LOYOLA ICAM COLLEGE OF ENGINEERING AND TECHNOLOGY

IOT BASED SAFETY GADGET FOR CHILD SAFETY MONITORING & NOTIFICATION

DONE BY

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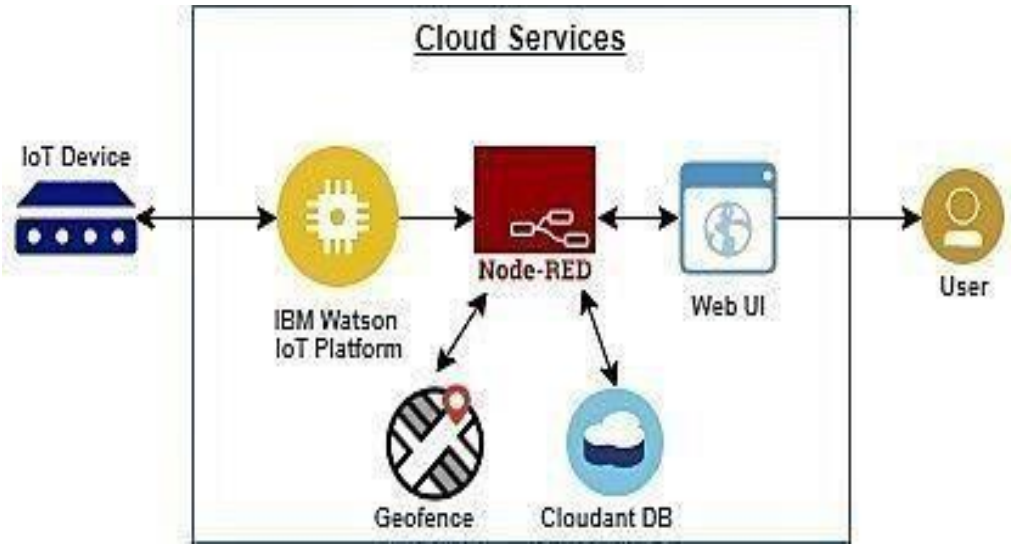
1. INTRODUCTION

1. Project Overview

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 make 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 intervention. 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.



2. Purpose

Child tracker helps the parents in continuously monitoring the child's location. They can simply leave their children in school or parks and create a geofence around the particular location. By continuously checking the child's location notifications will be generated if the child crosses the geofence. Notifications will be sent according to the child's location to their parents or caretakers. The entire location data will be stored in the database.

2. LITERATURE SURVEY

1. **Authors:** Akash Moodbidri, Hamid Shahnasser

   Title: Child safety wearable device.

   Published in: 2017 IEEE.

   The purpose of this device is to help the parents to locate their children with ease. At the moment there are many wearables in the market which helps to track the daily activity of children and also helps to find the child using Wi-Fi and Bluetooth services present on the device.

   Merits: This wearable over other wearable devices is that it can be used in any phone and it is not necessary that an expensive smartphone is required and doesn't want to be a very tech savvy individual to operate.

   Demerits: As this device's battery gives short life-time. High power efficient model will have to be used which can be capable of giving the battery life for a longer time.

2. **Authors:** M Nandini Priyanka, S Murugan, K. N. H. Srinivas, T. D. S. Sarveswara Rao, E. Kusuma Kumari.

   Title: Smart IoT Device for Child Safety and Tracking.

   Published in: 2019 IEEE.

   The system is developed using Link-It ONE board programmed in embedded C and interfaced with temperature, heartbeat, touch sensors and also GPS, GSM & digital camera modules. The novelty of the work is that the system automatically alerts the parent/caretaker by sending SMS, when immediate attention is required for the child during emergency.

   Merits: The parameters such as touch, temperature & heartbeat of

the child are used for parametric analysis and results are plotted for the same.

Demerits: To implement the IoT device which ensures the complete solution for child safety problems.

3. **Authors:** Aditi Gupta, Vibhor Harit.

Title: Child Safety & Tracking Management System by using GPS.

Published in: 2016 IEEE.

This paper proposed a model for child safety through smart phones that provides the option to track the location of their children as well as in case of emergency children is able to send a quick message and its current location via Short Message services.

Merits: The advantages of smart phones which offer rich features like Google maps, GPS, SMS etc.

Demerits: This system is unable to sense human behavior of children.

3. IDEATION AND PROPOSED SOLUTION

PROBLEM STATEMENT

- This paper describes a method for tracking school-age children's pick-up and drop-off times to improve their safety while traveling to and from school every day.
- Children are the foundation of a country; if their future was threatened, it would have an impact on the development of the whole country. In this world, a child goes missing every 40 seconds.
- As a result of the abuse, children lose their emotional and mental stability, which has a negative impact on their career and future.
- Parents are in charge of raising their own children. However, parents are compelled to want money because of the state of the economy and their desire to concentrate on their child's future and job. Consequently, it becomes challenging for them to constantly cling to their kids.
- The system features a created web-based database-driven application that facilitates its operation and gives authorized staff relevant information about the kids.
- The development of a wearable gadget for women's and girls' protection and safety is the goal of this endeavor. By examining physiological signals in conjunction with bodily position, this goal is accomplished. The body temperature and galvanic skin resistance are the physiological signs that are examined.
- Wirelessly transferring sensor data to an open-source cloud platform enables real-time data monitoring. This equipment is set up to continuously track the subject's parameters and react to any

potentially hazardous circumstances. It accomplishes this by noticing changes in the signals being tracked, after which the proper action is done by sending notifications or alerts to the right parties.

- With our system, we offer a setting where this issue can be solved effectively. It enables parents to keep an eye on their kids in real time without having to intervene manually, just as if they were standing next to them.

EMPATHY MAP

IDEATION & BRAINSTORMING

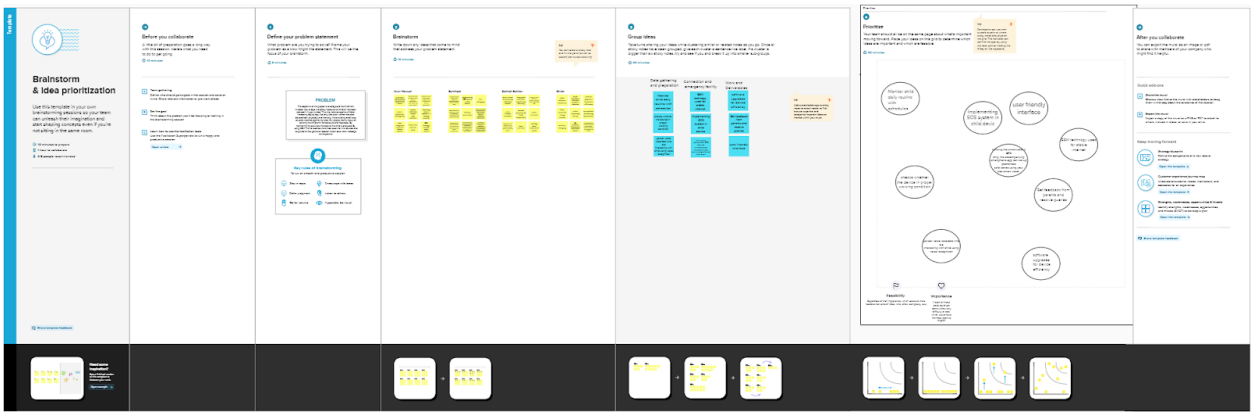
Idea 1: The device has IoT monitoring and a GSM module that allows the child to be monitored at all times. It also has numerous sensors that are connected to a CPU and are used to detect exact signals such as heart rate, temperature, and other dangers and alert the parents. In the event of a power outage, 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 utilized to access their present location, and a GSM module assists in transmitting the information via SMS to designated contacts. In this approach,the device tries

to provide child safety while remaining unobtrusive.

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.



PROPOSED SOLUTION

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	When someone near the child this device alerts the parents whereas the parents in other distant place.

2.	Idea / Solution description	The aim of this device is to provide safety to the child by allowing the parent to locate the child and view their surroundings. This device can be used to monitor the temperature and motion of the child. The other features of the device are emergency light and alarm buzzer which are activated when the ultrasonic sensor senses something near a child. After automatically send the SMS to parents and call also received to the parents.
3.	Novelty / Uniqueness	The enchantments will be adding more features, software, applications, hardware to make the proposed system. .

