an open source Cloud Platform. Analysis of the data is done on MATLAB simultaneously. This device is programmed to continuously monitor the subject’s parameters and take action when any dangerous situation presents itself. It does so by detecting the change in the monitored signals, following which appropriate action is taken by means of sending notifications/alerts to designated individuals.

C. Child Safety Wearable Device Parents need not have a smart mobile. Set of keywords are used to gain information from the kit. LOCATION keyword is used to obtain the location of the child. UV keyword is used to obtain the temperature of the surroundings. BUZZ keyword is used to turn on the buzzer which is fixed in that device. SOS is used to send a signal to the device.

D. Smart Intelligent System for Women and Child Security 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.

**2.1 EXISTING SOLUTION:**

The internet is the medium that will be used to transfer user data and service request from the mobile to the server and then the requested information back to the user. Figure 1 shows the main 5 elements that construct the system which are the GPS, the client tier, server tier and the database tier[1].

Client tier (Mobile): The mobile requests its location from the positioning system periodically and sends it through the communication network to the server. The user can request for the location of a family member at any time from the server. Also an alert in the form of a notification can be received whenever the user and a friend are in the same locations.

Server: The server receives users’ location and alerts two friends if they are in the same location or update the user about the location of family members.

Database: The database contains all users subscribed in the service with their location, a separate list for each user that contains friends and family members that can be located, and there is a table that contains locations with their coordinates. MySQL is the database used for maintaining the record of the child’s activities along with PHP.

**PROPOSED SYSTEM:**

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.

If the child goes beyond that particular boundary specified, the respective guardians will receive an alert call using GSM. In our system, we use several components like,

1. Temperature sensor

2. Pulse sensor

3. GPS

4. MGSM

5. Web camera 6.Raspberry pi microprocessor

**2.2 REFERENCE:**

[1] AkashMoodbidri, Hamid Shahnasser, ”Child Safety Wearable Device”, Department of

Electrical and Computer Engineering San Francisco State University.

[2] AnandJatti, MadhviKannan , Alisha RM, Vijayalakshmi P, ShresthaSinha, " Design and

Development of an IOT based wearable device forthe Safety and Security of women and girl

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Communication Technology, May 20-21, 2016, India.

[3] Anwaar Al-Lawati, Shaikha Al-Jahdhami,

[4] " RFID-based System for School Children Transportation Safety Enhancement ", Proceedings of

the 8th IEEE GCC Conference and Exhibition, Muscat, Oman, 1-4 February 2015.

[5] Dr. R. Kamalraj, ” A Hybrid Model on Child Security and Activities Monitoring System using

IoT”, IEEE Xplore Compliant Part Number: CFP18N67-ART; ISBN:978-1-5386-2456-2.

[6] Pooja.K.Biradar1, Prof S.B.Jamge2,” An Innovative Monitoring Application for Child Safety”,

DOI:10.15680/IJIRSET.2015.0409093.

[7] Prof. Sunil K Punjabi, Prof. SuvarnaChaure, "Smart Intelligent System for Women and Child

Security” Department of Computer Engineering SIES Graduate School of Technology Nerul,

Navi Mumbai, India.

[8] SarifahPutriRaflesia, Firdaus, DindaLestarini, “An Integrated Child Safety using Geo-fencing

Information on Mobile Devices", INTERNATIONAL CONFERENCE ON ELECTRICAL

ENGINEERING AND COMPUTER SCIENCE (ICECOS) 2018.

[9] Zejun Huang1, ZhigangGao,” An Mobile Safety Monitoring System for Children”, 2014 10th

International Conference on Mobile Ad-hoc and Sensor Networks.

**2.3 PROBLEM STATEMENT DEFINITION:**

This system is designed for parents and children. It can also be used in offices by the employer for the employees. Both have a smart phone that supports Google geo location and SMS facilities. SMS is a basic service provided on any smart phones but Google geo location can be found only new smart phones. The application is mostly to be used by parents to track their child’s location. In a later phase for implementation purposes, the system will be eclipse supporting android.

**PROBLEM STATEMENT DEFINITION:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **PROBLEM STATEMENT** | **I AM (CUSTOMER)** | **I AM TRYING TO** | **BUT** | **BECAUSE** | **WHICH MAKES ME FEEL** |
| PS-1 | DOING JOB | Monitor children in home | I have no efficient system for monitoring | High cost | Disappointed |
| **PS-2** | DOING JOB | Prevent the children and alert the parents | Also , the installation process is too complicated. | Number of the sensor is unpredictable. | Frustrated |

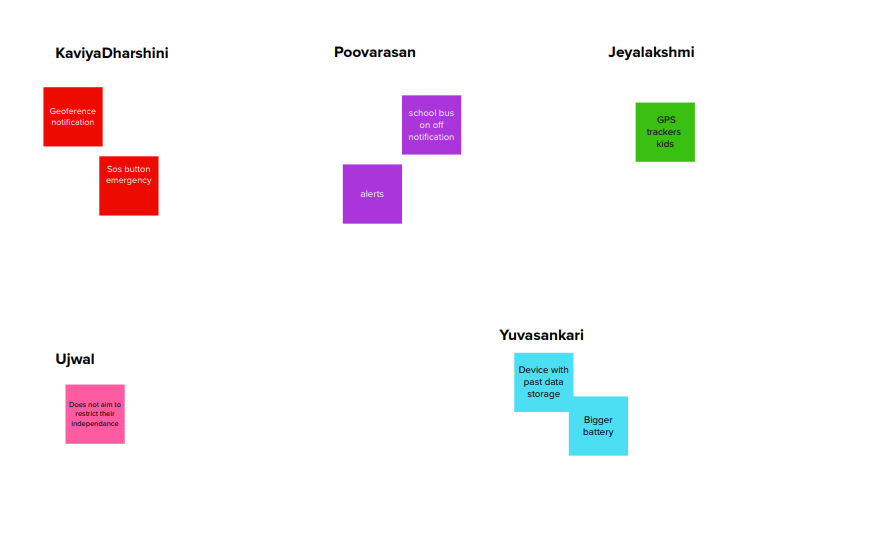
1. **IDEATION & PROPOSED SOLUTION:**
   1. **EMPATHY MAP CANVAS:**
   2. **IDEATION AND BRAINSTROMING:**

PROBLEM:

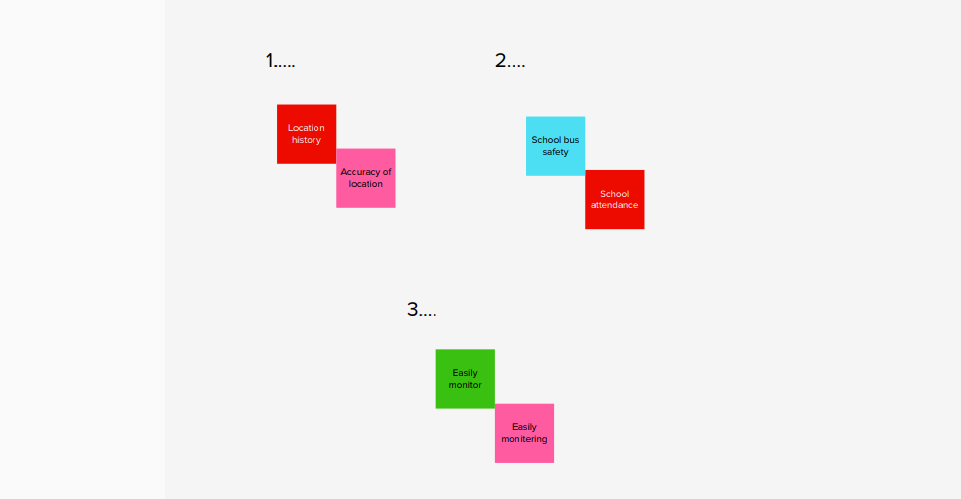
The proposed system is able to monitoring and set the extract location of the children.

**BRAIN STROM :**

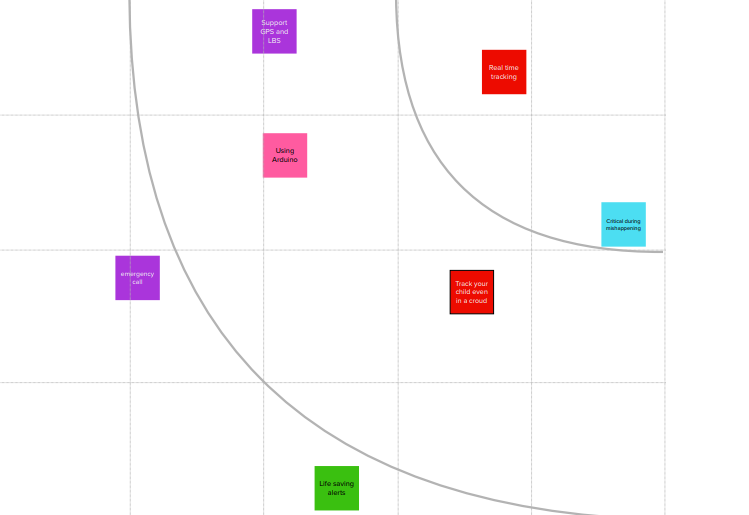
Write down any ideas that come to mind that address is your problem statement

