PROJECT REPORT

IOT BASED SAFETY GADGET FOR CHILD SAFETY MONITORING AND NOTIFICATION

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1. ABSTRACT

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, we 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. INTRODUCTION

2.1 PROJECT OVERVIEW

Internet of Things (IoT) is a fixed of structures and gadgets interconnected with real-international sensors and actuators to the Internet, in accordance . It is able to make choices detecting the surrounding surroundings with out human interaction. In this research, IOT is implemented to suggest wearable cleverband which enables mother and father to screen and get acknowledged of their toddler's situation at everywhere and whenever even though they aren't through their kids side. Via the IoT clever band, kids protection is guaranteed, and crime fee is reduced

2.2 PURPOSE

Nowadays, crimes on kids keep growing in spite of moves had been taken through the government. Revealed through , the general percent of toddler abasements global is set 80% nowadays, out of which 74% are women and the rest are boys. For each forty seconds, a toddler is long gone lacking withinside the international. Due to that, mother and father are involved for his or her kids and perhaps, a difficult mission for them to assure protection of their kids while they are out.To address the issue, the device is proposed.

3. LITERATURE REVIEW

3.1 EXISTING PROBLEM

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, at will compare with the alert command which was previously stored and sets an emergency level according to the alert command. The GSM has a SIM which med 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 helps in alerting the registered guardians.

In the existing system,

i. The child could not produce the exact alert command during a panic condition.

ii. The command produced may not match with the previously stored command.

iii. This system requires manual intervention

3.2 REFERENCES

[1] Smart IOT Device for Child Safety and Tracking by M Nandini Priyanka, S Murugan, K N H Srinivas, T D S Sarveswararao, E Kusuma Kuma in the year 2019

[2] Child safety wearable device by Akash Moodbidri, Hamid shahnasser in 2017

[3] Child safety wearable device using raspberry pi by Arun Francis G, Janani I, Kaviya S and Ramya devi in 2020 .

[4] Child Safety Monitoring System Based on IoT To cite this article: N. Senthamilarasi et al 2019 J. Phys.: Conf. Ser. 1362 012012.

[5] IoT-based Child Security Monitoring System Lai Yi Heng1,* Intan Farahana Binti Kamsin2 1,2 Asia Pacific University of Technology and Innovation, Technology Park, Bukit Jalil, Kuala Lumpur, Malaysia

[6] Child Monitoring and Safety System Using Wsn and Iot Technology P.Poonkuzhlai1 ,R.Aarthi2 ,Yaazhini.V.M3 , Yuvashri.S4 , Vidhyalakshmi.G5 1,Associate Professor,2Assistant Professor, RMD Engineering College, Thiruvallur, India, .

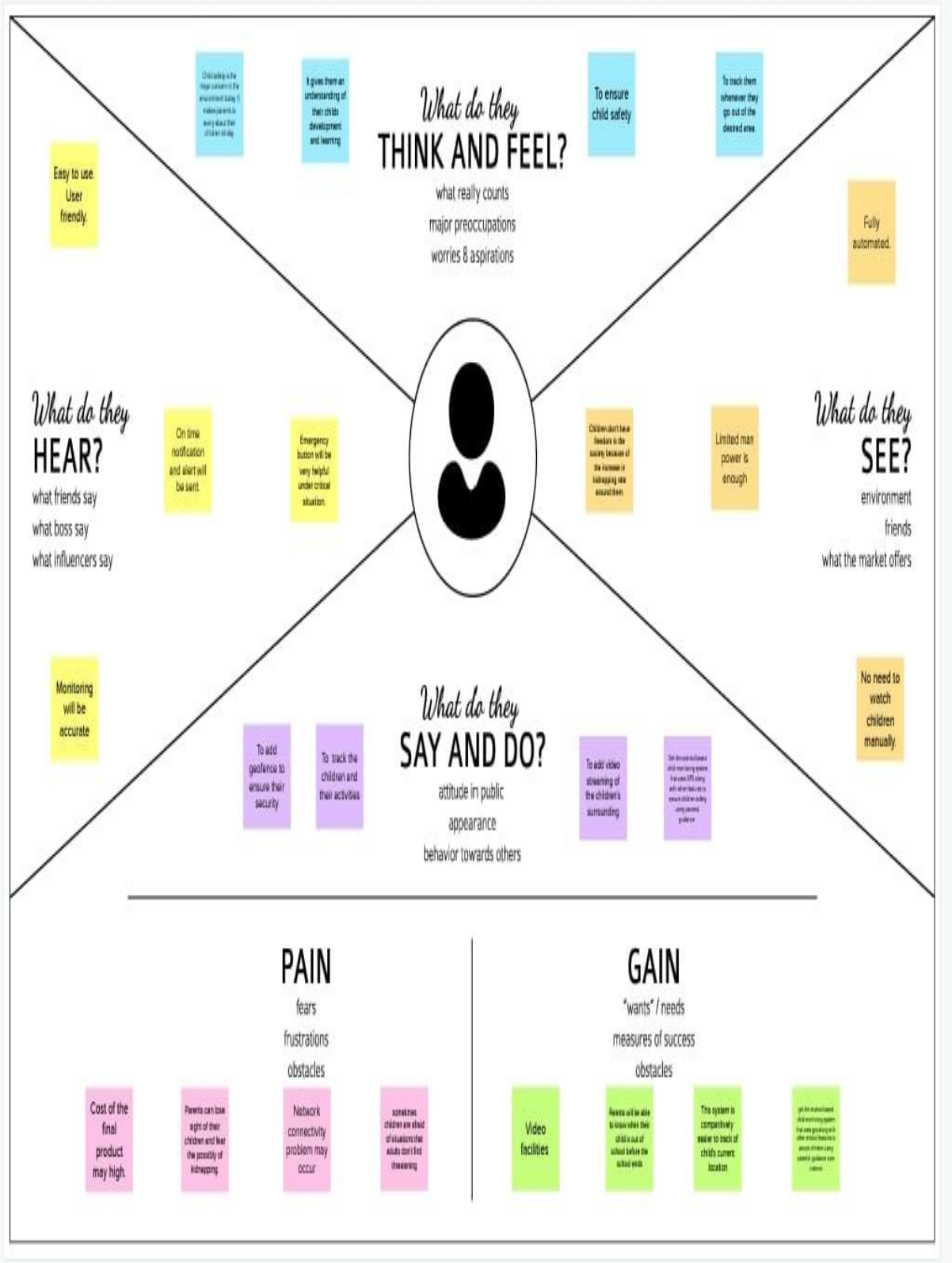
[7] Monitoring and prevention of child abuse. Authors: Mrs. P Chitra, Aarthi S, Anitha K, Angammal R, Abinaya D

3.3 PROBLEM STATEMENT DEFINITION

Basically child cannot complaint about problems while they face in their day to day life to their parents. They cannot even realize what actually happens to them in their early age. It is also difficult for parents to identify their children are in trouble.Parents cant monitor their children 24/7. Nowadays, crime fee related to youngsters continues growing because of which attracts peoples' interest concerning toddler protection

4. IDEATION AND PROPOSED SOLUTION

4.1 EMPATHY MAP CANVAS



4.2 IDEATION & BRAINSTORMING

IDEA 1 :