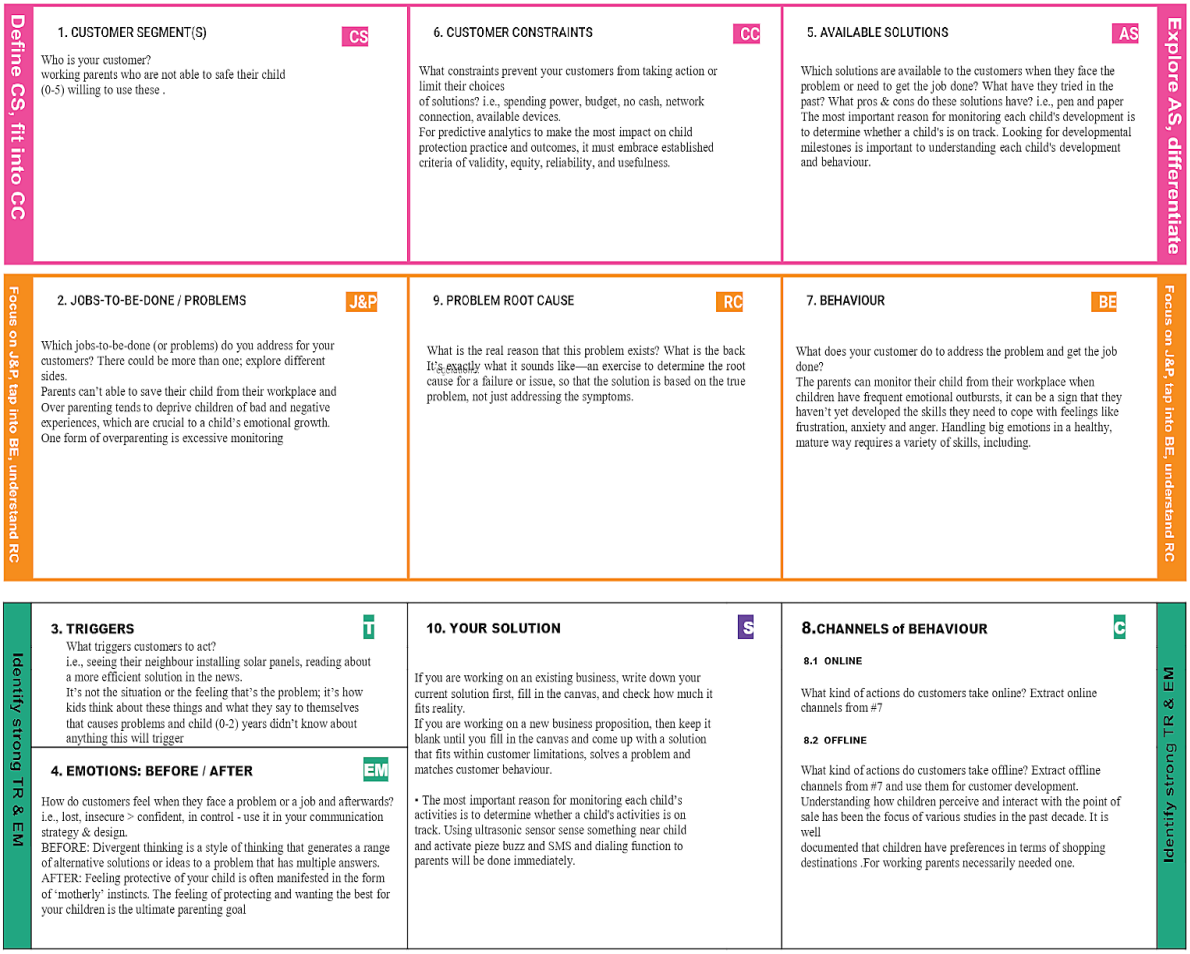
4.	Social Impact / Customer Satisfaction	The feedbacks of parents and children were highly promising. Results showed that 86.4% of the parents are satisfied with the time controller, around 91.1% of the children are satisfied with the proposed interface and 100% of the children are satisfied with the multiple sessions of the time allowed and video algorithm
5.	Business Model (Revenue Model)	Iot based risk monitoring device for child is done through smart device i.e., smart watch Through this device the respected parameters are monitored by the connected person.
6.	Scalability of the Solution	It can be given up to 4 out of 5.

PROBLEM SOLUTION FIT

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

Project Design Phase-I Solution Fit Template

Team ID: PNT2022TMID27560



4. REQUIREMENT ANALYSIS

FUNCTIONAL REQUIREMENTS

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Email Registration through Mobile number Registration in person
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Notifications	Email and SMS message
FR-4	User Interface	Mobile app for parents Web interface for registrations, record tracking, information and payment

NON-FUNCTIONAL REQUIREMENTS

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	To find out whether the child crosses the geofence or not, upon which the parent/guardian of the child gets an alert.
NFR-2	**Security**	Database security must meet HIPAA requirements. Extra security protocols and measures are also in place.
NFR-3	**Reliability**	Webpage gets automatically logged out unless password has been saved in the Google account. In case of server crash datagets backed up beforehand.
NFR-4	**Performance**	Site gets updated every 1 hour. Speed per transaction dependson the internet strength.
NFR-5	**Availability**	Available world wide, and requires an internet source.
NFR-6	**Scalability**	Short term scalability where memory is stored and erased, canbe scaled to keep records in the future.

5. PROJECT

DESIGN DATA

FLOW

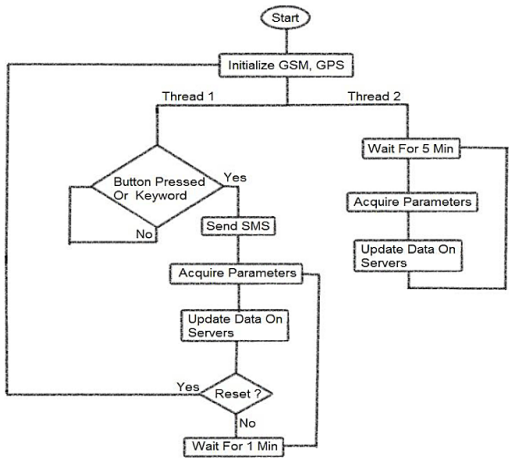
DIAGRAMS

Project Design Phase-II
Data Flow Diagram & User Stories

Date	03 October 2022
Team ID	PNT2022TMID27560
Project Name	Project - IOT based safety gadget for child safety monitoring and notification
Maximum Marks	4 Marks

Data Flow Diagrams:

IOT based safety gadget for child safety monitoring and notification



SOLUTION & TECHNICAL ARCHITECTURE SOLUTION

ARCHITECTURE

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

1. Find the best tech solution to solve existing business problems.

2. Describe the structure, characteristics, behaviour and other aspects of

the software to project stakeholders.

3. Define features, development phases and solution requirements.

4. Provide specifications according to which the solution is defined, managed and delivered.

FEATURES:

- Purpose of child monitoring device:

  It makes parents monitor their child from their workplace. Basically childrens are not told about abuse or harassment which they face in their life. Parents can relax and calm by using this device.

- Device lifetime:

  The device uses a solar charging unit to overcome the limitation of battery life so that the device will always charge up. When there is no sufficient solar energy then battery backup is also available This can be used for over a long period of time.

- Function:

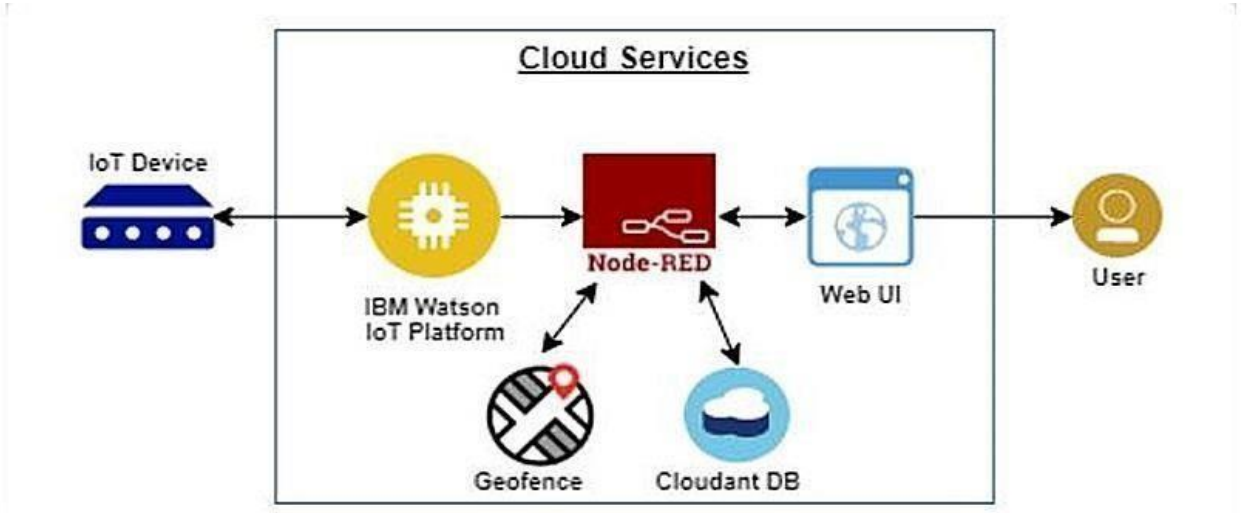
  The device has IOT monitoring allows to monitor the child from anywhere with any portable devices. Ultrasonic sensor are used which sense when someone near child and alarm buzz will established SMS and dialing function is made to parents

SOLUTION:

Track current location of the child using GPS and continuous monitoring of the same is done. When the gadget detects the activity to be outside the given geo fence (as mentioned by the parent or guardian), alert messages or notifications are sent to the registered device, appropriately.Additional features such as recording of messages could be done if any kind of danger is sensed.