****

**GROUP IDEAS:**

****

**This page determine which idea is important:**

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* 1. **PROPOSED SOLUTION:**

|  |  |  |
| --- | --- | --- |
| **1.** | Problem Statement (Problem to be solved) | More family’s spent their time for work and social duties but since Children are gift of GOD they need care of family. The current situation of our country is not comfortable for monitoring children in school. With the absence of child monitoring system it is hard to monitor the where about of children. Under age children may be premature in the way they act and places to be. Most of human behavior is shaped in childhood stage, in order to get morally acceptable behavior child monitoring system is necessary. Children are prone to many accidents. Safety of children is very critical since children cannot protect themselves. |
| **2.** | Idea / Solution description | The paper provides a smart, inexpensive solution for preventing losing kids while going out alone or with their parents based on the Internet of Things (IoT). Our proposed system ensures maximum security and ensures live tracking for their kids. This paper proposed a model for child safety through smart phones that can track their children's location and give the exact coordinates of the child's location in real-time anywhere. |
| **3.** | Novelty / Uniqueness | For babies with health issues, a visual baby monitor can help parents monitor illness signs and symptoms.  No more sneaking into the nursery to check on the baby and inadvertently waking them up  Extended monitor range so you can check on the child from anywhere in your house |
| **4.** | Social Impact / Customer Satisfaction | The Internet of Things is increasingly finding a place at the heart of many business automation strategies. Companies are using sensors in the logistics chain to help them track where delivery is with incredible accuracy. |
| **5.** | Business Model (Revenue Model) | Nowadays, GPS tracking technology is widely used in personal households and businesses. The GPS tracking market is rapidly growing and has an amazing potential in the future. People are becoming more and more concerned about their safety and the safety of their valuables. That’s why families are starting to use mobile tracking apps and GPS trackers for their children and other loved ones. Companies are also tracking and managing their vehicles, delivery trucks, cargo or employees. According to Global Market Insights, “the vehicle tracking market size was valued at $8 billion in 2015 and is anticipated to exceed $22 billion by 2022.” Really, there’s no doubt you should start GPS tracking business today! |
| **6.** | Scalability of the Solution | An automatic non-contact-based baby monitoring system using image processing is proposed in this paper. This system sends the message to parents through mail when abnormal condition occurs. The main advantage of this is that it is more user friendly, cost-effective and no harm to baby as it is non-contact-based baby monitoring system. It might be used in hospitals by the nurses to monitor the baby. We used RPi module as it provides more advantage comparatively Arduino and Microcontroller. It can detect whether the baby is sleeping or awake. This system will help in decreasing the chances of the baby’s falling from the bed |

* 1. **PROBLEM SOLUTION FIT:**

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1. **REQUIREMENT ANALYSIS:** 
   1. **FUNTIONAL REQUIREMENT:**

Following are the functional requirements of the proposed solution.

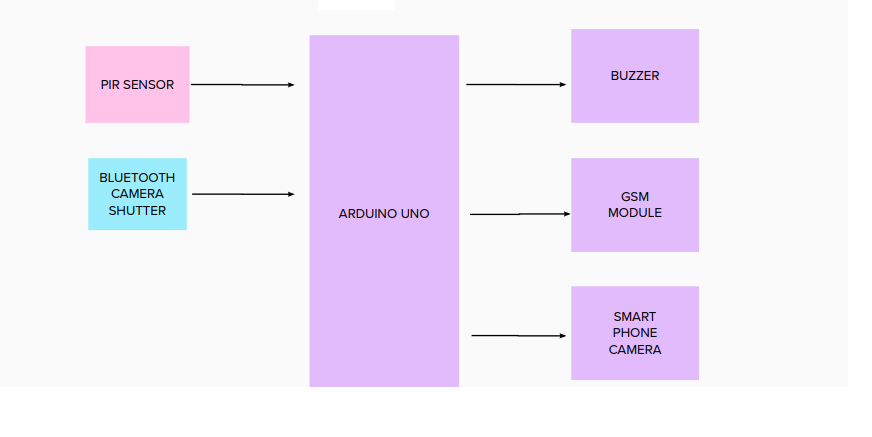
|  |  |  |
| --- | --- | --- |
| **FR No.** | **Functional Requirement (Epic)** | **Sub Requirement (Story / Sub-Task)** |
| FR-1 | Problem Statement (Problem to be Solved) | More family’s spent their time for work and social duties but since Children are gift of GOD they need care of family. The current situation of our country is not confortable for monitoring children in school. With the absence of child monitoring system it is hard to monitor the where about of children.  The poor performance of family’s and school to monitor the children’s by Collaboration. The use of manual system to connect family’s and there students most of time teachers or other persons are intermediate between the students and family. In our country families and their children have no direct contact in school when they need to contact their children if the families came to school. |
| FR-2 | Idea / Solution description | The scope of this project is limited to develop SMS platform and Hardware implementation prototype. The project contribution is sensing the children status and displaying the output. This system also provides the real time data to be available on mobile phone, so that it can send text message all the sensors data gathered from the children. |
| FR-3 | Noverty / Uniqueness | * To track and get exact location of children * It increase the interaction of family’s with their children * They whole day information about children * To store and retrieve the necessary data on the families mobile phone using real time sensors * Child has the ability to connect different sensors * Family’s Feeling safe about children * Allows a parent to more easily locate the troubled child |
| FR-4 | Social Impact / Customer Satisfaction | The Inernet of Things is increasingly finding a place at the heart of many business automation strategies . Companies are using sensors in the logistics chain to help them track where delivery is with incredible accuracy. |
| FR-5 | Scalability of the Solution | Since we use accurate sensing materials the necessary data are gathered in technical way due \to this controlling of children status and check their security is also technically feasible. The school monitoring system with the website has the advantages for availability, management and running costs comparing with the previous monitoring system. |
| FR-6 | Business Model (Revenue Model) | The GSM is Remote Management , Speed, Super Fast Deployment. |

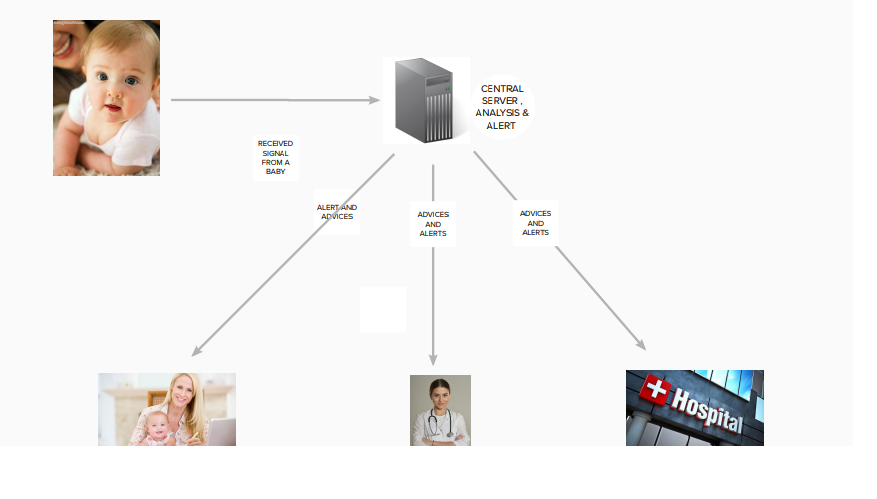
* 1. **NON FUNCTIONAL REQUIREMENT:**

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

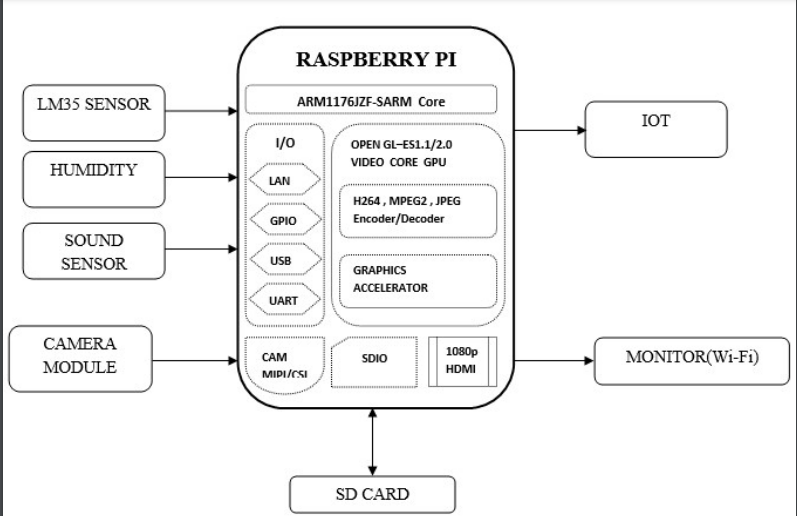
|  |  |  |
| --- | --- | --- |
| **FR No.** | **Non-Functional Requirement** | **Description** |
| NFR-1 | **Usability** | Human factors, Aesthetics, Consistency, Documentations . |
| NFR-2 | **Security** | “Android based solution to aid parents to track their children in real time. Different devices are connected with a single device through channels of internet. The concerned device is connected to server via internet. The device can be used by parents to track their children in real time or for women safety. The proposed solution takes the advantage of the location services provided by GSM. It allows the parents to get their child‘s location on real time by SMS. This device will also have the facility of Emergency help key (SOS), if anyone presses the key, automatic help message will be sent to 3 registered mobile numbers on Server.” |
| NFR-3 | **Reliability** | Frequency, Recoverability, Predictability, Accuracy, Mean time to failure. |
| NFR-4 | **Performance** | Speed, Efficiency, Through put, Resource consumption. |
| NFR-5 | **Availability** | * The system shall give the accurate result for different factors using sensing material as a result their will not be any distractive damage. * The system shall be maintainable whenever faller occurs. * Sometime the GPS module works on rainy condition. * The system is cost effective comparing to the features it provides. * The system shall be usable within a few minutes training. |
| NFR-6 | **Scalability** | The major challenge may be to spread the knowledge and awareness about the system to the various stakeholders, particularly the family’s .The cost of infrastructure modernization and maintenance is another challenge. In order to use this system the family’s need to link with global network and technology this may lead to go for hardest work. The other limitation of this project is the availability of global network around the rural area of the country. |

