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**VEL TECH MULTI TECH DR.RANGARAJAN DR.SAKUDHALA ENGINEERING COLLEGE**

**Academic Year 2022 (ODD SEM)**

**IoT Based Safety Gadget For Child Safety**

**Monitoring & Notification**

**Team ID : PNT2022TMID22515**

**Team Members**

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# AREA OF THE PROJECT

**INTERNET OF THINGS(IOT)**

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# OBJECTIVES

* Enables tracking of the child’s location and capturing of data remotely such as where the child located,distance,etc. v To show the child’s actual data with reference values.
* Enables sending of notification if the child is out of location or when the device realizes abnormal conditions/situations.
* Develop a prototype of IoT wearable smart band connected to parent’s mobile apps so that they can monitor the actual condition of children at anytime and anyplace.

# LITERATURE SURVEY

|  |  |  |  |
| --- | --- | --- | --- |
| **Author** | **Title** | **Proposed Methods** | **Journal, Year** |
| David  Hanes,  Gonzalo,  Patrick  Grosetete,  Robert,  Barton, Jerome. | “IoT Fundamental and Networking  Technologies,  Protocols” | During an emergency, mobile apps alert the control room of nearby police stations or caretakers of children. The literature shows that location tracking devices are available in the market but it does not provide a complete solution to the problem. The solution to this problem is to design an IoT device, which senses the child’s location and environment and during an emergency, it should send the alert to the parents automatically. | Cisco,2017 |
| Aditi Gupta, V i b h o r  Harit. | C h i l d S a f e t y  & T r a c k i n g  M a n a g e m e n t System by using GPS. | This paper proposed a model for child safety through smartphones that provide the option to track the location of their children as well as in case of emergency children are able to send a quick message and its current location via Short Message Services. Merits: The advantages of smart phones they offer rich features like Google maps, GPS, SMS etc. Demerits: This system is unable to sense the human behaviour of children. | IEEE,2016 |
| K. N. H.  Srinivas, T. D. S. Sarveswara Rao, E. Kusuma Kumari. | Smart IoT Device for Child Safety and Tracking. | 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 an emergency. | IEEE,2019 4 |

# METHODOLOGY

üIt focuses on the key aspect that a missing child can be assisted by the people around the child and can play a remarkable role in the child’s safety until reunited with the parents. üIf any deviant readings are disclosed by the sensor, then an SMS and phone calls are set off to the parent's mobile. Also, it overhauls the parental app through the cloud. üThe technique is equipped with GSM and GPS modules for sending and receiving calls, and SMS between the safety gadget and the parental phones.

* The system also consists of a Wi-Fi/cellular data module used to implement IoT and send all the monitored parameters to the cloud for android app monitoring on the parental phones.
* The panic alert system is used during panic situations alerts are sent to the parental phone, seeking help also the alert parameters are updated to the cloud. Most of the wearables available today are focused on providing the location, and activity of the child to the parents.