SOLUTION ARCHITECTURE DIAGRAM:

TECHNICAL



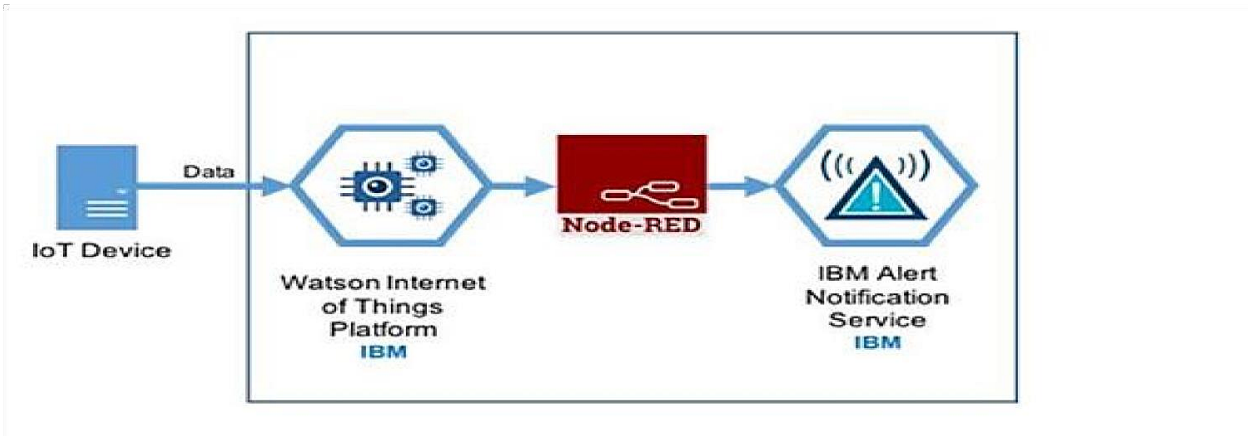


Table-1: Components & Technologies

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbotetc.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	Logic for a process in the application	Java / Python
3.	Application Logic-2	Logic for a process in the application	IBM Watson STT service

4.	Application Logic-3	Logic for a process in the application	IBM Watson Assistant
5.	Database	Data Type, Configurations etc.	MySQL, NoSQL, etc.
6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
7.	File Storage	File storage requirements	IBM Block Storage or OtherStorage Service or Local Filesystem
8.	External API-1	Purpose of External API used in the application	IBM Weather API, etc.
9.	External API-2	Purpose of External API used in the application	Aadhar API, etc.
10.	Machine Learning Model	Purpose of Machine Learning Model	Object Recognition Model, etc.
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration :	Local, Cloud Foundry, Kubernetes,etc.

Table-2: Application Characteristics

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	Technology of Open source framework

2.	Security Implementations	List all the security / access controls implemented, use of firewalls etc.	e.g. SHA-256, Encryptions, IAM Controls, OWASP etc.
3.	Scalable Architecture	Justify the scalability of architecture (3 – tier, Micro-services)	Technology used
4.	Availability	Justify the availability of applications (e.g.use of load balancers, distributed servers etc.)	Technology used
5.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's) etc.	Technology used

USER STORIES

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

User Type	**Functional Requirement (Epic)**	**User Story Number**	**User Story / Task**	**Acceptance criteria**	**Priority**	**Release**

Customer (Mobile user)	Registration	USN-1 (FATHER)	As a user, I can register by entering my email, password, and confirming my password. I can access the location of my children using the credentials provided as a Father.	I can access my account / dashboard and receive confirmation email & click confirm	High	Sprint-1
		USN-2 (MOTHER)	As a user, I can register by entering my email, password, and confirming my password. I can access the location of my children using the	I can access my account / dashboard and receive confirmation	High	Sprint-1

			credentia ls provided as a Mother.	email & clickconfi rm		
		USN-3 (GUAR DI AN/ CARETA KER)	As a user, I can also monitor the children's activities using a safety gadget monitoring system.	I can access my account / dashboard and receive confirmation email & click confirm	Medi um	Sprin t-1
	Login	USN-4	As a user, I can log into the application by entering email & password.	I can access my account / dashboard.	Medi um	Sprin t-2
	Dashboard	USN-5	As a user, I can fix the geofence for my child's location so that I will	I can monitor the current location of my child.	High	Sprin t-2

			receive alerts if my child crosses the geofence.			
Customer (Web user)	Registration	USN-1 (FATHER)	As a user, I can register by entering my email, password, and confirming my password. I can access the location of my children using the credentials provided as a Father.	I can access my account / dashboard and receive confirmation email & click confirm	High	Sprint-1

		USN-2 (MOTHER)	As a user, I can register by entering my email, password, and confirming my password. I can access the location of my children using the credentials provided as a	I can access my account / dashboard and receive confirmation email & click confirm	High	Sprint-1

			Mother.			
		USN-3 (GU AR DI AN/ CAR ET AKER)	As a user, I can also monitor the children's activities using a safety gadget monitoring system.	I can access my account / dashboard and receive confirmation email & click confirm	Medi um	Sprin t-1
	Login	USN-4	As a user, I can log into the application by entering email & password.	I can access my account / dashboard.	Medi um	Sprin t-2
	Dashboard	USN-5	As a user, I can fix the geofence for my child's location so that I will receive alerts if my child crosses the geofence.	I can monitor the current location of my child.	High	Sprin t-2

Customer Care	Dashboard	USN-6	As a customer care service person, whenever I receive a complaint, I forward the complaint and ensure that the complaint is resolved.	I can keep track of all the complaints and the status of the complaints received.	Medium	Sprint-3
Administrator	Admin Dashboard	USN-7	As an administrator, I will takecare of all the payment processes, queries and complaints and login credentials.	I can access all the customer details, payment details and complaints received.	High	Sprint-4

6. PROJECT PLANNING & SCHEDULING

Product Backlog, Sprint Schedule, and Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members

Sprint-1	Enrolment	USN-1	As a user, I can register for the application by entering my email,password, and confirming my password.	2	High	4
Sprint-2	IBM cloud	USN-2	As a user, I will receive confirmation email once I have registered for the application.	1	High	4
Sprint-2	Installing required software	USN-3	As a user, I can register for the application through Facebook.	2	Low	1
Sprint-3	Integration of IBM cloud andNODE-RED	USN-4	As a user, I can register for the application through Gmail.	2	Medium	2
Sprint-4	Account Creation	USN-5	As a user, I can loginto the application by entering email& password.	1	High	4
Sprint-4	Dashboard	USN-6	I can instantly accessall of myTo Do checklists and dashboard features.	2	Medium	2

Sprint-4	Testing and Date of Demo	USN-7	If all goes as planned, I can testmy model and begin my demonstration the same day.	2	High	4
Sprint-4	Overall	USN-8	This app may helpwith costs, income, payments, trades, and many otherapplications.	2	High	4

Project Tracker, Velocity& Burndown Chart:

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date	Story Points Completed	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20	20 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	04 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	08 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	19 Nov 2022

Velocity:

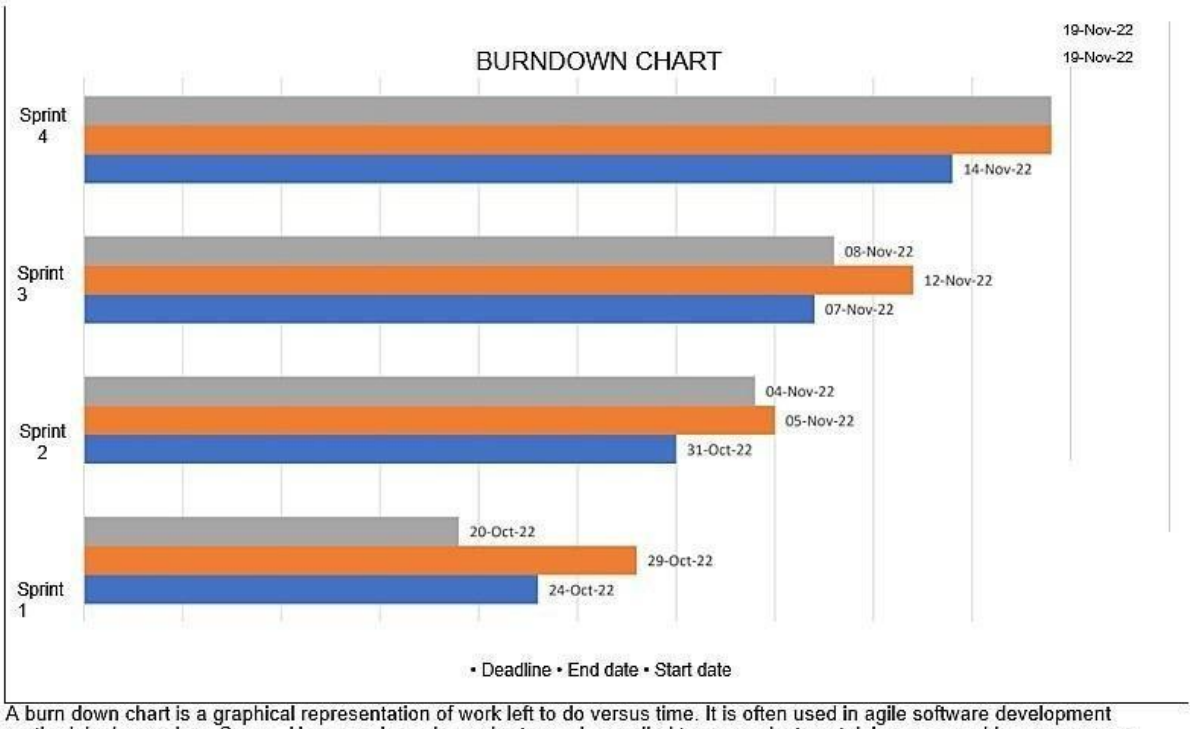
Imagine we have a 10-day sprint and the velocity of the team is 20 (points