1. **PROJECT DESIGN:**
   1. **DATA FLOW DIAGRAM:**

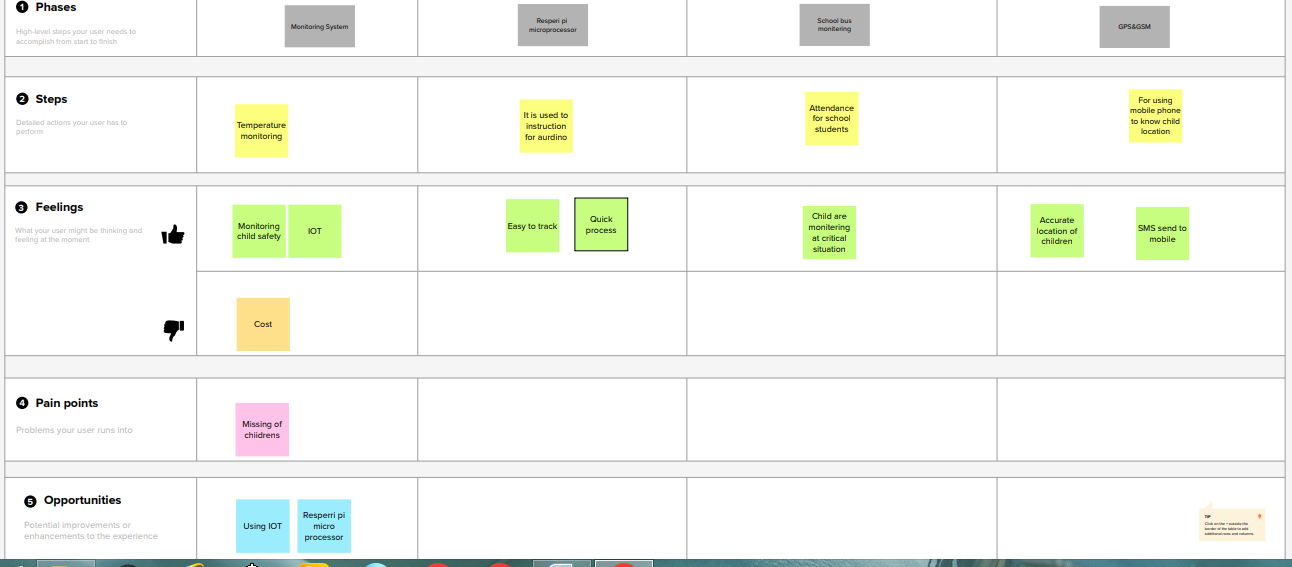
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**5.2 SOLUTION AND REQUIREMENT ARCHITECTURE:**

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* 1. **USER STORIES:**

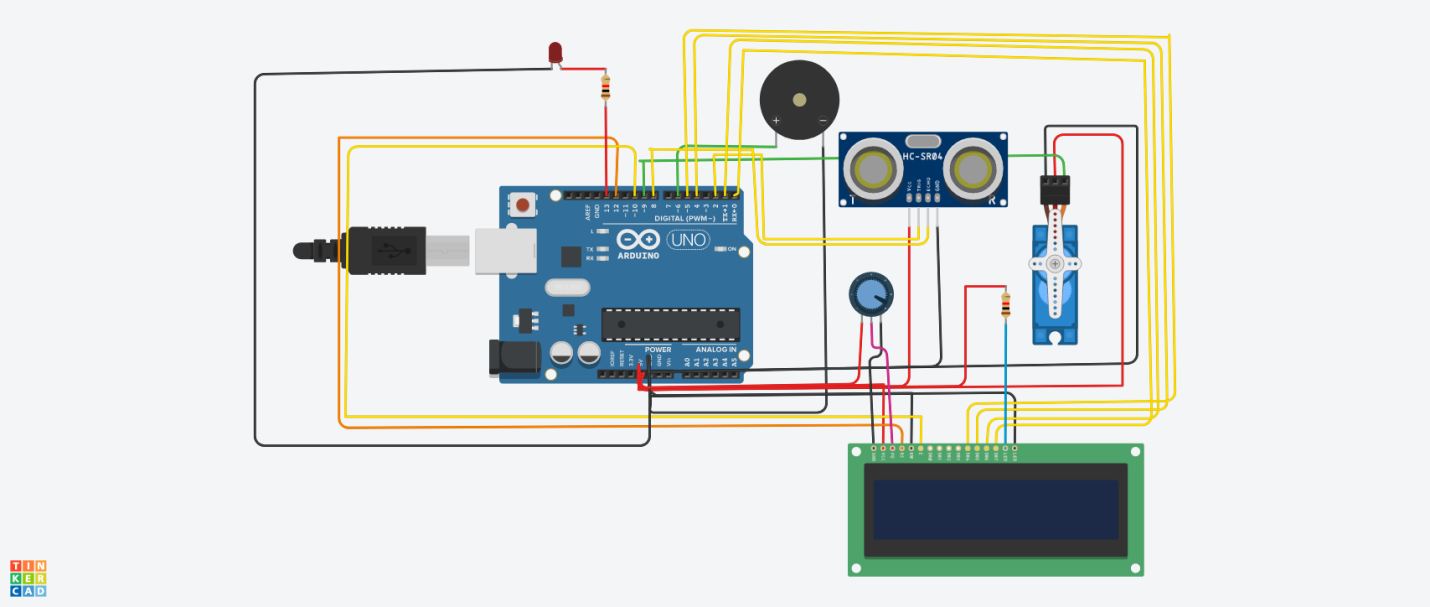
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1. **PROJECT PLANNING & SCHEDULING:**
   1. **SPRINT PLANNING AND ESTIMATION:**

| **Sprint** | **Functional Requirement (Epic)** | **User Story / Task** | **Story Points** | **Priority** | **Team Members** |
| --- | --- | --- | --- | --- | --- |
| Sprint-1 | Existing 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. | 2 | High | KAVIYADHARSHINI.P  YUVASANKARI.R  JEYALAKSHMI.P  POOVARASAN.P  UJWAL.P |
| Sprint-1 | Proposed System | 1.Temperature sensor  2.Pulse sensor  3.GPS  4.GSM  5.Web camera  6.Raspberry pi microprocessor | 1 | High | KAVIYADHARSHINI.P  YUVASANKARI.R  JEYALAKSHMI.P  POOVARASAN.P  UJWAL.P |
| Sprint-2 | Hardware Description | • Arduino Mega [ATMEGA 2560]. • GSM SIM 800C. • GPS Neo 6m. • 20X4 LCD. • I2C LCD Driver • 7805 Voltage Regulator. • Heart Beat Sensor. • DS18B20 Temperature Sensor. • 1x4 Switch. • ESP8266-12E • Push Button • Logic Level Convertor • Buzzer • LED • ESP32 • OLED • Jumper Cables | 2 | Low | KAVIYADHARSHINI.P  YUVASANKARI.R  JEYALAKSHMI.P  POOVARASAN.P  UJWAL.P |
| Sprint-1 | Software Component | Arduino IDE  Android Studio | 2 | Medium | KAVIYADHARSHINI.P  YUVASANKARI.R  JEYALAKSHMI.P  POOVARASAN.P  UJWAL.P |
| Sprint-1 | Result | The SMS send to parents mobile due to GSM and SIM | 1 | High | KAVIYADHARSHINI.P  YUVASANKARI.R  JEYALAKSHMI.P  POOVARASAN.P  UJWAL.P |

**SPRINT:**

ARDUINO UNO WITH SENSOR:



IN THE ABOVE CIRCUIT WE CONNECT THE ARDUINO UNO WITH SENSORS, BUZZER.