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

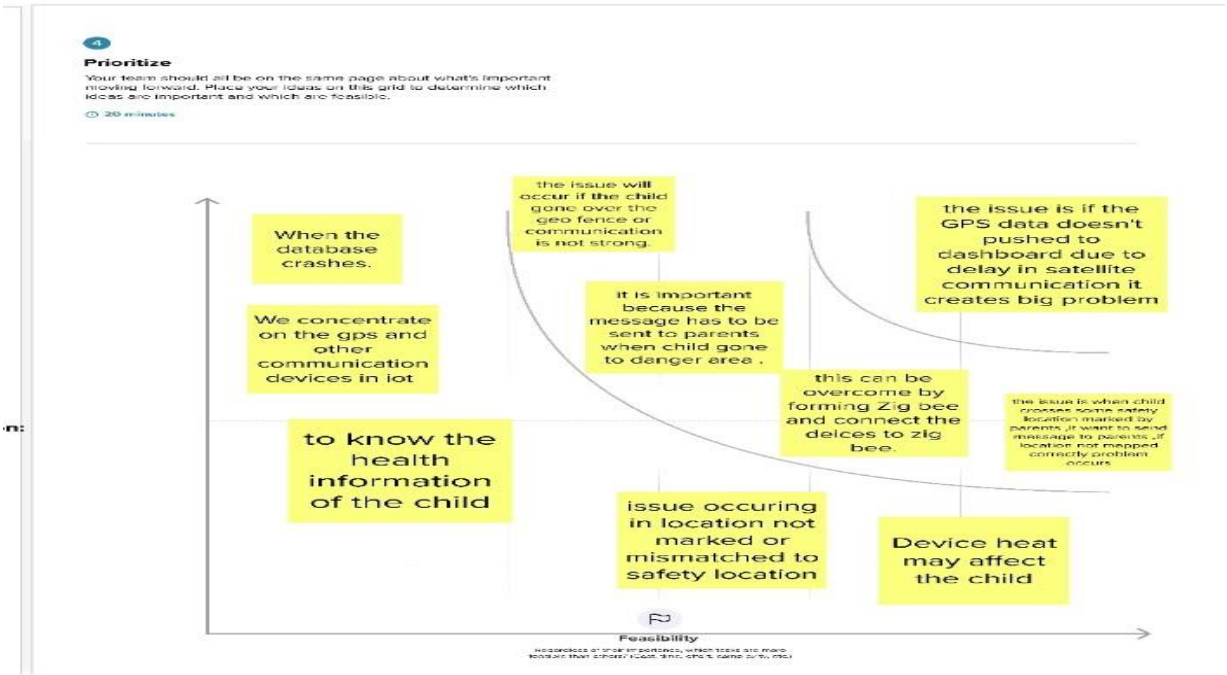
IDEA 2:

Our proposed system is based on the Internet of Things-based Smart Child Safety Wearable Device System designed as an efficient and low-cost IoT-based system for monitoring infants in real-time. This system plays a key role in providing better care for the lost children until they reconvene with the parents. In this present era, most of the wearable devices today are designed based on the location, activity, temperature, pressure, etc of the child and inform the parents via GPS. Therefore it is intended to use voice call as the way of communication between the parent mobile and child's wearable device. The system operates on the microcontroller board and the

functions of sending and receiving notifications, calls, voice messages via GPS.

IDEA 3:

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.



3

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

20 minutes

Based on location:

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

To know the childrens location if they are missing

issue occuring in location not marked or mismatched to safety location

the issue is if the GPS data doesn't pushed to dashboard due to delay in satellite communication it creates big problem

based on safety

In order to get the information about child safety works smoothing & accurately.

the issue is when child crosses some safety location marked by parents ,it want to send message to parents ,if location not mapped correctly problem occurs

it is important because the message has to be sent to parents when child gone to danger area .

based on health

The device materials can vomit hazardous rays

Child's body temperature may affect bydevice temperature

it affects the safety of the child and create the panic to parents

the issue is the parent doesn't know panic situation of child

Device heat may affect the child

to know the health information of the child

If the communication between child and parents where disconnected

based on communication

Data & information are not able to read/write.

based on data

We concentrate on the gps and other communication devices in iot

the issue will occur if the child gone over the geo fence or communication is not strong.

to reduce interrupt to get correct information of the child

When the database crashes.

the boundaries of the problem is delay in communication.

the issue is if the GPS data doesn't pushed to dashboard due to delay in satellite communication it creates big problem

4.3 PROPOSED SOLUTION

IDEA

The solution of this problem is to create a child tracker device (gadget) through which parents can monitor their child's location anytime.An alert message will be sent to parents or guardian when the child crosses the geofence. An emergency button is given in the device to notify parents,When the child is in trouble. All data are stored in database

UNIQUENESS

The novelty of the work is that work is thet the system automatically alerts the parent by sending notifiations, when immediate attention is required for the child during emergency

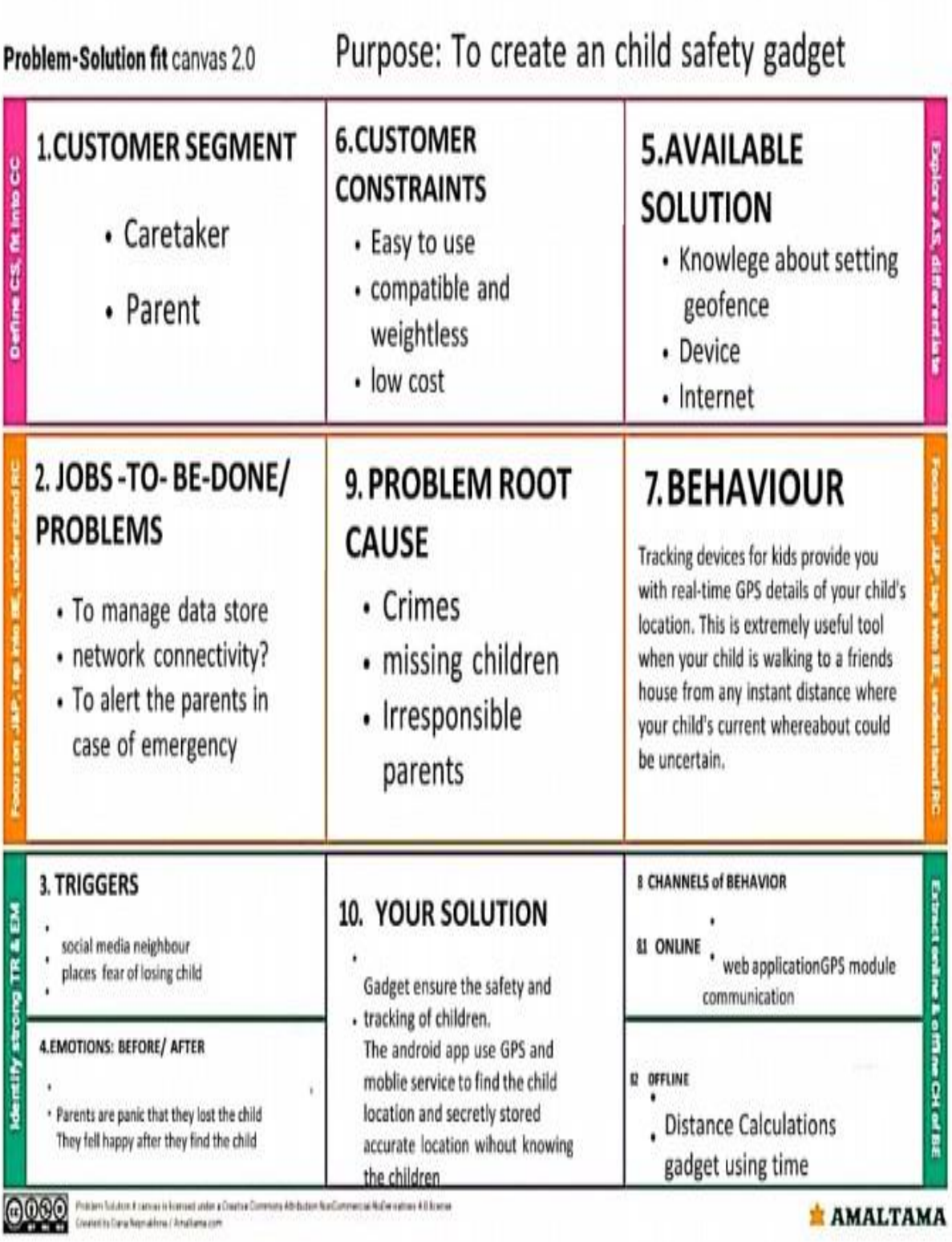
SOCIAL IMPACT

The parents need not worry about their child's location and safety as they will get alert messages in case of any trouble

BUSINESS MODEL

The model of the gadget is wearable device like watch .That consist the GPS to track the location of the person.The device is cost efficient and easily wearable .Because the device was used by the person everyday.