per sprint). Let's calculate the team's average velocity (AV) per iteration unit (story points per day)

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

Burndown Chart:

A burn down chart is a graphical representation of work left to do versus time. It is often used in agile software development methodologies such as Scrum. However, burn down charts can be applied to any project containing measurable progress over time.



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References:

https://www.atlassian.com/aqile/project-manaqement

https://www.atlassian.com/aqile/tutorials/how-to-do-scrum-withiira-

software https://www.atlassian.com/aqile/tutorials/epics
https://www.atlassian.com/aqile/tutorials/sprints
https://www.atlassian.com/aqile/proiectmanaqement/estimation
https://www.atlassian.com/aqileltutorials/burndown-charts

7. CODING & SOLUTIONING

GEOFENCING CODE:

```
import time

def stopwatch(seconds,d,lspoin t):

start = time.time()

 time.clock()

elapsed = 0

flag =False

num = 0 while elapsed < seconds:

elapsed = time.time() - start

print "%02d" % elapsed if elapsed > d[num] and elapsed< d[num+1] and flag == False:x = lspoint[num][0]
y = lspoint[num][1] createpoint(x,y)

flag = True print "Shot Taken" print point_in_poly(x,y,polygon)

 if elapsed > d[num+1]:

print "Shot Taken" flag == False

num = num+1

x = lspoint[num][0]

y = lspoint[num][1] createpoint(x,y) print

point_in_poly(x,y,polygon) time.sleep(1)


def createpoint(x,y):

crs = "point?crs=epsg:27700&field=id:integer"

layer= QgsVectorLayer(crs, 'points' , "memory")
```

```
pr= layer.dataProvider()

pt = QgsFeature() point1 = QgsPoint(x,y) pt.setGeometry(QgsGeometry.fromPoint(point1))
pr.addFeatures([pt])          # update extent of the layer

layer.updateExtents()   # add the second point pt = QgsFeature()

QgsMapLayerRegistry.instance().addMapLayers([layer]) def point_in_poly(x,y,poly): n = len(poly)   inside
= False p1x,p1y = poly[0] for i in range(n+1):

p2x,p2y = poly[i % n]if y > min(p1y,p2y):

if y <= max(p1y,p2y):

if x <= max(p1x,p2x): if p1y != p2y:




p1x)/(p2y-p1y)+p1x

xints = (y-p1y)*(p2x-


if p1x == p2x or x <=


xints:inside = not inside p1x,p1y = p2x,p2y


return inside

#### define the polygon polygon =

[(512882.78819722467,120811.83924772343),(512960.84437170526,120809.7007223952),(51

2960.84437170526,120809.7007223952),(512959.77510904113,120754.09906386107),(512882.788

19722 467,120756.2375891893)]


#### set how long the script will run (70 seconds will get you in and out of geofence) time_seconds = 70
#### first coordinate x = 512915 y = 120728

#### time intervals, 10 seconds between shots / or points intervals = int(time_seconds / 10) lspoint = []
```

build the list of coordinates to be plotted for iin range(0,intervals+1):

y1 = y + (i*12.5) lspoint.append([x,y1])

to build the blocks of time in intervals, so we know the number of intervals (default is 7),

we need a list of time intervals [0,10,20,30 etc] to check against the clock this list is d, f is the gap ie 10 seconds, a is starting point (0)

b is the number of intervals + 1 becuase the code will check the the next in the list f = 10 a = 0 b = intervals+1 d = [x * f for x in range(a, b)]

Run the stopwatch, or start the program!

stopwatch(time_seconds,d,lspoint)

ALGORITHM:

Import Packages
Create ‘myConfig’ location
Implement the
wiotp.sdk.device.De
viceClient Run a
while Loop
Finally set the
latitude and
longitude range
Desired result
Obtained

Modified Version of Code according to main project:

import json

```
 import
wiotp.sdk.device
import time
myConfig = {
    "identity": {
        "ordId":
"n7q4jv",
        "typeId":
"NodeMCU",
        "deviceId":
"12345"
    },
    "auth": {
        "token":
"12345678"
    }
}
client =
wiotp.sdk.device.D
eviceClient(config=
myConfig,
loghandlers=None)
client.connect()
```

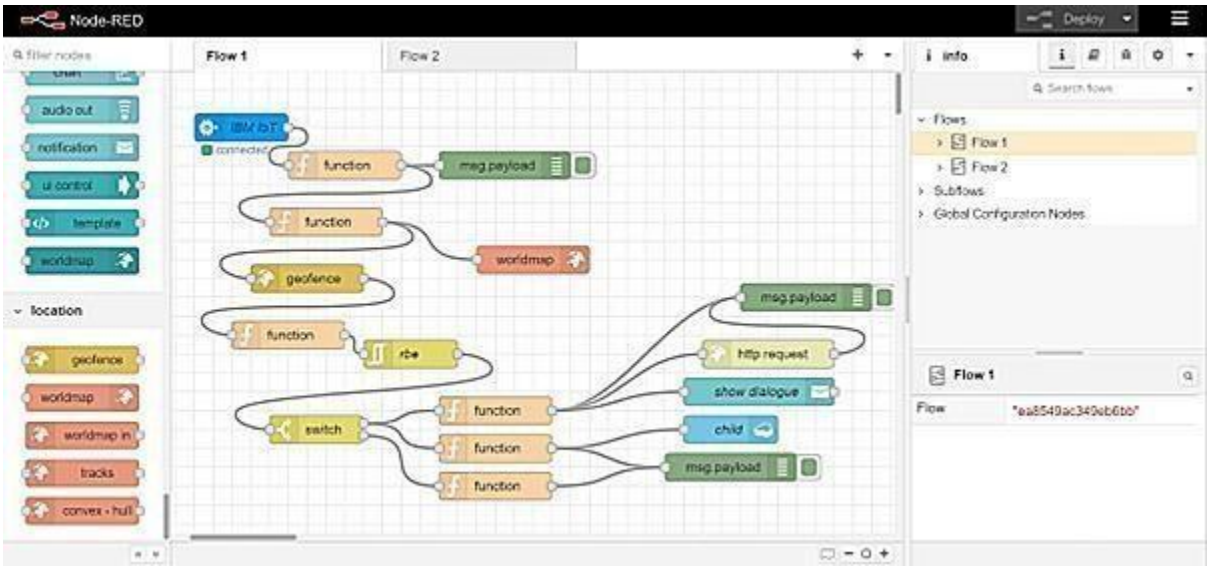
```
while True:
    name=
"Smartbridge"
    #in area location

    latitude=
17.42225176
    longtitude=
78.5458842

    #out area
location

    #latitude=
17.4219272
    #logitude=
78.5488783
    myData={'name':
name, 'lat':latitude,
'lon':longitude}

client.publishEvent
(eventId="status",
msgFormat="json",
data=myData,
```

```
qos=0,
onPublish=None)
    print("Data
published to IBM
IoT platform:
",myData)
    time.sleep(5)
  client.diconnect()
```