PROGRAM

#include<Servo.h>

#include<LiquidCrystal.h>

Servo servo\_9;

LiquidCrystal lcd(12,10,5,4,1,0);

int distance;

int pos;

void setup()

{

servo\_9.attach(9);

lcd.begin(16,2);

pinMode(2, OUTPUT);

pinMode(8,INPUT);

pinMode(5,OUTPUT);

pinMode(6,OUTPUT);

pinMode(13,OUTPUT);

}

void loop()

{

digitalWrite(2,LOW);

delayMicroseconds(2);

digitalWrite(2,HIGH);

delayMicroseconds(10);

digitalWrite(2,LOW);

distance=pulseIn(3,HIGH)\*0.017;

if (distance=18){

lcd.print("Distance equals");

lcd.setCursor(0,1);

lcd.print(distance);

digitalWrite(13,HIGH);

for (pos=0; pos<=72; pos+=1){

servo\_9.write(pos);

tone(6,300);

delay(20);

}

for (pos=72; pos>=0; pos-=1){

servo\_9.write(pos);

tone(6,300);

delay(20);

}

lcd.clear();

noTone(6);

delay(1000);

digitalWrite(13,LOW);

delay(500);

}

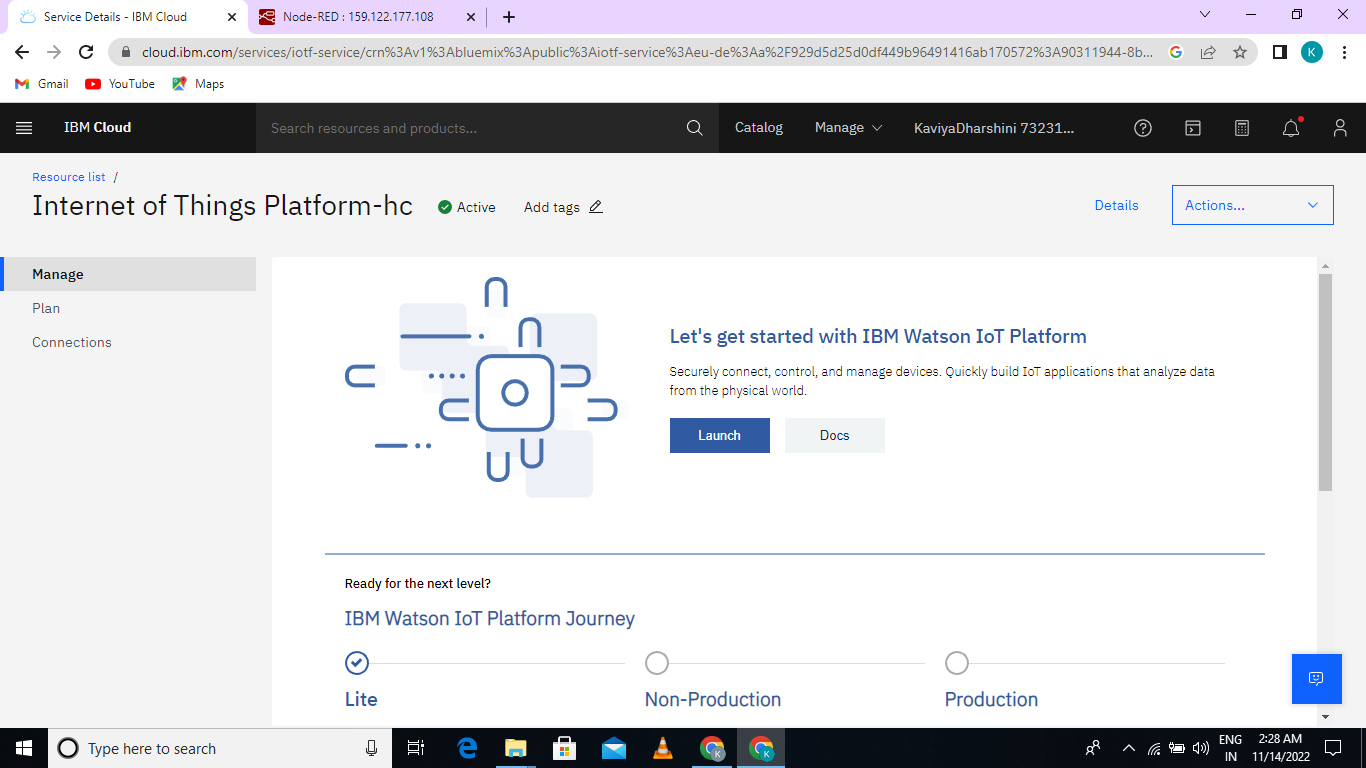
}

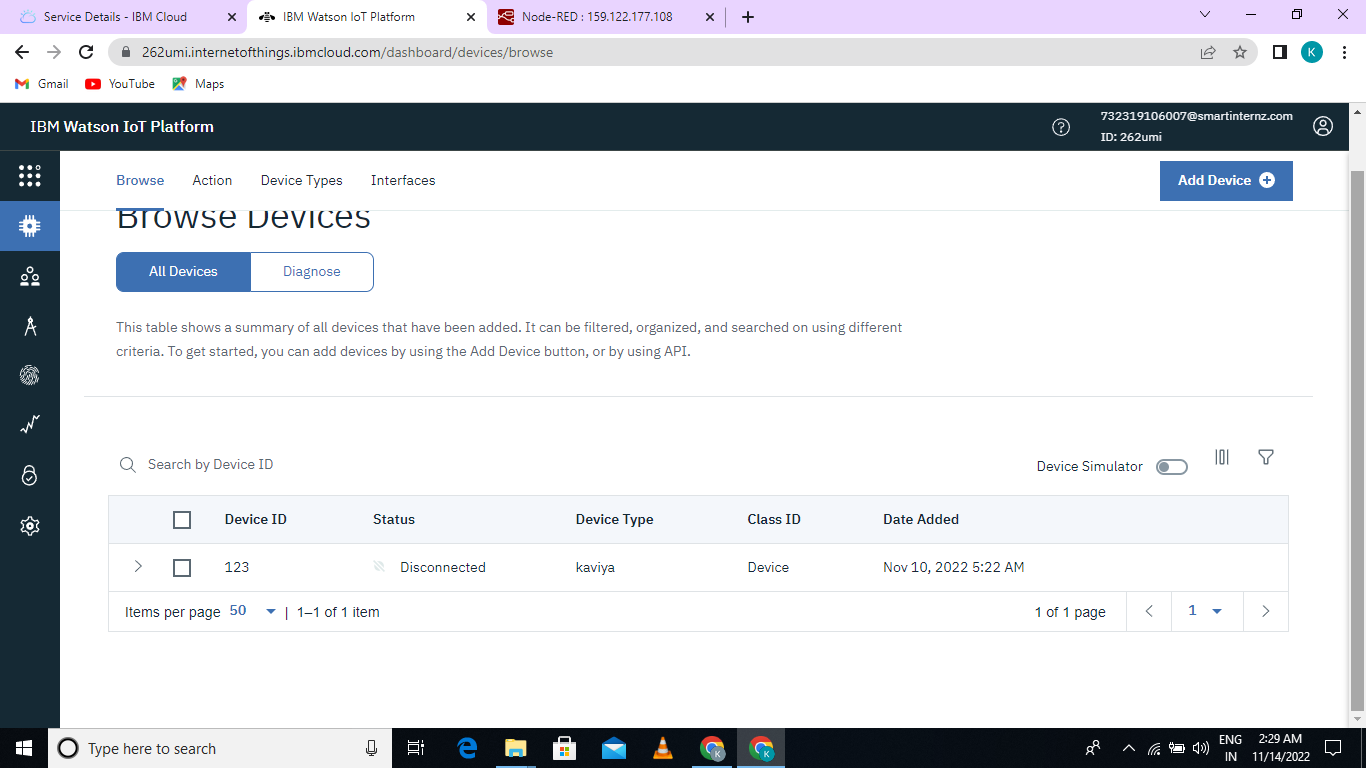
**SPRINT 2** :

OPEN THE IOT PLATFORM IN IBMCLOUD:

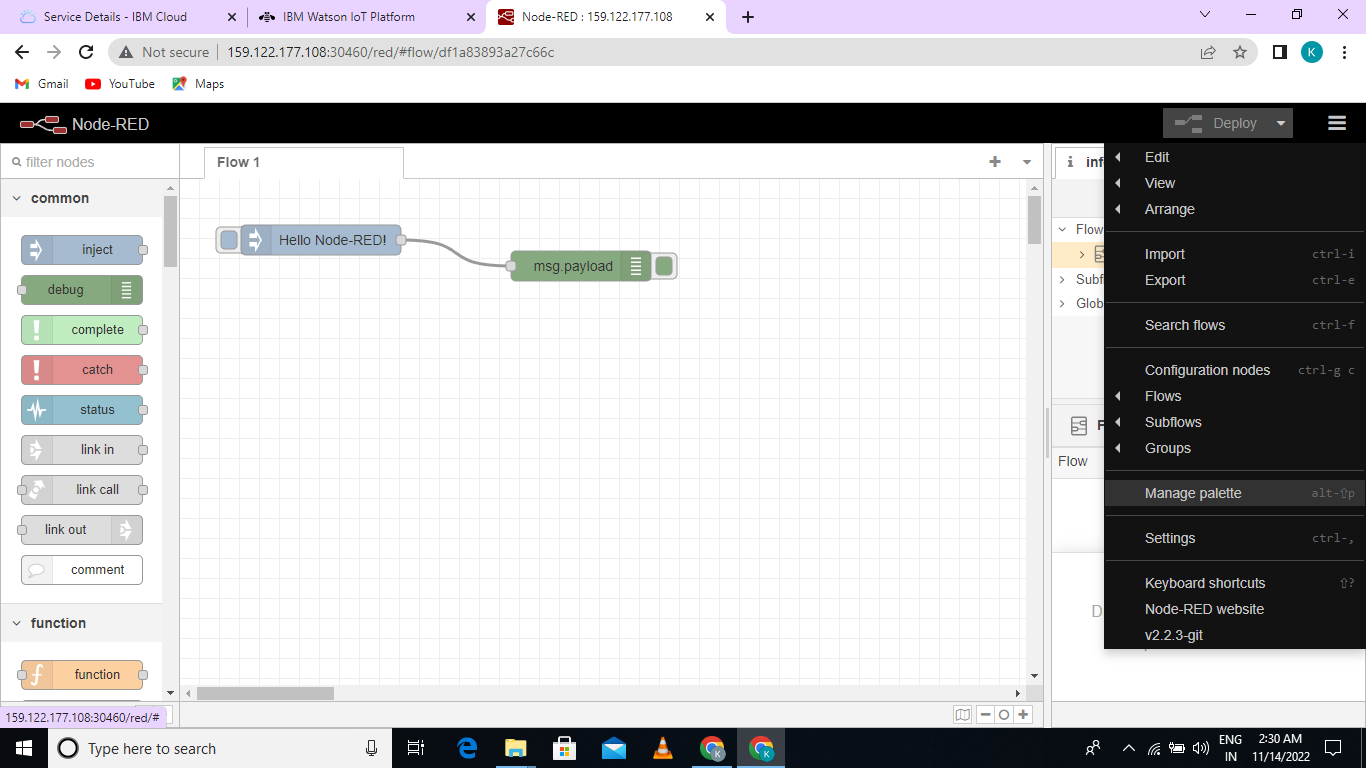
I am already enable the IOT platform in cloud.