**METHODOLOGY**

**HARDWARE REQUIREMENTS:**

IoT device

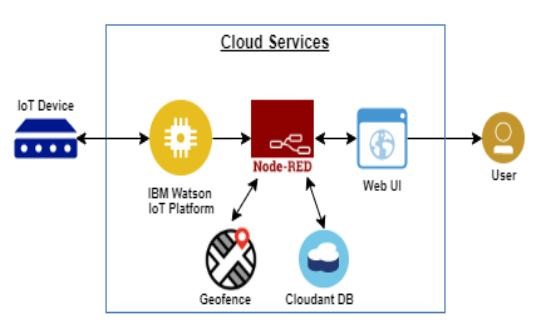
GSM

Mobile(Notification) GPS

**SOFTWARE REQUIREMENTS:**

IBM Cloud IBM IoT Platform IBM Node red IBM Cloudant DB

# PROPOSED BLOCK DIAGRAM/ TECHNICAL ARCHITECTURE



**SIMULATION AND RESULTS**

IBM WATSON IOT PLATFORM

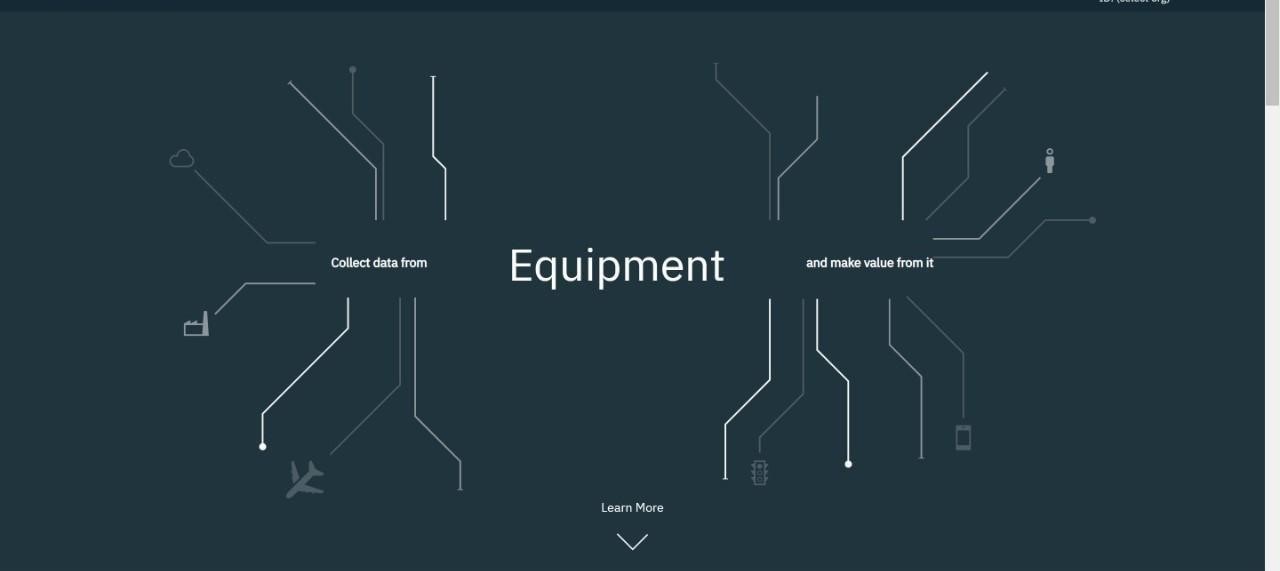


Fig.1,Creating IBM Cloud Service and creating the device

**Creating Python Code:**

|  |  |
| --- | --- |
| import json import wiotp.sdk.device import time import random myConfig = {  "identity":{"orgId": "4o1qxb",  "typeId": "TestDeviceType",  "deviceId": "12345"},  "auth": {"token":"pnhXvzNsWMKv&hxyi"} } client = wiotp.sdk.device.DeviceClient  (config=myConfig, logHandlers=None) client.connect() | while True:  name= "Smartbridge" #in area location latitude= 17.4225176 longitude= 78.5458842 #out area location  #latitude= 17.4219272 #longitude= 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 platfrom: ", myData) time.sleep(5) client.disconnect() |