4.4PROBLEM SOLUTION FIT



4 REQUIREMENT ANALYSIS

5.1 FUNCTIONAL REQUIREMENTS

FR NO	FUNCTIONAL REQUIREMENTS(Epic)	SUB REQUIREMENTS
FR-1	User Registeration	Registration through account Registeration through gmail
FR-2	User confirmation	Confirmation via email Confirmation via OTP
FR-3	User notification	Notification to registered mobile number
FR-4	User location check	Check through account

5.2 NON FUNCTIONAL REQUIREMENTS

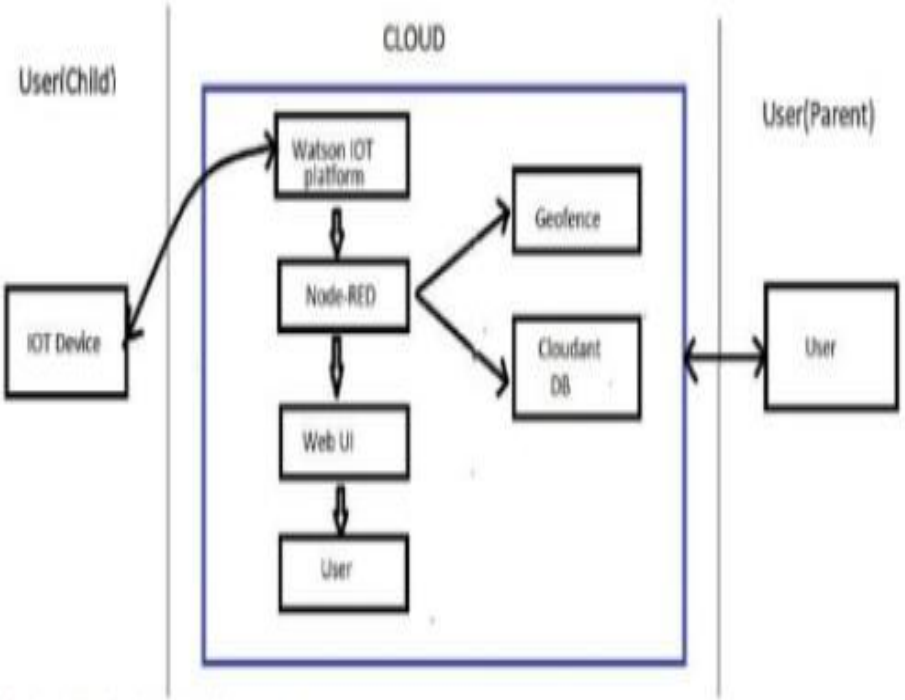
FR NO	NON FUNCTIONAL REQUIREMENT	DESCRIPTON
NFR-1	Usability	Allows parents to keep a track of their children location and also help them raise an alarm in case of an emergency
NFR-2	Security	Creates a secure environment for childrens to move around
NFR-3	Reliabilty	Increased reliability towards technology and reduced relability towards guardians
NFR-4	Performance	High performance in terms of simple usage and security
NFR-5	Availability	Any time usage backed up by power supply
NFR-6	Scalability	High level with increase in peformance

5 PROJECT DESIGN

6.1DATAFLOW DIAGRAM

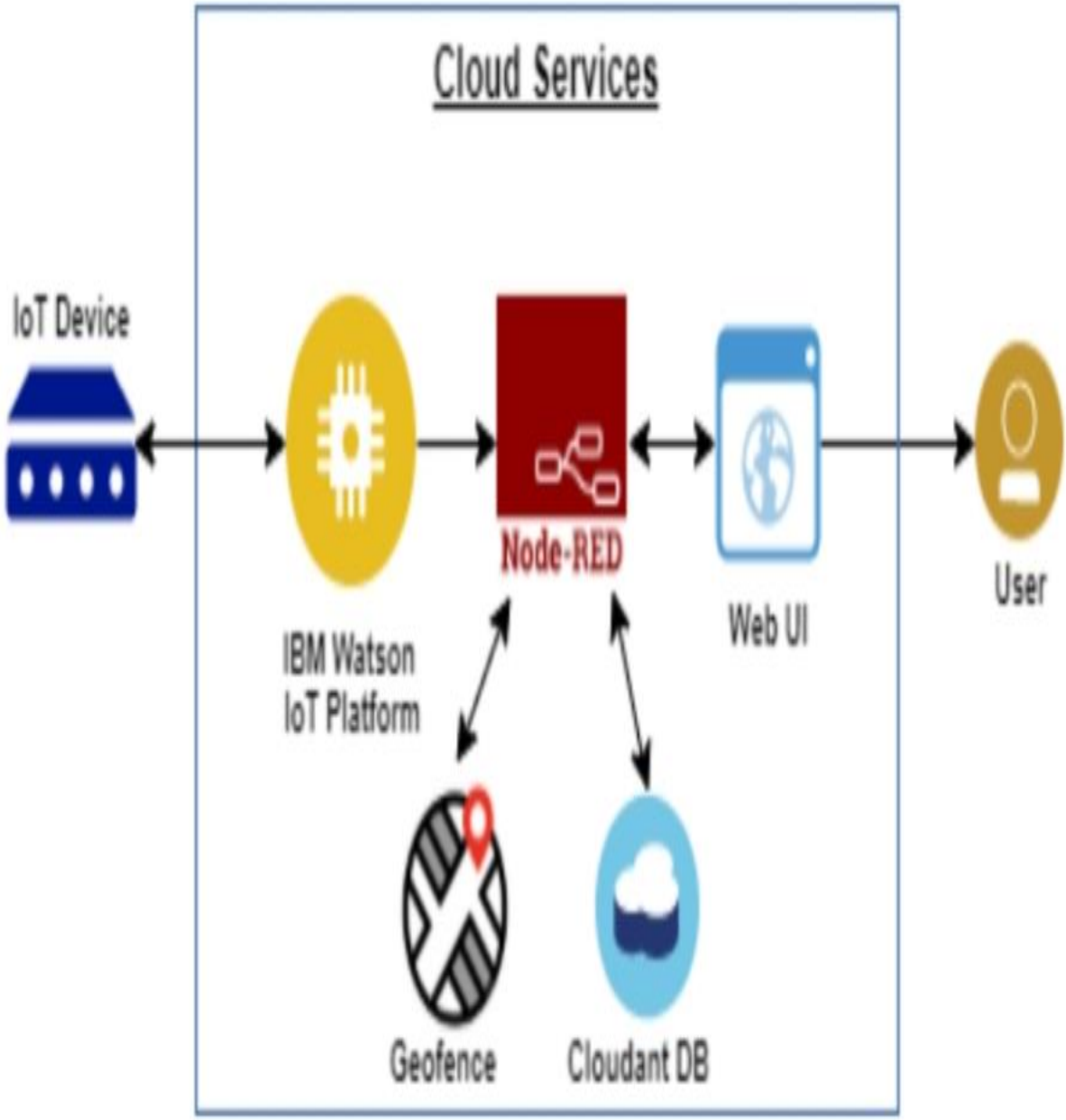
IoT

FLOW:-



5.2 Solution&Technical Architecture:-

6.1 SOLUTION AND TECHNICAL ARCHITECTURE



6.2 USER STORIES

USER TYPE	FUNCTIONAL REQUIREMENTS	USER STORY NUMBER	USER STORY TASK	ACCEPTANCE CRITERIA	PRIORITY	RELEASE
Customer	Registration	USN-1	As a user, I Can register my account by entering my email, password	I can accesss my account	High	Sprint-1
		USN-2	As a user,I will receive confirmation email once I have registered myself	I can receive confirmation email &click confirm	High	Sprint-1
		USN-3	As a user,I can register for the application through apple account	I can register & access the dashoard with apple account login	High	Sprint -2
	Login	USN-4	As a user, I can log into the application by entering user id & password		High	Sprint-1
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		Mantaning 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