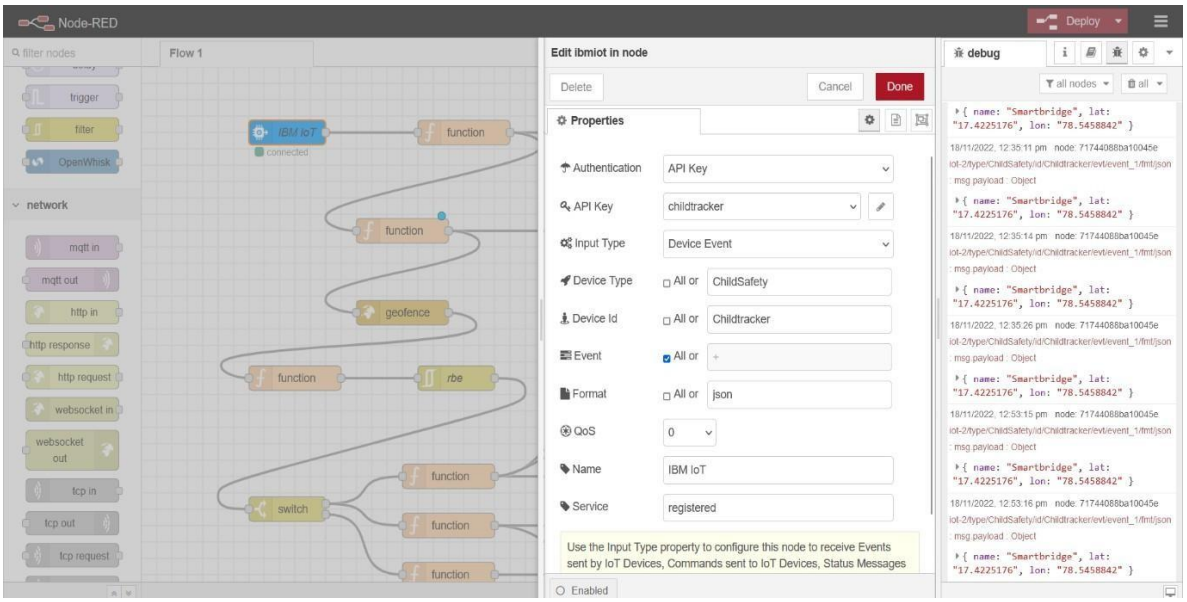
8. TESTING

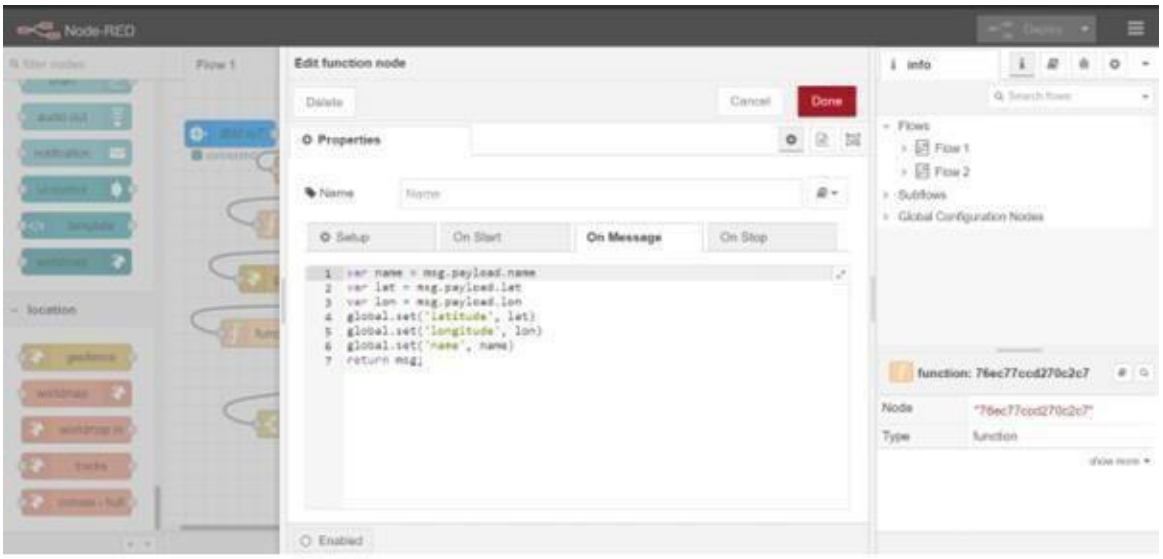
TESTING IN NODE-RED

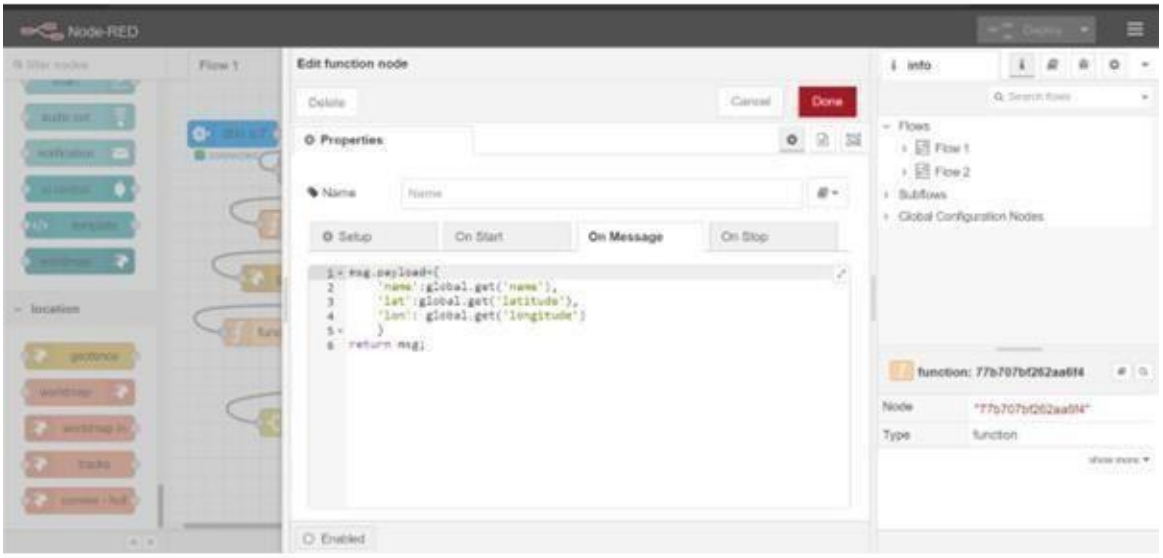
Connections



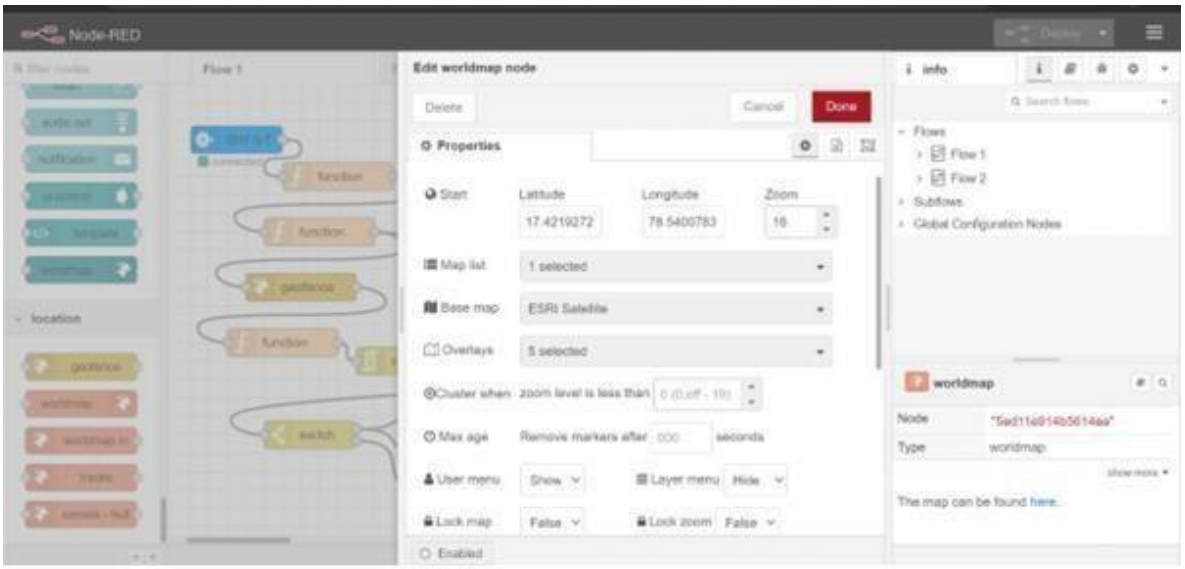
Codes in Node's

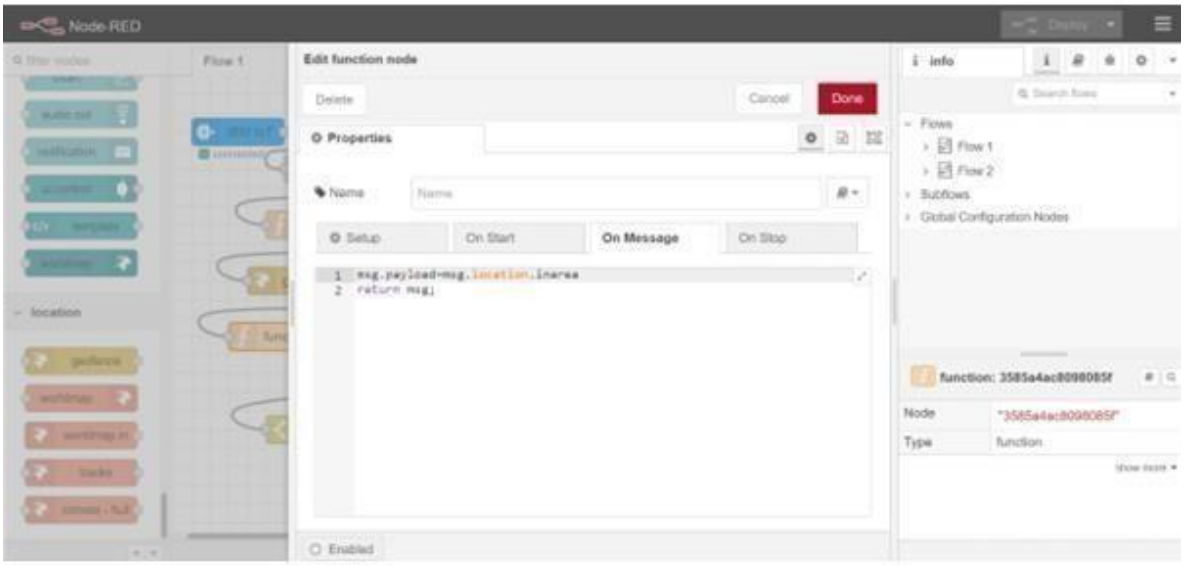



Node-RED
Edit function node
Delete
Cancel
Done
Properties
Name
Setup
On Start
On Message
On Stop
var name = msg.payload.name
var lat = msg.payload.lat
var lon = msg.payload.lon
global.set('latitude', lat)
global.set('longitude', lon)
global.set('name', name)
return msg;
Enabled
info
Flows
Flow 1
Flow 2
Subflows
Global Configuration Nodes
function: 76ec77ccd270c2c7
Node
Type
function

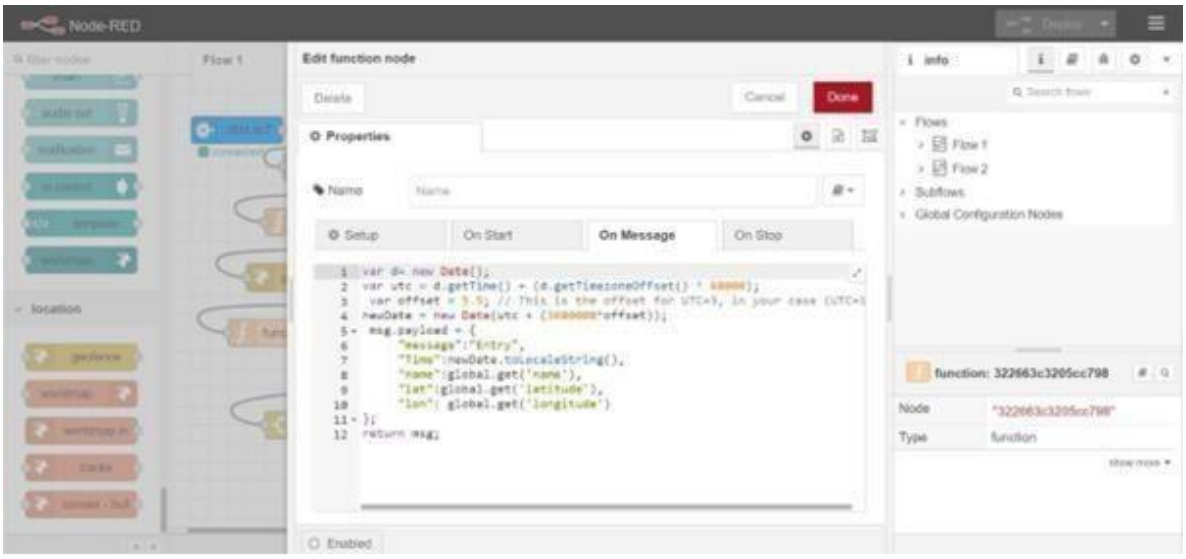

Node-RED
Edit function node
Delete
Cancel
Done
Properties
Name
Setup
On Start
On Message
On Stop
msg.payload={
'name':global.get('name'),