Using this create a device with IOT Watson platform is successfully finished

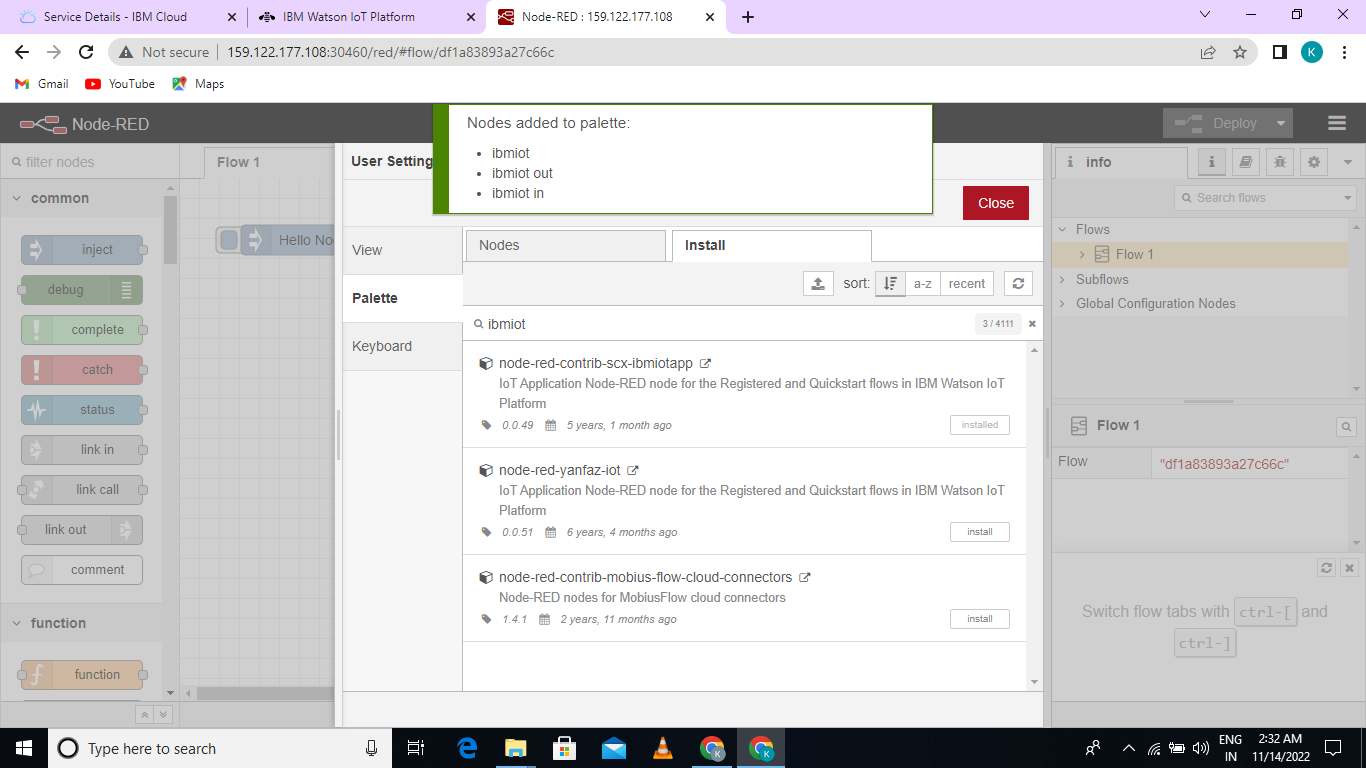


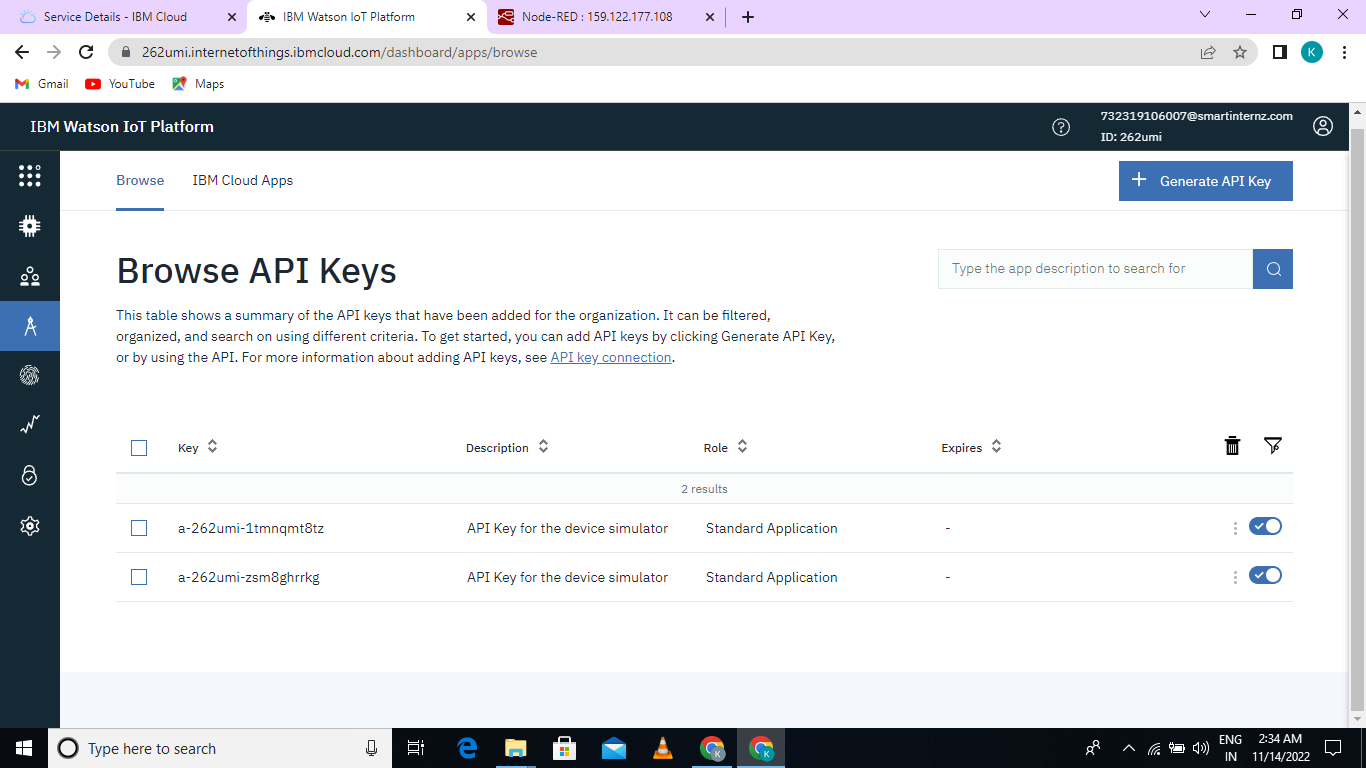
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GO TO NODE RED PLATFORM AND ENABLE THE MANAGE PALLET:

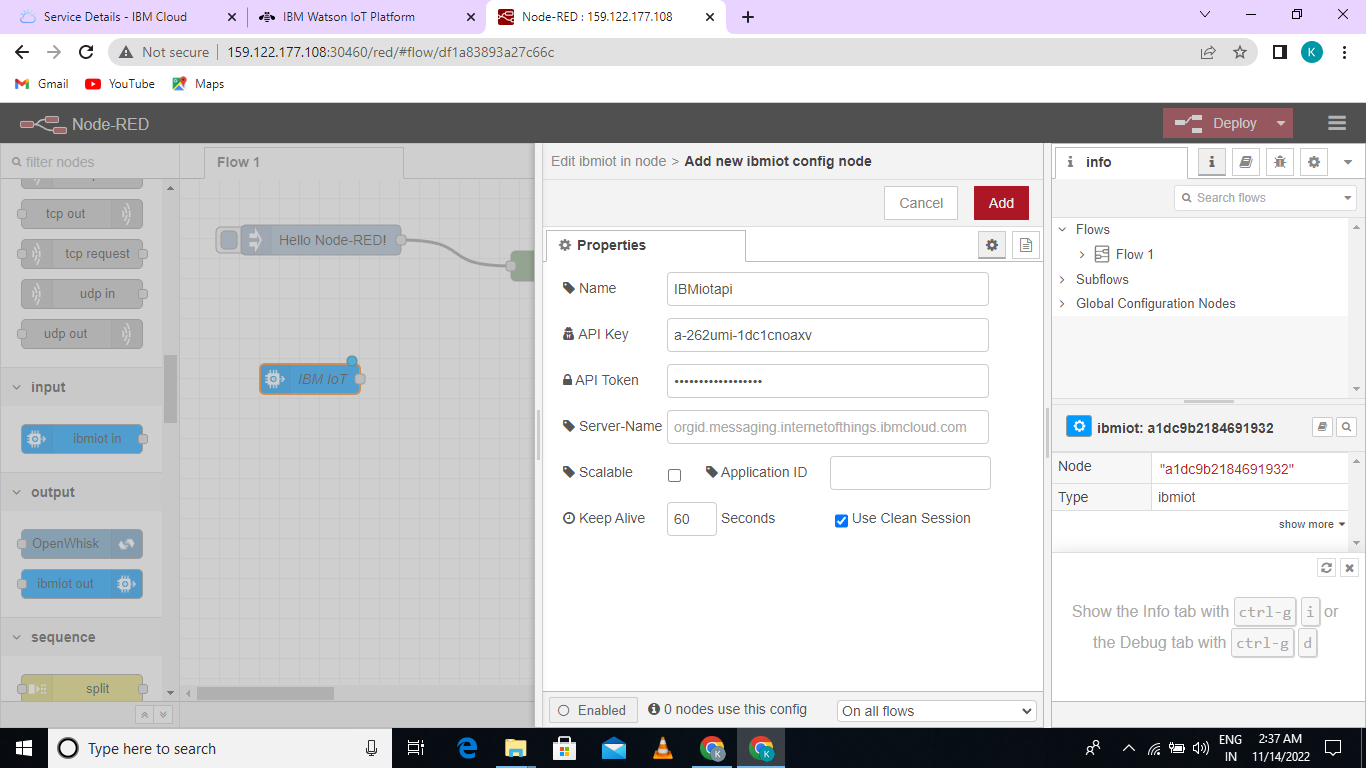


INSTALL PROCESS:

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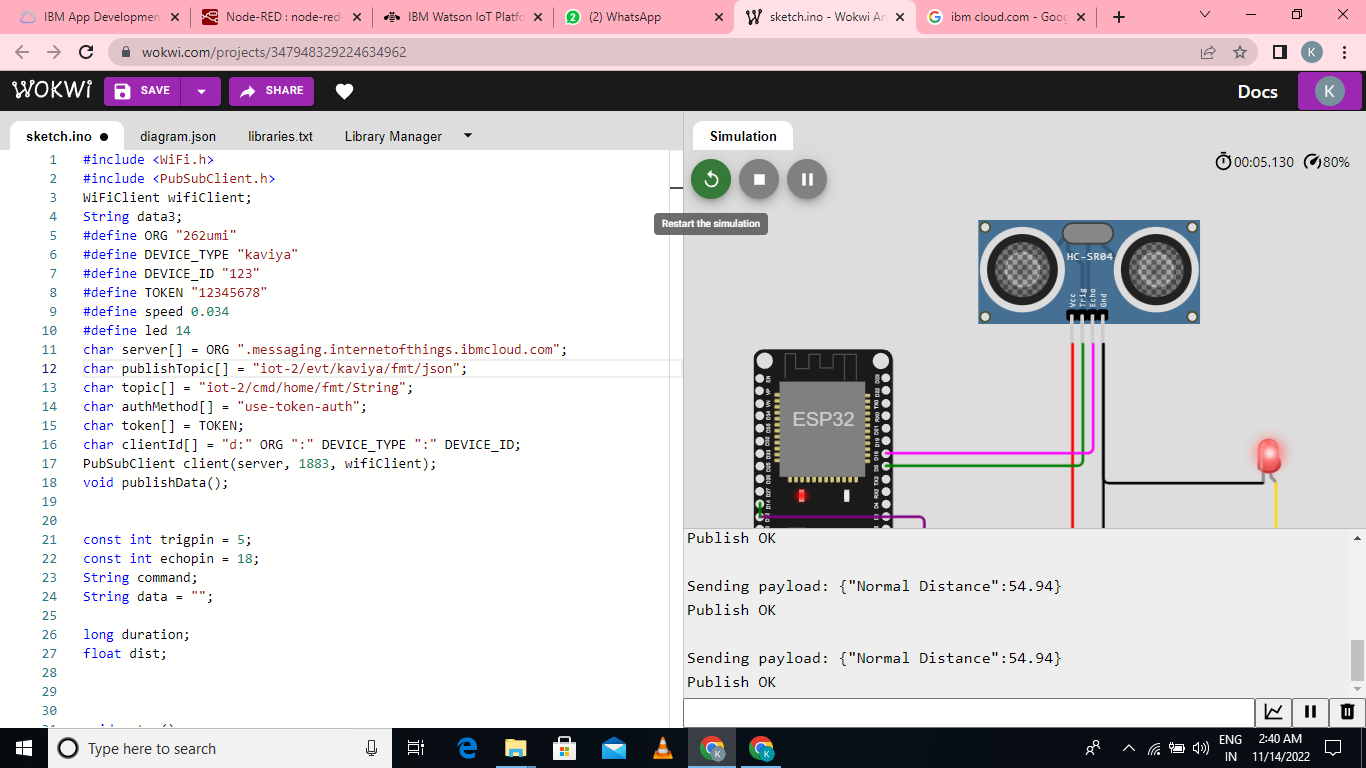


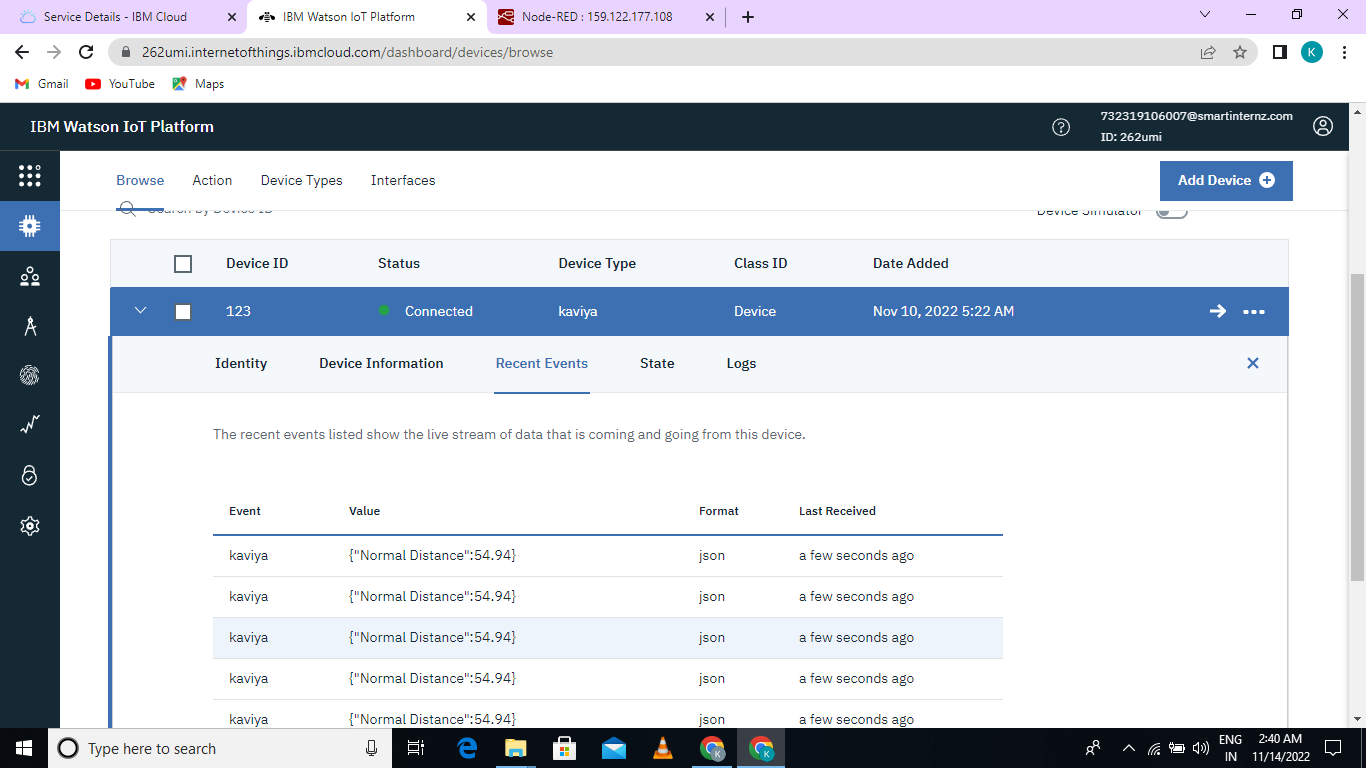
SET PROPERTIES:



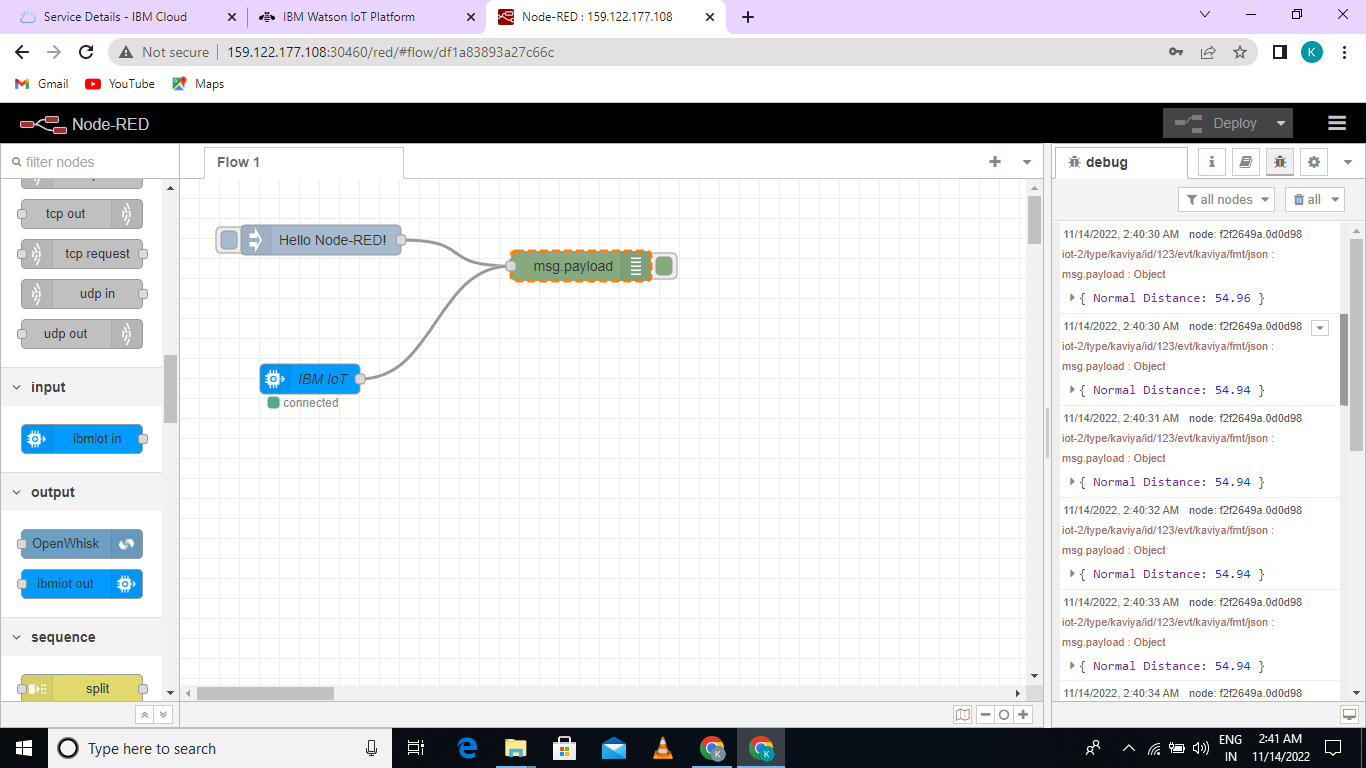
API KEY WAS SUCCESSFULLY ADDED:

IN WOKWI DEVOLAPE A PROGRAM AND GENERATE OUTPUT:

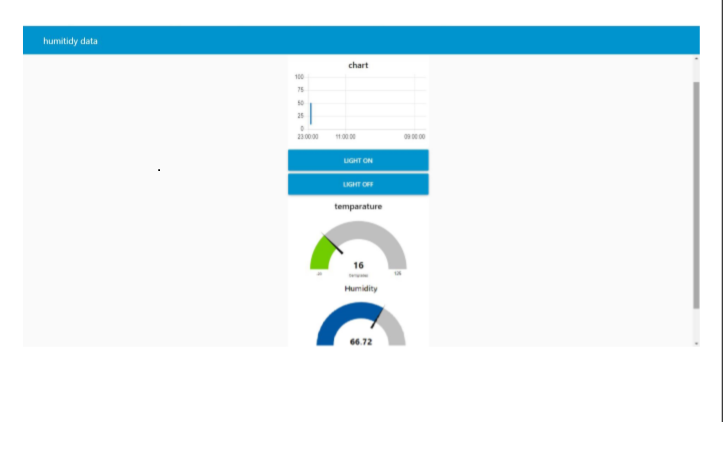




OUTPUT IN NODE RED:



**DEVELOP A WEBSERVICE**:

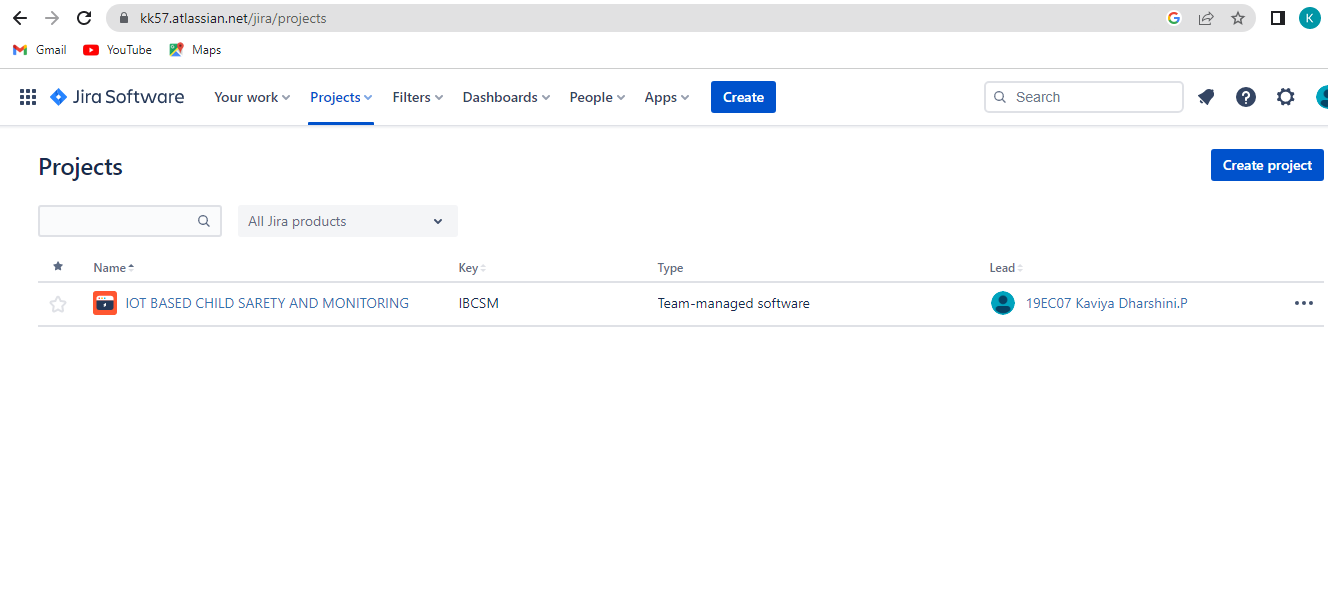


**SPRINT 3:**

* 1. **SPRINT DELIVERY SCHEDULING:**

| **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 Oct2022 |
| Sprint-3 | 20 | 6 Days | 07 Nov 2022 | 12 Nov 2022 | 20 | 7 Oct 2022 |
| Sprint-4 | 20 | 6 Days | 14 Nov 2022 | 19 Nov 2022 | 20 | 14 Oct 2022 |