7 PROJECT PLANNING & SCHEDULING

7.1SPRINT PLANNING & ESTIMATION

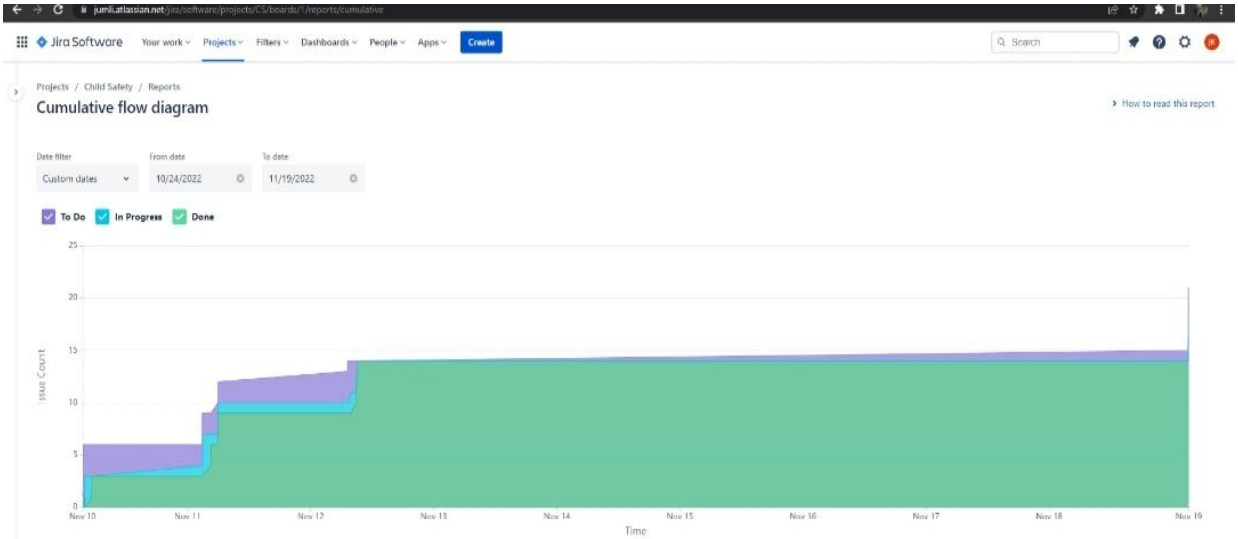
Milestone Name	Activities	Milestone Number	Description	Completion	Status
Prerequisites			Create the IBM account and download he necessary software for your chosen category of the project	27/08/2022	Completed
Ideation Phase	Literature survey	1	Literature survey on the selected project by gathering and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

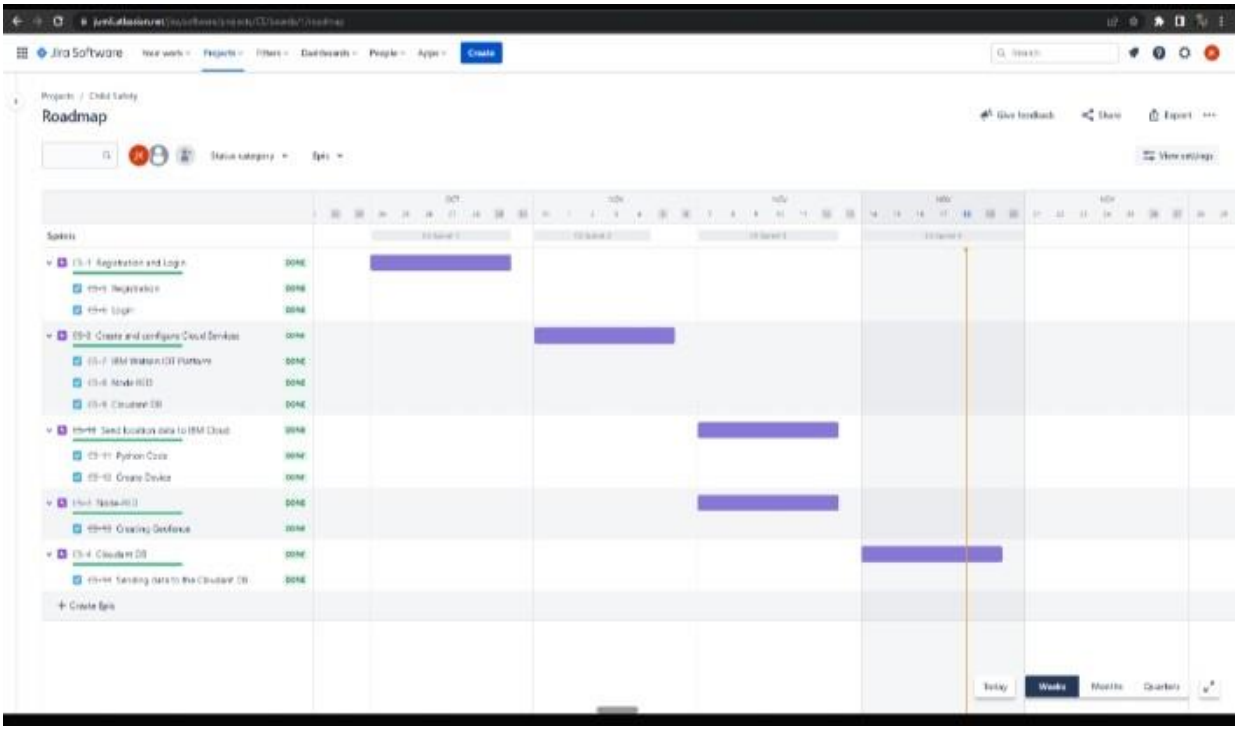
	Data flow diagram	3	Draw the data flow diagram for you proposed solution	12/10/2022	Completed
	Solution requirements	3	Create a solution requirement document for the proposed solution	14/10/2022	Completed
	Technology stack	3	Prepare the technology stack diagram for the proposed solution	14/10/2022	Completed
Project Planning	Milestone and activity list	4	Create a document to show your milestones as well as activity in your development cycle	21/10/2022	Completed
	Sprint delivery plan	4	Create a sprint plan for the project	21/10/2022	Completed
Project development phase	Spirit-1	5	Delivery of the sprint-1	29/10/2022	On Going
	Spirit-2	6	Delivery of the sprint-2	05/10/2022	On Going
	Spirit-3	7	Delivery of the sprint-3	12/10/2022	On Going
	Spirit-4	8	Delivery of the sprint-4	19/10/2022	On Going