'lat':global.get('latitude'),
'lon':global.get('longitude')
}
return msg;
Enabled
info
Flows
Flow 1
Flow 2
Subflows
Global Configuration Nodes
function: 77b707bf262aa6f4
Node
Type
function

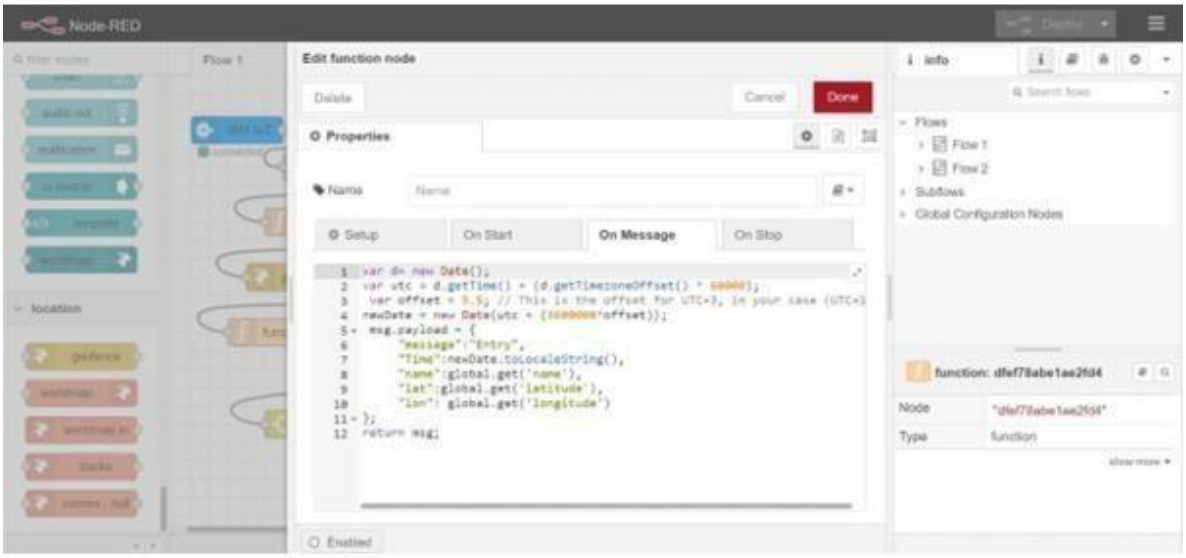

Node-RED
Edit geofence node
Delete
Cancel
Done
Properties
Enabled
info
Flows
Flow 1
Flow 2
Subflows
Global Configuration Nodes
geofence
Node
Type
geofence

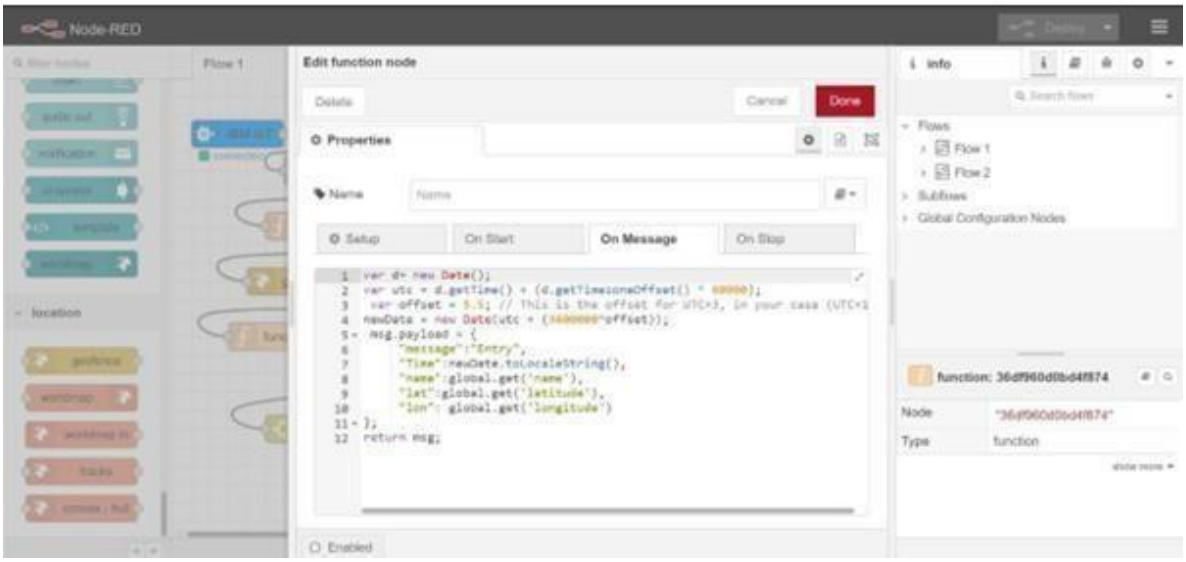

Node-RED
Edit worldmap node
Delete
Cancel
Done
Properties
Start
Latitude
17.4219272
Longitude
78.5400783
Zoom
16
Map list
1 selected
Base map
ESRI Satellite
Overlays
5 selected
Cluster when zoom level is less than
Max age
Remove markers after
seconds
User menu
Show
Layer menu
Hide
Lock map
False
Lock zoom
False
Enabled
info
Flows
Flow 1
Flow 2
Subflows
Global Configuration Nodes
worldmap
Node
Type
worldmap
The map can be found here.