* 1. **REPORTS FROM JIRA:**

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1. **CODING &SOLUTIONING:**

**7.1 FEATURE1 :**

**#include <WiFi.h>**

**#include <WiFiClient.h>**

**#include <PubSubClient.h>**

**#include <ArduinoJson.h>**

**#include<TinyGPS++.h>**

**#define RXD2 16**

**#define TXD2 17**

**HardwareSerial neogps(1);**

**TinyGPSPlus gps;**

**char arr[100];**

**const char\* ssid = "Redmi";**

**const char\* password = "krish@08";**

**#define ID "17cmwk"**

**#define DEVICE\_TYPE "Tracker"**

**#define DEVICE\_ID "gps1"**

**#define TOKEN "childtracker1"**

**char server[] = ID ".messaging.internetofthings.ibmcloud.com";**

**char publish\_Topic1[] = "iot-2/evt/Data1/fmt/json";**

**char publish\_Topic2[] = "iot-2/evt/Data2/fmt/json";**

**char authMethod[] = "use-token-auth";**

**char token[] = TOKEN;**

**char clientId[] = "d:" ID ":" DEVICE\_TYPE ":" DEVICE\_ID;**

**WiFiClient wifiClient;**

**PubSubClient client(server, 1883, NULL, wifiClient);**

**void setup() {**

**Serial.begin(115200);**

**Serial.println();**

**wifi\_init();**

**}**

**long previous\_message = 0;**

**void loop() {**

**client.loop();**

**String payload = getLocationPayload();**

**if(payload=="{}"){**

**return;**

**}**

**Serial.print("Sending payload: ");**

**Serial.println(payload);**

**if (client.publish(publish\_Topic1, arr)) {**

**Serial.println("Published successfully");**

**} else {**

**Serial.println("Failed");**

**}**

**delay(2000);**

**}**

**void wifi\_init(){**

**WiFi.begin(ssid, password);**

**neogps.begin(9600,SERIAL\_8N1,RXD2,TXD2);**

**while (WiFi.status() != WL\_CONNECTED) {**

**delay(500);**

**Serial.print(".");**

**}**

**Serial.println("");**

**Serial.println(WiFi.localIP());**

**if (!client.connected()) {**

**Serial.print("Reconnecting client to ");**

**Serial.println(server);**

**while (!client.connect(clientId, authMethod, token)) {**

**Serial.print(".");**

**delay(500);**

**}**

**Serial.println("Connected TO IBM IoT cloud!");**

**}**

**}**

**String getLocationPayload(){**

**boolean newData = false;**

**for(unsigned long start = millis();millis()-start<1000;){**

**while(neogps.available()){**

**if(gps.encode(neogps.read())){**

**newData = true;**

**}**

**}**

**}**

**String payload;**

**if(newData == true){**

**newData = false;**

**payload = locationPayloadGenerator();**

**}**

**else{**

**Serial.println("No data");**

**payload ="{}";**

**}**

**return payload;**

**}**

**String locationPayloadGenerator(){**

**String payload = "{}";**

**if(gps.location.isValid()){**

**float lat = gps.location.lat();**

**float lon = gps.location.lng();**

**payload = "{\"latitude\" : "+String(lat)+",\"longitude\" : "+String(lon)+"}";**

**create\_json(lat,lon);**

**}**

**return payload;**

**}**

**void create\_json(float lat,float lon){**

**StaticJsonDocument<100> doc;**

**JsonObject root = doc.to<JsonObject>();**

**root["name"]="Child";**

**root["latitude"] = lat;**

**root["longitude"] = lon;**

**serializeJsonPretty(doc,arr);**

**}**

* 1. **FEATURE 2:**

Internet of things (IoT) refers to networked interconnection of objects featured with ubiquity intelligence [3] [28]. In IoT, objects are connected via internet for communication, interaction, exchanging data and making decisions automatically at anywhere and anytime. Thus, introducing the hyper connectivity concept meaning individuals and organizations able to communicate with each other effortlessly and remotely [15]. Revealed by [17] and [15], IoT is a revolution in advancing technology causing transformation in information technology, humans’ lifestyle, and in businesses processes. The advancements of IoT make it possible to be used in organizations for automating and monitoring business processes [6] [37-38]. In term of society, IoT can be used for simplifying daily tasks, creating smart homes, smart cities, devices or application which improves the quality of life. However, security and privacy are the main challenges of IoT [15] [33-34] which need to be solved as it gathers much personal data capable of revealing sensitive information

1. **TESTING:**

**8.1 TEST CASES:**

* To verify the performance to create a Child tracker which helps the parents with continuously monitoring the translocation.
* To verify scalability testing.
* To verify security testing.
* To verify usability testing.

**8.2 USER ACCEPTENCE TESTING:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **RESOLUTION** | **SEVERITY 1** | **SEVERITY 2** | **SEVERITY 3** | | **SEVERITY 4** | **SUBTOTAL** |
| BY DESIGN | **3** | **2** | **5** | | **7** | **17** |
| DUPLICATE | **0** | **1** | **0** | | **2** | **3** |
| EXTERNAL | 5 | 7 | 3 | | 2 | 17 |
| FIXED | 7 | 8 | 7 | | 15 | 37 |
| NOT REPRODUCED | 0 | 0 | 0 | | 1 | 1 |
| SKIPPED | 0 | 0 | 0 | | 0 | 0 |
| WON’T FIXED | 4 | 2 | 0 | | 1 | 5 |
| TOTAL | 19 | 20 | 15 | 27 | | 79 |

1. **Purpose of Document**

The purpose of this document is to briefly explain the test coverage and open issues of the [Product Name] project at the time of the release to User Acceptance Testing (UAT).

1. **Defect Analysis**

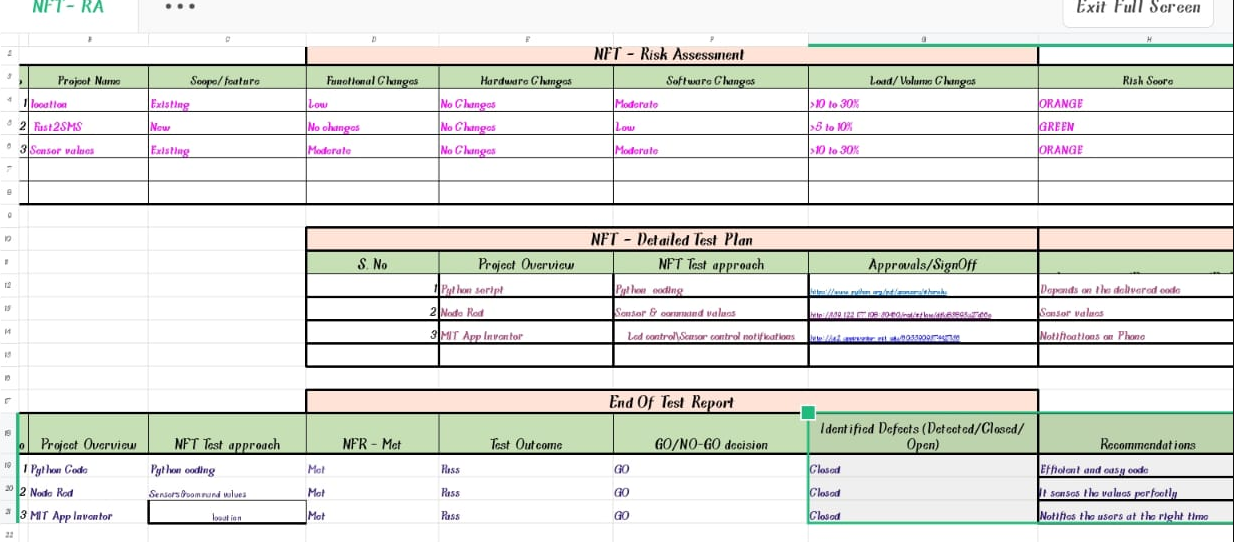
This report shows the number of resolved or closed bugs at each severity level, and how they were resolved Totals 24 20 14 12 70

1. **Test Case Analysis**

This report shows the number of test cases that have passed, failed, and untested

| **.N.** | **COMPONENTS NAME** | **DESCRIPTION** | **QUANTITY** | **<https://how2electronics.com/wp-content/uploads/2020/05/Amazon.jpg>** |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |
| 1 | Arduino Board | Arduino UNO R3 Development Board | 1 | <https://amzn.to/3bjpPDS> |  |
| 2 | GSM Module | SIM800/900 UART GSM Module | 1 | <https://amzn.to/3cqDL06> |
|  |  |  |  |  |
| 3 | LCD Display | JHD162A 16x2 LCD Display | 1 | <https://amzn.to/2YVEF0W> |  |
| 4 | Potentiometer | 10K | 1 | <https://amzn.to/35Qrn7f> |  |
| 6 | Arduino Power Supply | 5V DC Adapter | 1 | <https://amzn.to/3cnwUEI> |  |
| 7 | GSM Power Supply | 12V DC Adapter | 1 | <https://amzn.to/2yNfItP> |  |
| 8 | Connecting Wires | Jumper Wires | 20 | <https://amzn.to/2L8Xc1p> |  |
| 9 | Breadboard | - | 1 | <https://amzn.to/2YM6YyS> |  |

1. **RESULTS:**
   1. **PERFORMANCE METRICS:**

****

1. **ADVANTAGES & DISADVANTAGES:**

**ADVANTAGES:**

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

**DISADVANTAGES:**

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

1. **CONCLUTION:**

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 Atlantis Highlights in Computer Sciences, volume 4 470 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.

**12 . FUTURE SCOPE:**

In future, the currently proposed system can be improvised by adding other parameters that is required for children. The system can be developed further by implementing additional health monitoring sensors like, blood pressure, respiration rate, sleep cycles of REM&NREM and EEG analysis. The system accuracy can also be improved by increasing the trustworthiness of the device to avoid any discrepancies, as in medical and healthcare, a minute error may cost a life. In addition we can also add different zones such as bus section, along with wireless camera which ensures the safety .In bus section we also can implement the fire detecting concept.

**SOURCE CODE:**

**import time**

**import sys**

**import ibmiotf.device**

**import random**

**#Provide your IBM Watson Device Credentials**

**organization = "262umi"**

**deviceType = "kaviya"**

**deviceId = "123"**

**authMethod = "token"**

**authToken = "12345678"**

**#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 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 of type "greeting" 10 times**

**print("power on ")**

**print("checking connection to waston iot...")**

**time.sleep(2)**

**deviceCli.connect()**

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

**print("i can provide your children live location and temperature ")**

**print()**

**name=str(input("enter your child name:"))**

**while True:**

**temperature=random.randint(20,85)#random temperature for your child**

**latitude=random.uniform(12.1295314,12.1335137)#random latitude for your child**

**longitude=random.uniform(78.1955059,78.1986357)#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 }**

**#print data**

**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>=12.1303598 and latitude<=12.1321095 and longitude >=78.1967589 and longitude <=78.19820833:**

**deviceCli.publishEvent("IoTSensorgpsdata","json",data=x,qos=0,on\_publish=myOnPublishCallback)**

**print(x)**

**print("\n")**

**else:**

**deviceCli.publishEvent("IoTSensorgpsdata","json",data=y,qos=0,on\_publish=myOnPublishCallback)**

**print👍**

**print("\n")**

**if (temperature>=40):**

**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(1)**

**# Disconnect the device and application from the cloud**

**deviceCli.disconnect()**

**GITUP LINK:**

[**https://github.com/IBM-EPBL/IBM-Project-44542-1660725143**](https://github.com/IBM-EPBL/IBM-Project-44542-1660725143)

https://drive.google.com/file/d/1X\_\_hxEmML8N9as4xDESqeyVZYOczBp3c/view?usp=drivesdk