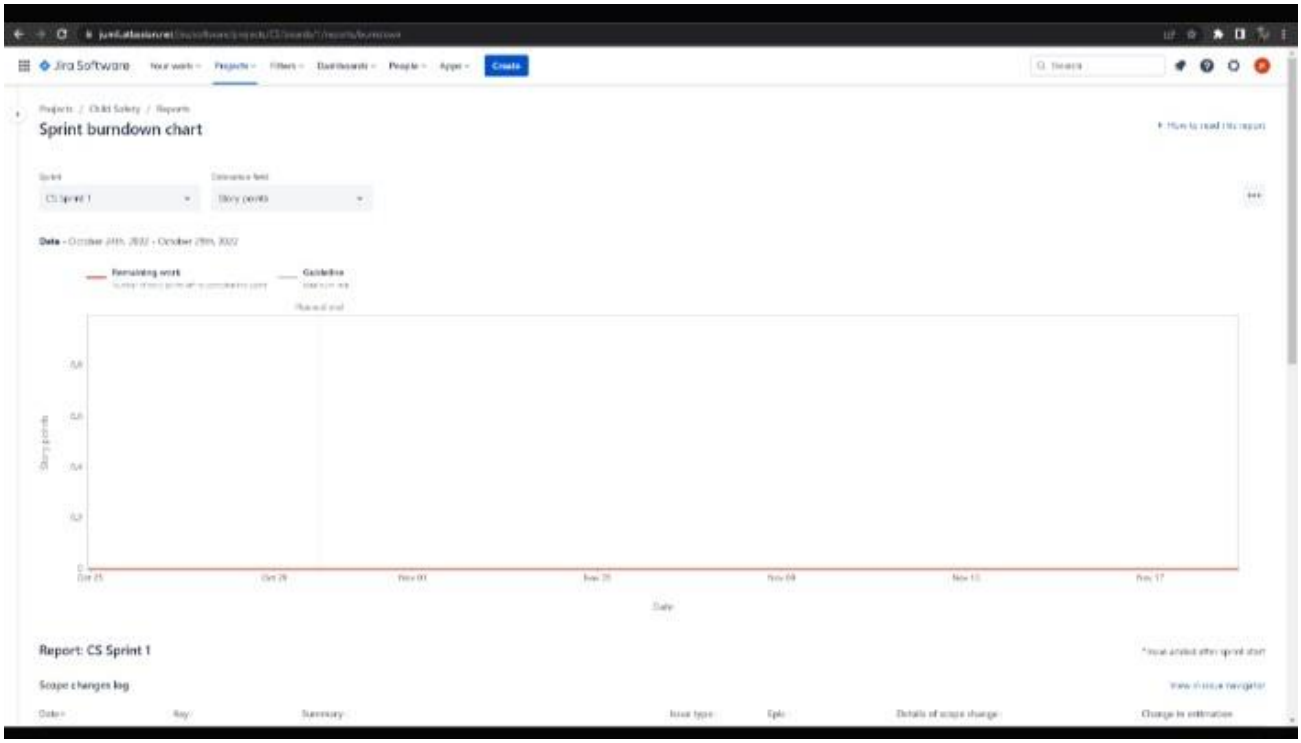
7.2 SPRINT DELIVERY SCHEDULE

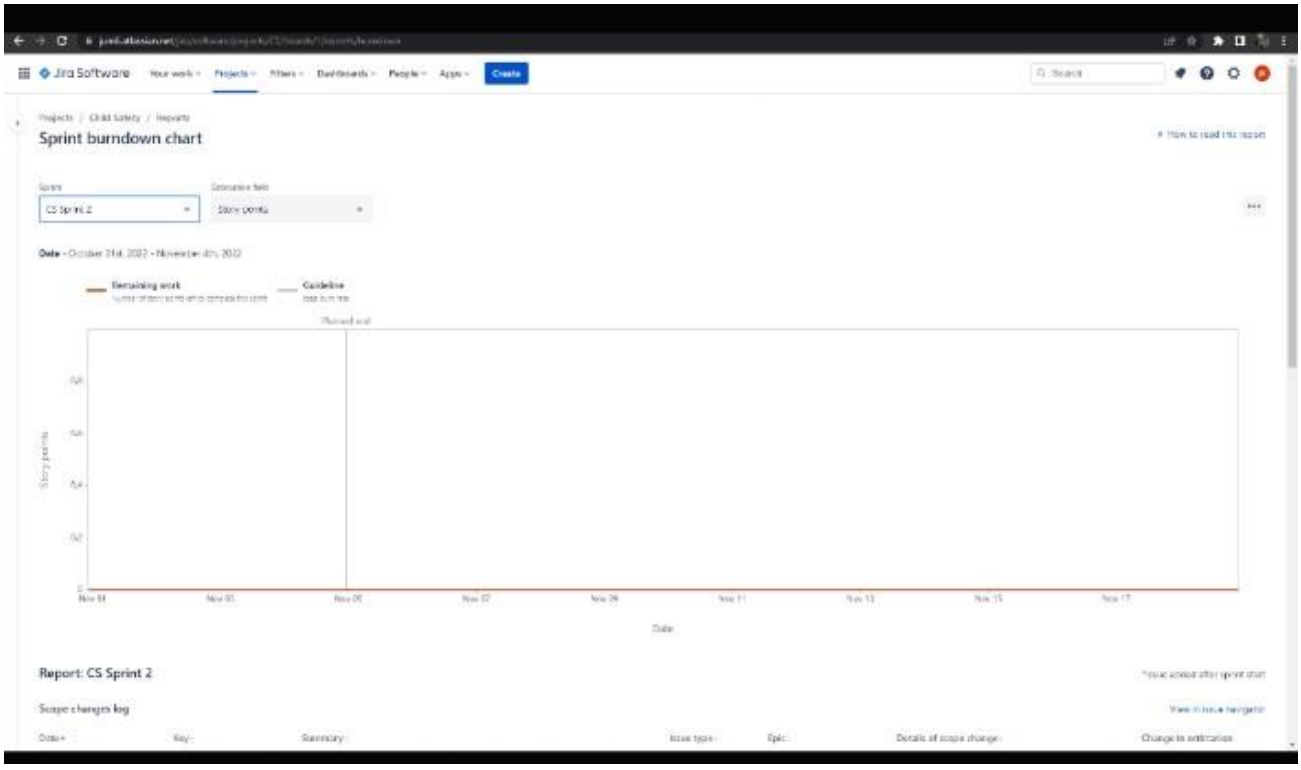
SPRINT	FUNCTIONAL REQUIREMENT	USER STORY NUMBER	USER STORY	STORY POINTS	PRIORITY	TEAM MEMBERS
Sprint-1	Login	USN-1	AS a customer, I might ensure login credential through gmail ease manner for the purpose of sending alert message to the parents or guardians or informing through normal message	2	high	Aruna.R Asha.B
Sprint-1	Registration	USN-2	As a user, I have to registered my details and tools details in a siple and easy manner by considering the safety of child, this registered system sends notification to the parents	2	high	Hariprasath k Gokulkrishna p
Sprint-2	dashboard	USN-3	As a user, In case of any emergency situation parents must get the alert notification and location of the child	3	Medium	Aruna R Gokulkrishna P
Sprint-3	dashboard	USN-4	As a user, Parent need to safeguard hild tracking the child's location and its important to notify near plice station incase of more emerency	2	high	Asha B Hariprasath p
Sprint-3	dashboard	USN-5	As a user, Its good to have a IOT based system to safeguard monitoring without presence of parent	2	high	Aruna R Asha B
Sprint-4	Monitoring the environment	USN-1	User can monitor the situation of the environment from a dashboard that displays sensor information about the environment and child health	2	High	Hariprasath K Gokulkrishna p
Sprint-4	Event Notification	USN-6	Sending an alert SMS to the parents and gaurdians in case of panic situation	2	High	Hariprasath k Gokulkrishna p