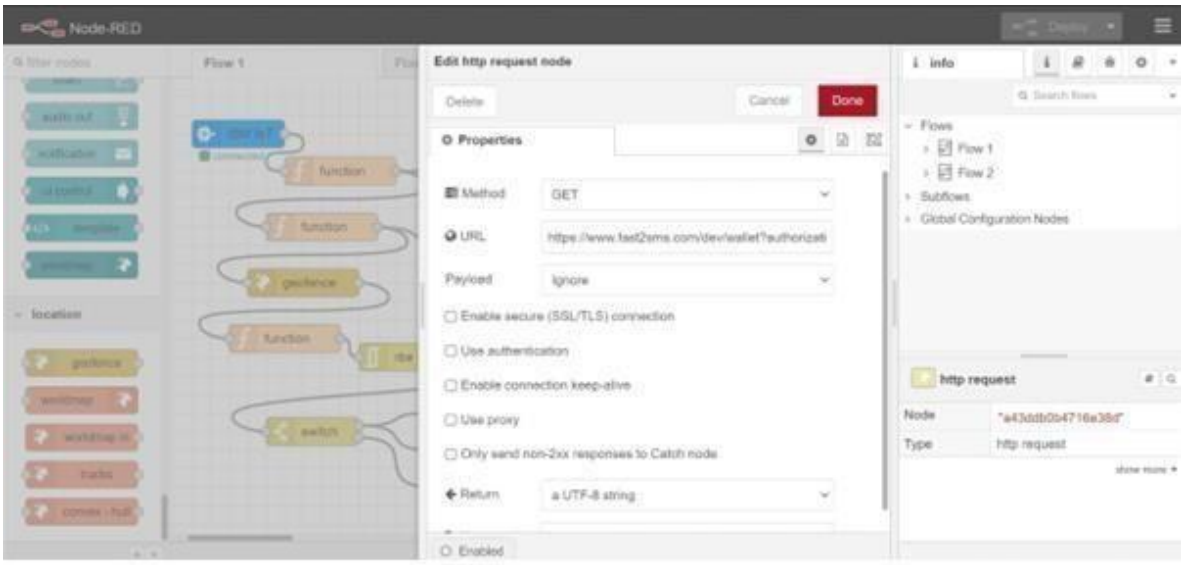

Node-RED
Edit function node
Delete
Cancel
Done
Properties
Name
Setup
On Start
On Message
On Stop
msg.payload=msg.location.lnarea
return msg;
Enabled
info
Flows
Flow 1
Flow 2
Subflows
Global Configuration Nodes
function: 3585a4ac8098085f
Node
Type
function

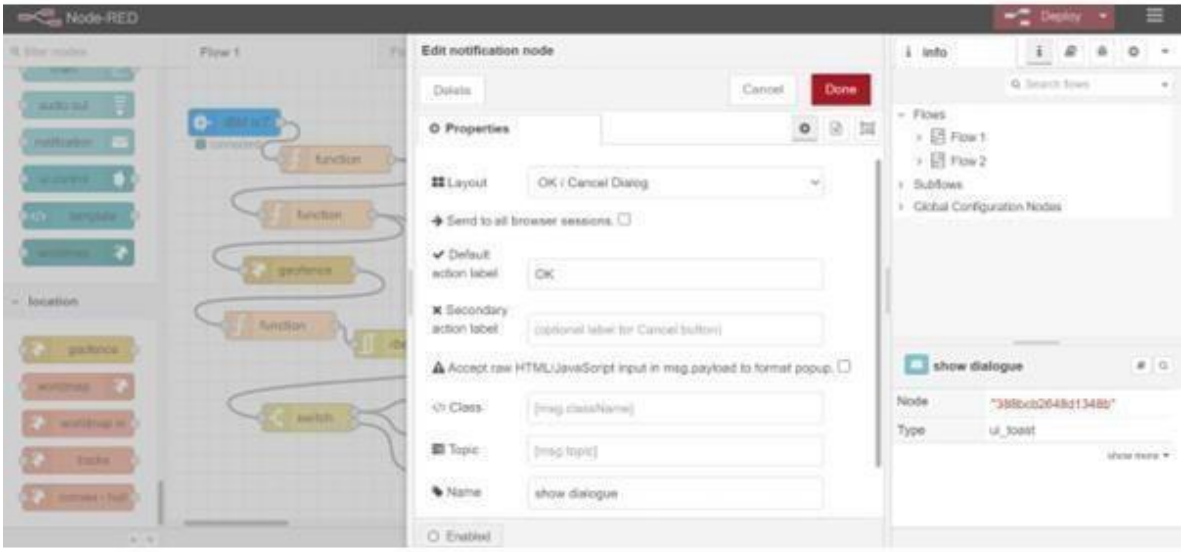

Node-RED
Edit switch node
Delete
Cancel
Done
Properties
Name
Property
msg. payload
is false
is true
checking all rules
recreate message sequences
Enabled
info
Flows
Flow 1
Flow 2
Subflows
Global Configuration Nodes
switch
Node
Type
switch

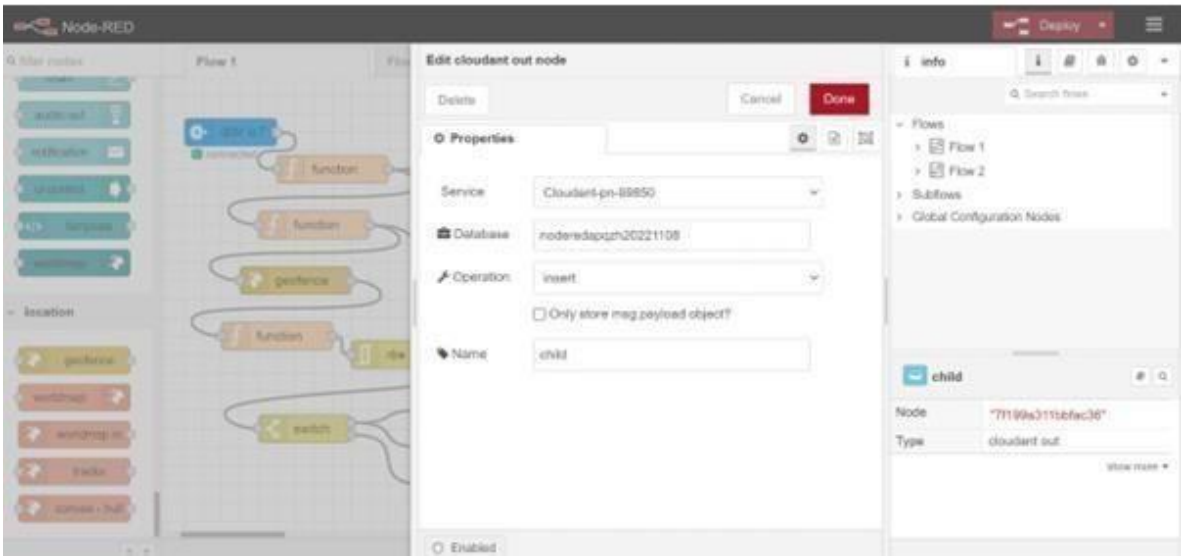

Node-RED
Edit function node
Delete
Cancel
Done
Properties
Name
Setup
On Start
On Message
On Stop
var d= new Date();
var utc = d.getTime() + (d.getTimezoneOffset() * 60000);
var offset = 5.5; // This is the offset for UTC+5, in your case (UTC+1
newData = new Date(utc + (3600000*offset));
msg.payload = {
"message":"Entry",
"Time":newData.toLocaleString(),
"name":global.get('name'),
"lat":global.get('latitude'),
"lon": global.get('longitude')
};
return msg;
Enabled
info
Flows
Flow 1
Flow 2
Subflows
Global Configuration Nodes
function: 322663c3205cc798
Node
"322663c3205cc798"
Type
function


Node-RED
Edit function node
Delete
Cancel
Done
Properties
Name
Setup
On Start
On Message
On Stop
var d= new Date();
var utc = d.getTime() + (d.getTimezoneOffset() * 60000);
var offset = 5.5; // This is the offset for UTC+5, in your case (UTC+1
newData = new Date(utc + (3600000*offset));
msg.payload = {
"message":"Entry",
"Time":newData.toLocaleString(),
"name":global.get('name'),
"lat":global.get('latitude'),
"lon": global.get('longitude')
};
return msg;
Enabled
info
Flows
Flow 1
Flow 2
Subflows
Global Configuration Nodes
function: dfef78abe1ae2fd4
Node
"dfef78abe1ae2fd4"
Type
function


Node-RED
Edit function node
Delete
Cancel
Done
Properties
Name
Setup
On Start
On Message
On Stop
var d= new Date();
var utc = d.getTime() + (d.getTimezoneOffset() * 60000);
var offset = 5.5; // This is the offset for UTC+5, in your case (UTC+1
newData = new Date(utc + (3600000*offset));
msg.payload = {
"message":"Entry",
"Time":newData.toLocaleString(),
"name":global.get('name'),
"lat":global.get('latitude'),
"lon": global.get('longitude')
};
return msg;
Enabled
info
Flows
Flow 1
Flow 2
Subflows
Global Configuration Nodes
function: 36df960d0bd4f874
Node
"36df960d0bd4f874"
Type
function

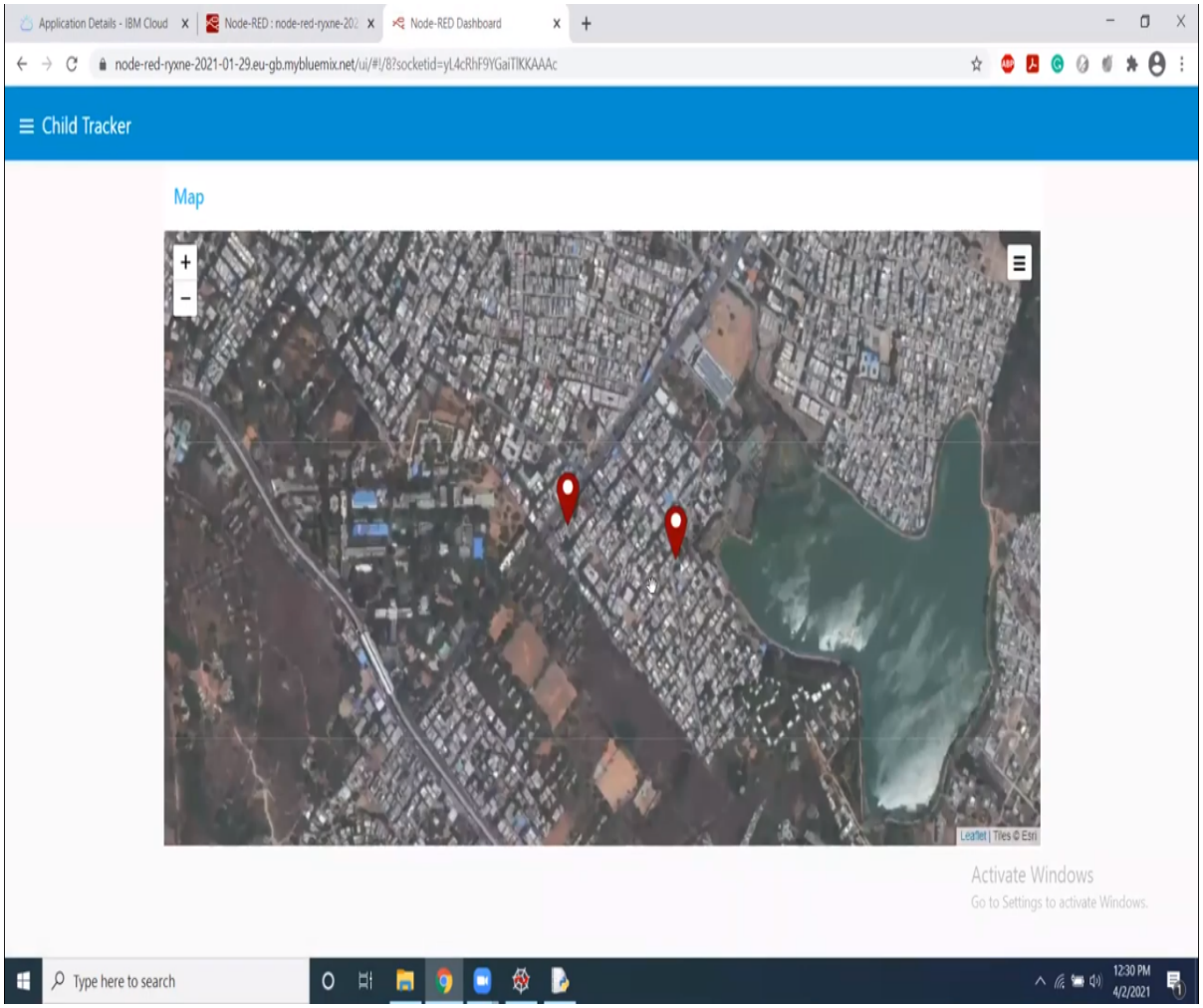

Node-RED
Edit http request node
Delete
Cancel
Done
Properties
Method
GET
URL
https://www.fast2sms.com/dev/wallet?authorizati
Payload
ignore
Enable secure (SSL/TLS) connection
Use authentication
Enable connection keep-alive
Use proxy
Only send non-2xx responses to Catch node
Return
a UTF-8 string
Enabled
info
Flows
Flow 1
Flow 2
Subflows
Global Configuration Nodes
http request
Node
"a43dd0b0b4716a38d"
Type
http request


Node-RED
Edit notification node
Delete
Cancel
Done
Properties
Layout
OK / Cancel Dialog
Send to all browser sessions
Default action label
OK
Secondary action label
Accept raw HTML/JavaScript input in msg.payload to format popup
Class
Topic
Name
show dialogue
Enabled
info
Flows
Flow 1
Flow 2
Subflows
Global Configuration Nodes
show dialogue
Node
Type
ui_toast


Node-RED
Edit cloudant out node
Delete
Cancel
Done
Properties
Service
Cloudant-pn-89850
Database
noderedapqzh20221108
Operation
insert
Only store msg.payload object?
Name
child
Enabled
info
Flows
Flow 1
Flow 2
Subflows
Global Configuration Nodes
child
Node
Type
cloudant out

9. RESULTS

Google Map Locator:



10. ADVANTAGES & DISADVANTAGES

ADVANTAGES

1. The parameters such as touch, temperature & heartbeat of the child are used for parametric analysis and results are plotted for the same.
2. This wearable over other wearable is that it can be used in any phone and it is not necessary that an expensive smartphone is required and doesn't want to be very tech savvy individual to operate.
3. The advantages of smart phones which offers rich features like Google maps, GPS, SMS etc.

4.A child tracking system using android terminal and hoc networks.

DISADVANTAGES

1.To implement the IoT device which ensures the complete solution for child safety problems.

2.As, this device's battery gives short life-time. High power efficient models will have to be used which can be capable of giving the battery life for a longer time.

3.This system is unable to sense human behavior of child.

4.This device cannot be used in rural areas.

11. CONCLUSION

This project demonstrates Smart IoT device for child safety and tracking helping the parents to locate and monitor their children.To save time and reduce crimes happening we are developing smart child and adult security system which are wearable. This helps guardians to locate their children and women faster and precisely using the internet of things. The present work reduces the human effort and particularly mother's stresses in working times about a child. The device affords above scope for modifications for further improvements and operational efficiency, which should make it commercially available and attractive.

12. FUTURE SCOPE

1. The size of components used in the project can be decreased by

a process called micro fabrication, so that it can be transformed into a wristwatch.

2. Emergency calling features can be incorporated wherein women or children under panic circumstances can contact police for assistance.
3. SMS can be sent to more than one individual.
4. The future scope of the work is to implement the IoT device which ensures the complete solution for child safety problems.

13. APPENDIX

SOURCE CODE

```
import json import

wiotp.sdk.device

import time

myConfig = {

    "identity": {

        "ordId":

"n7q4jv",

        "typeId":

"NodeMCU",

        "deviceId":

"12345"

    },

    "auth": {

        "token":

"12345678"
```

```
    }
}
client =
wiotp.sdk.device.D
eviceClient(config=
myConfig,
loghandlers=None)
client.connect()

while True:
    name=
"Smartbridge"
    #in area location

    latitude=
17.42225176
    longtitude=
78.5458842

    #out area
location

    #latitude=
17.4219272
    #logitude=
78.5488783
```

```
    myData={'name':
name, 'lat':latitude,
'lon':longitude}

client.publishEvent
(eventId="status",
msgFormat="json",
data=myData,
qos=0,
onPublish=None)
    print("Data
published to IBM
IoT platform:
",myData)
    time.sleep(5)
   client.diconnect()
```

GITHUB LINK : https://github.com/IBM-EPBL/IBM-Project-39213-1660400714

PROJECT DEMO LINK: https://drive.google.com/file/d/1TPLN48I-h8QLDjwniAv3BASHO3IrIC2L/view?usp=share_link