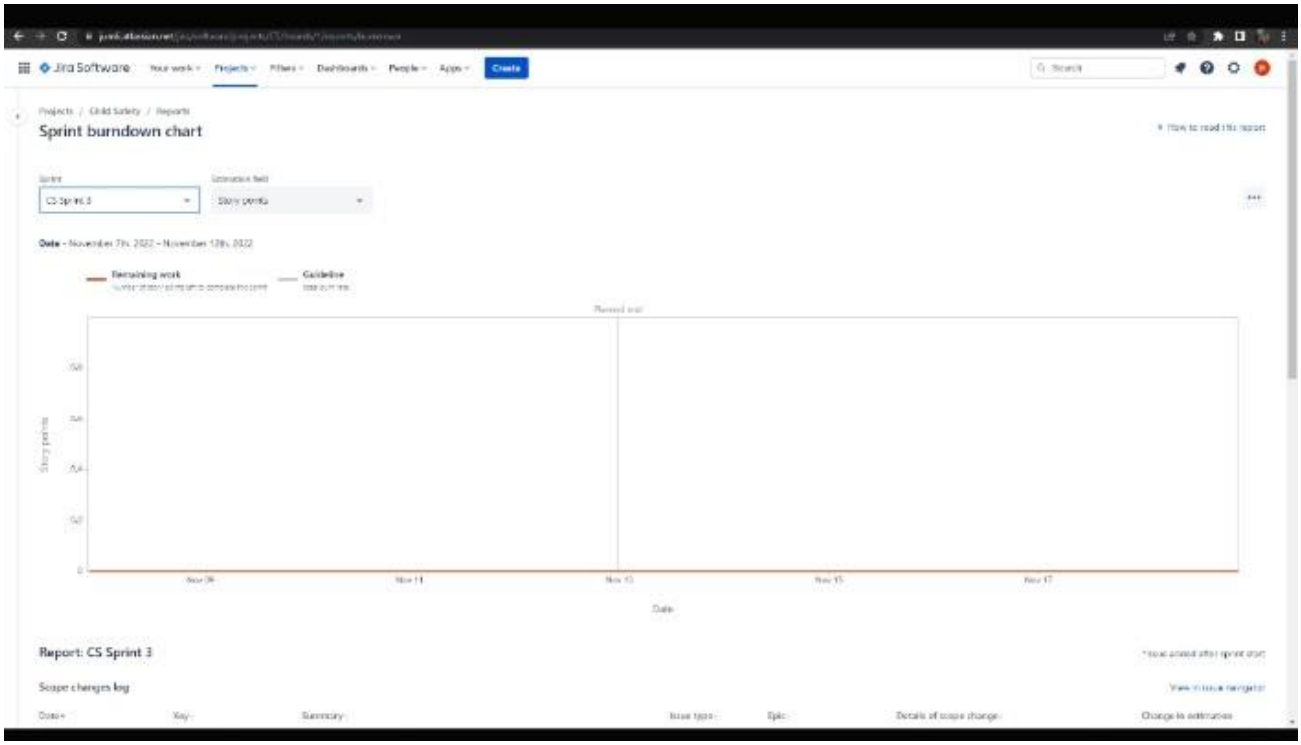
7.2 REPORTS FROM JIRA

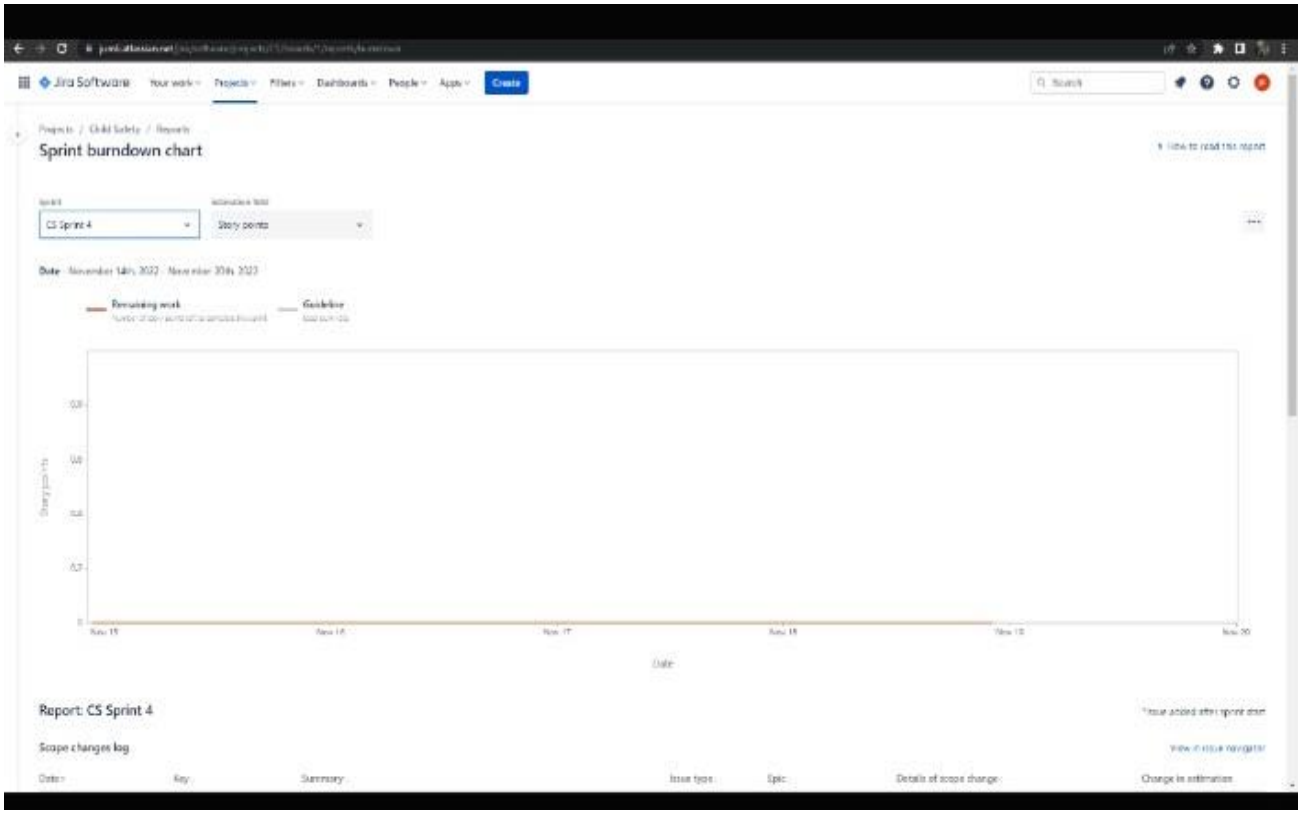





Jira Software
Create
Sprint burndown chart
Report: CS Sprint 1
Scope changes log


Jira Software
Create
Sprint burndown chart
CS Sprint 2
Report: CS Sprint 2
Scope changes log


Jira Software
Create
Sprint burndown chart
Remaining work
Guideline
Report: CS Sprint 3
Scope changes log


Jira Software
Create
Sprint burndown chart
Remaining work
Guideline
Report: CS Sprint 4
Scope changes log

8 CODING AND SOLUTION

8.1 FEATURE 1

```
#define BLYNK_TEMPLATE_ID "TMPL-NbHpP0f"
#define BLYNK_DEVICE_NAME "GPS and TEMP"
#define BLYNK_AUTH_TOKEN
"CtqYTh0abYlqDmBMHHjIVJk41vxdBoW8"
#define BLYNK_PRINT Serial
#include <ESP8266WiFi.h>
#include <BlynkSimpleEsp8266.h>
#include <DHT.h>
char auth[] = BLYNK_AUTH_TOKEN;
char ssid[] = "Hariyew";
char pass[] = "0123456789";
#define DHTPIN 2
#define DHTTYPE DHT11
DHT dht(DHTPIN, DHTTYPE);
BlynkTimer timer;
void sendSensor()
{
  float h = dht.readHumidity();
  float t = dht.readTemperature();
  if (isnan(h) || isnan(t)) {
    Serial.println("Failed to read from DHT sensor!");
    return;
```

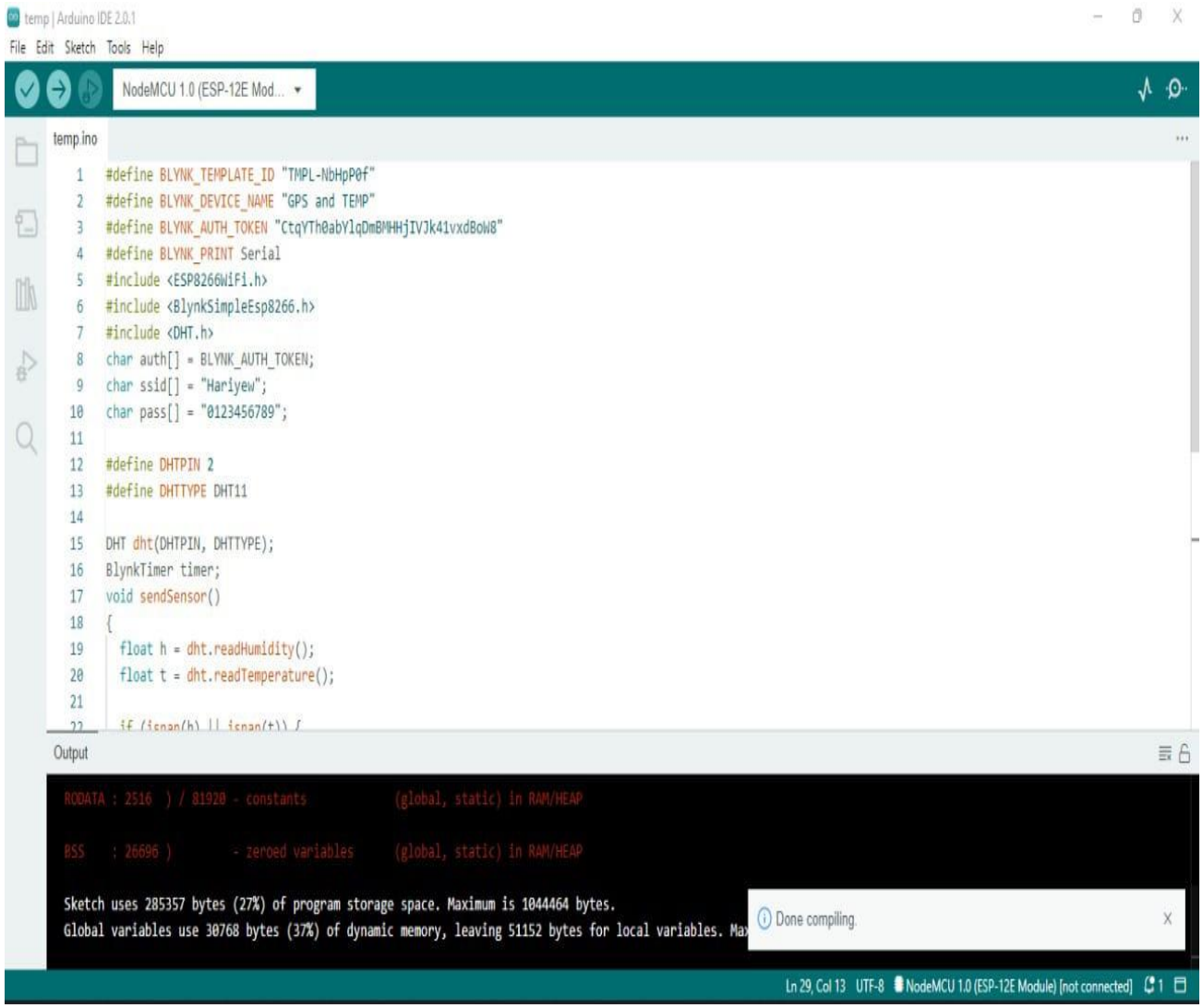
```
  }
  Blynk.virtualWrite(V5, h);
  Blynk.virtualWrite(V6, t);
}
void setup()
{
  Serial.begin(115200);
  Blynk.begin(auth, ssid, pass);
  dht.begin();
  timer.setInterval(1000L, sendSensor);
}
void loop()
{
  Blynk.run();
  timer.run();
}
```

8.2 FEATURE 2

```
#define BLYNK_PRINT Serial
#include <SPI.h>
#include <ESP8266WiFi.h>
#include <BlynkSimpleEsp8266.h>
#include <SimpleTimer.h>
#include <DHT.h>
char auth[] ="CtqYTh0abYlqDmBMHHjIVJk41vxdBoW8";
char ssid[] = "Hariyew";
```

```
char pass[] = "0123456789";

#define DHTPIN 2
#define DHTTYPE DHT11

DHT dht(DHTPIN, DHTTYPE);
SimpleTimer timer;
void sendSensor()
{
  float h = dht.readHumidity();
  float t = dht.readTemperature();

  if (isnan(h) || isnan(t)) {
    Serial.println("Failed to read from DHT sensor!");
    return;
  }
  Blynk.virtualWrite(V5, h);
  Blynk.virtualWrite(V6, t);
}

void setup()
{
  Serial.begin(9600);
  Blynk.begin(auth, ssid, pass);

  dht.begin();
```

```
  timer.setInterval(1000L, sendSensor);
}

void loop()
{
  Blynk.run();
  timer.run();
}
```



9 TESTING

9.1TEST CASES

Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Comments	TC for Automation(Y/N)	BUG ID	Executed By
TC_001	Functional	IBM cloud	Create the IBM Cloud services which are being used in this project.	IBM Cloud Login ID & Password	1.Go to IBM Cloud signup page 2.Enter e-mail id and other credentials 3.Enter a password	https://cloud.ibm.com/login	User should sign up IBM cloud and details should be verified	Working as expected	Pass	Results verified	No		Madhusmita K
TC_002	Functional	IBM Cloud	Configure the IBM Cloud services which are being used in preparing this project	IBM Cloud Login ID & Password	1.Go to Cloud login 2.Enter user ID & Password 3.Verify login to the project dashboard	https://cloud.ibm.com/login	User login to IBM Cloud and should be navigated to IBM Cloud Dashboard page	Working as expected	Pass	Results verified	No		Pugazhenthi R Hari suraj kumar B
TC_003	Functional	IBM Watson IoT Platform	IBM Watson IoT platform acts as the mediator to connect the web application to IoT devices, so create the IBM Watson IoT platform.	IBM Watson IoT Platform Login ID & Password	1.Login to IBM Cloud 2.Click Catalog 3.Search IoT and click create 4.Go to resource list and search Internet of Things platform 5.Press Launch and click Sign in IBM Watson Platform	https://cloud.ibm.com/catalog?taxonomyNavigation=true#internet_of_things	User should be navigated to IBM IoT Watson Platform	Working as expected	Pass	Results verified	No		Pugazhenthi R Hari Suraj Kumar B
TC_004	Functional	IBM Watson	In order to connect the IoT device to the IBM cloud, create a device in the IBM Watson IoT platform and get the device credentials.	IBM Watson IoT Platform Login ID & Password	1.Login to IBM Watson Platform 2. Click Add Device 3.Enter the details and click Next. Create Device ID & Device type 4.Turn on Device Simulator and click simulation running. Enter the values of gas, temperature & humidity level 5.Click Send & Save. Verify the displayed result of the alerts.	Check the location of the child using Dashbroe and give notification to the parent.	Check the location	Working as expected	Pass	Results verified	No		Kishyanth G
TC_005	Functional	IBM CloudObject Mobile	Configure the connection security and create API keys that are used in the Node-RED service for accessing the IBM IoT Platform.	Node-Red Installation	1.Install node-red and open node-red in command prompt 2.Select IBM Input in IoT	https://cloud.ibm.com/login?apikey=yourapikey&state=create&target=https%3A%2F%2Fcloud.ibm.com%2Fdevelop%2Fnodered%3Fstate%3Dcreate	User should be able to see the Node-Red page	Working as expected	Pass	Results verified	No		Pugazhenthi R Hari suraj kumar B

Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Comments	TC for Automation(Y/N)	BUG ID	Executed By
TC_006	Functional	Node-Red	Create a Node-RED service	Node-Red Installation	1. Select IBM IoT Input in Node, in IBM IoT Watson Platform, go to apps and click on generate API keys. 2.Copy & paste generated API key and token in the IBM IoT Input. After entering all details, click the done button. 3.Add debug to the IBM IoT and rename as Msg.payload and click on done. Click gauge from the dashboard and fill the details & add functions to the gauge. Check the generated values from the debug message. 4.Edit function node, rename them as msg.payload.temperature, msg.payload.humidity, name them as "Temperature", "Gas" & "Humidity" 5.Finally, add alarm ON/OFF and Sprinkler ON/OFF buttons in the IBM IoT and debug. Verify the output from NODE-RED using Local Host link	Location is checked continously. Circle location is stored in the geofence. Whenever the child exits the location then the notification alert is send to the parent/Care taker.	Location of the child is send to the parent via SMS	Working as expected	Pass	Results verified	No		Pugazhenthi R Hari suraj kumar G
TC_007	Functional	Python 3.7.0	Develop a python script to publish random sense data such as temperature, humidity level and soil level to the IBM IoT platform	Python 3.7.0(64-bit) Installation	1.Download and Install Python 3.7.0 2.Develop python code	https://www.python.org/ftp/python/3.7.0/python-3.7.0.exe	User should be able to develop a python code	Working as expected	Pass	Results verified	No		Kishanthi G

Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Comments	TC for Automation(Y/N)	BUG ID	Executed By
TC_008	Functional	Python 3.7.0	Write an ongoing publish code, whenever an incorrect pattern and data is sent, which can trust the sense of who should	Python 3.7.0(64-bit) Installation	1.Assembly of Python 3.7.0 2.Write python code	Get the output from the code	User should be able to get the results from the dashboard code	Working as expected	Pass	Results verified	No		Kishanthi G
TC_009	Functional	Watson Device	Publish data to The IBM Cloud	IBM Cloud Login ID & Password	1.Run the python code 2.Verify the displayed output	Predetermin of python code	User should be able to publish the data	Working as expected	Pass	Results verified	No		Kishanthi G Pugazhenthi R
TC_010	Web UI	Node-Red & MIT Inventor	Create Web UI in Node- Red	MIT Inventor Login ID & password	1.Go to Node-Red, Select http in & http response, Add functions and select another http in and http response. Connect them to IBM IoT output and function.Write the command statements such as Sprinkler ON/OFF, Alarm ON/OFF and sensor 2.Go to MIT app inventor and create frontend using buttons, horizontal arrangement, text box, etc. Add blocks, and so on create back end. Verify the output	In the safety gadget the location Alert Notation is send through the SMS to the parent	Location should be seen in the mobile application	Working as expected	Pass	Results verified	No		Madhusmita K Hari Suraj Kumar B
TC_011	Functional	IBM Cloudant DB	Configure the Node-RED flow to receive data from the IBM IoT platform and also use Cloudant DB node to store the received sensor data in the cloudant DB	IBM Cloud Login ID & Password	1.Go to IBM cloud, search Cloudant in Catalog, Add new dashboard, go to Node Red 2.Connect to cloudant and verify the results	Cloudant is connected to NODE-RED	User should be able to connect the Cloudant and Node Red	Working as expected	Pass	Results verified	No		Pugazhenthi R Hari suraj kumar B

9.2 USER ACCEPTABLE TESTING

1. Purpose of Document

The purpose of this document is to briefly explain the test coverage and open issues of the [IOT based safety gadget for child safety monitoring and notification] project at the time of the release to User Acceptance Testing (UAT).

2. Defect Analysis

This report shows the number of resolved or closed bugs at each severity level, and how they were resolved

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	8	1	2	3	14
Duplicate	1	0	3	0	4
External	2	3	0	1	6
Fixed	9	2	4	10	25
Not Reproduced	0	0	1	0	1
Skipped	0	0	1	1	2
Won't Fix	0	5	2	1	8
Totals	20	11	13	16	60

3. Test Case Analysis

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

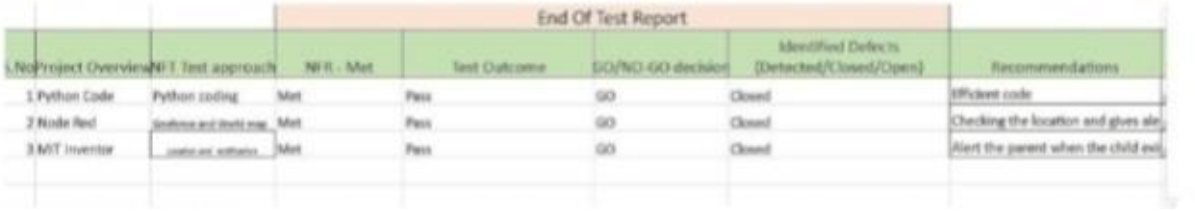
Section	Total Cases	Not Tested	Fail	Pass
Print Engine	7	0	0	7
Client Application	51	0	0	51
Security	2	0	0	2
Outsource Shipping	3	0	0	3
Exception Reporting	9	0	0	9
Final Report Output	4	0	0	4
Version Control	2	0	0	2

10 RESULTS

10.1 PERFORMANCE METRICS

S.No	Project Name	Scope/feature	Functional Changes	Hardware Changes	Software Changes	Load/Volume Changes	Risk Score
1	Notification on /off	New	Moderate	No Changes	Moderate	>50 to 70%	ORANGE
2	Fast SMS	New	Moderate	No Changes	Moderate	>10 to 30%	ORANGE
3	Node red	Existing	Low	No Changes	Low	>5 to 10%	GREEN
4	Cloudant database	New	Moderate	No Changes	Moderate	>10 to 30%	ORANGE

NFT - Detailed Test Plan				
S.No	Project Overview	NFT Test approach	Approvals/SignOff	
1	Python script	Python coding		Depend on the delivered code
2	Node Red	Geofence and World map		Latitude and longitude
3	MIT Inventor	Location/ Notification		Notifications



			End Of Test Report				
S.No	Project Overview	NFT Test approach	NFR - Met	Test Outcome	GO/NO-GO decision	Identified Defects [Detected/Closed/Open]	Recommendations
1	Python Code	Python coding	Met	Pass	GO	Closed	Efficient code
2	Node Red	[illegible]	Met	Pass	GO	Closed	Checking the location and gives ale
3	MIT Inventor	[illegible]	Met	Pass	GO	Closed	Alert the parent when the child exi

11ADVANTAGES &DISADVATAGES

ADVANTAGES

1.It assists parents to continuously monitoring their children remotely.

2.In case situations happen,notifications will be sent to parents so that actions can be taken.

3.Child safety can be ensured .

4.Crime rate will be reduced.

DISADVATAGES

1. .Wearable devices which are used to locate the children only through Wi-fi and Bluetooth.

2. It causes health issues.

12CONLUSION

Nowadays,the security for the children is very low. There are a substantial amount of cases registered regarding child safety. In recent times, the schools and the parents are very muchworried about their school children for school transport and other places. So, the Safety andmonitoring of school children is very much difficult. In this project we are introducing the

IOTbased embedded system used in this project. So we propose a system to monitor theparameters of the child continuously and also their location for safety purposes. So , this deviceuses smart child tracking.

13FUTURE SCOPE

The Smart IoT device for child safety and tracking helping the parents to locate and monitor their children. If any abnormal values are read,then an SMS is sent to the parents mobile and an MMS indicating an image captured by the serial camera is also sent. The future scope of the work is to implement the IoT device which ensures the complete solution for child safety problems.

14APPENDIX

```
#define BLYNK_TEMPLATE_ID "TMPL-NbHpP0f"
#define BLYNK_DEVICE_NAME "GPS and TEMP"
#define BLYNK_AUTH_TOKEN "CtqYTh0abYlqDmBMHHjIVJk41vxdBoW8"
#define BLYNK_PRINT Serial
#include <ESP8266WiFi.h>
#include <BlynkSimpleEsp8266.h>
#include <DHT.h>
char auth[] = BLYNK_AUTH_TOKEN;
char ssid[] = "Hariyew";
char pass[] = "0123456789";
#define DHTPIN 2
#define DHTTYPE DHT11
DHT dht(DHTPIN, DHTTYPE);
BlynkTimer timer;
void sendSensor()
{
  float h = dht.readHumidity();
  float t = dht.readTemperature();
  if (isnan(h) || isnan(t)) {
```

```
    Serial.println("Failed to read from DHT sensor!");
    return;
  }
  Blynk.virtualWrite(V5, h);
  Blynk.virtualWrite(V6, t);
}
void setup()
{
  Serial.begin(115200);
  Blynk.begin(auth, ssid, pass);
  dht.begin();
  timer.setInterval(1000L, sendSensor);
}
void loop()
{
  Blynk.run();
  timer.run();
}

#define BLYNK_PRINT Serial
#include <SPI.h>
#include <ESP8266WiFi.h>
#include <BlynkSimpleEsp8266.h>
#include <SimpleTimer.h>
#include <DHT.h>
char auth[] ="CtqYTh0abYlqDmBMHHjIVJk41vxdBoW8";
char ssid[] = "Hariyew";
char pass[] = "0123456789";

#define DHTPIN 2
#define DHTTYPE DHT11

DHT dht(DHTPIN, DHTTYPE);
SimpleTimer timer;
void sendSensor()
{
  float h = dht.readHumidity();
```

```
  float t = dht.readTemperature();

  if (isnan(h) || isnan(t)) {
    Serial.println("Failed to read from DHT sensor!");
    return;
  }
  Blynk.virtualWrite(V5, h);
  Blynk.virtualWrite(V6, t);
}

void setup()
{
  Serial.begin(9600);
   Blynk.begin(auth, ssid, pass);

  dht.begin();
  timer.setInterval(1000L, sendSensor);
}

void loop()
{
  Blynk.run();
  timer.run();
}
```

DEMO LINK :

https://youtu.be/uZfZZphIHbY