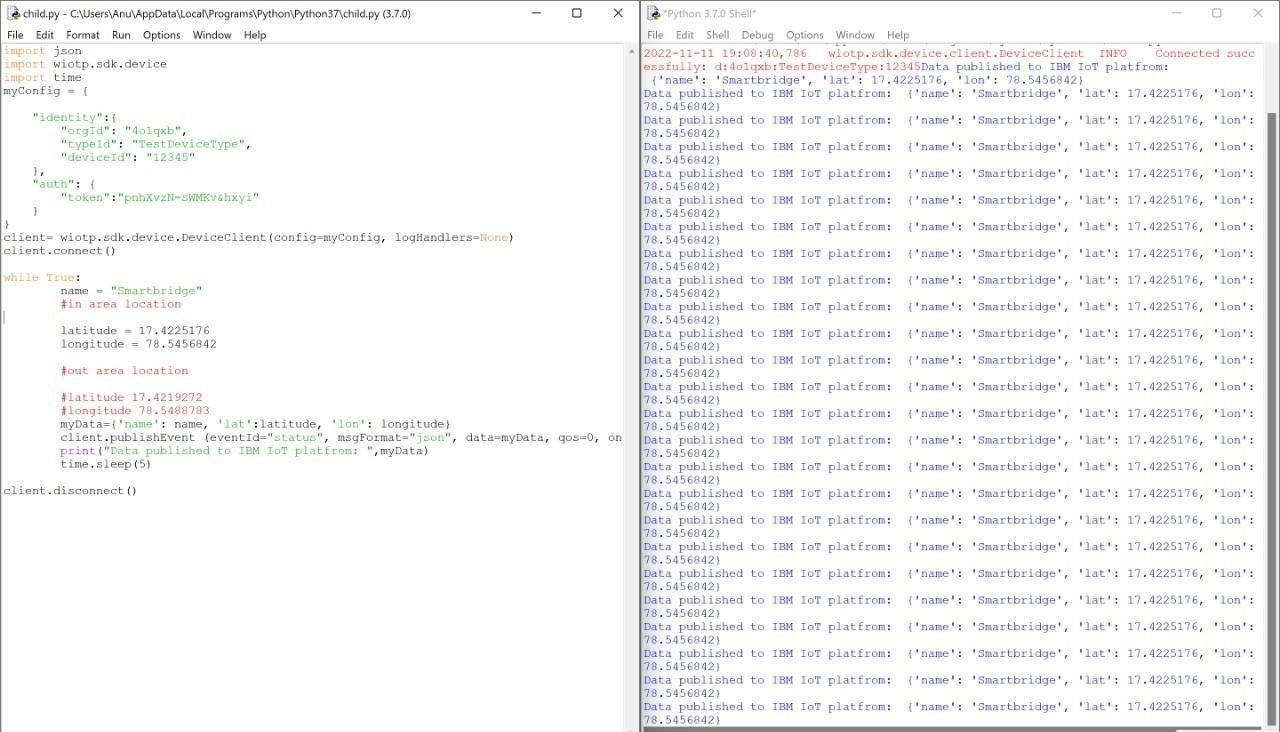
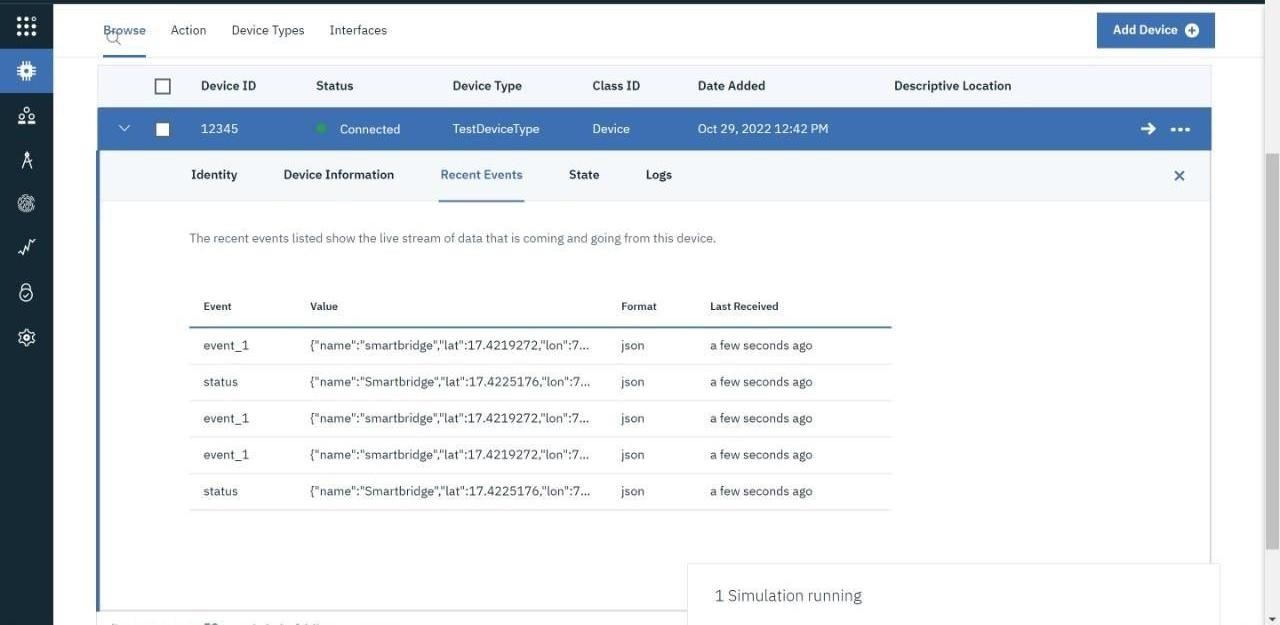


Fig.2,In-Area Location



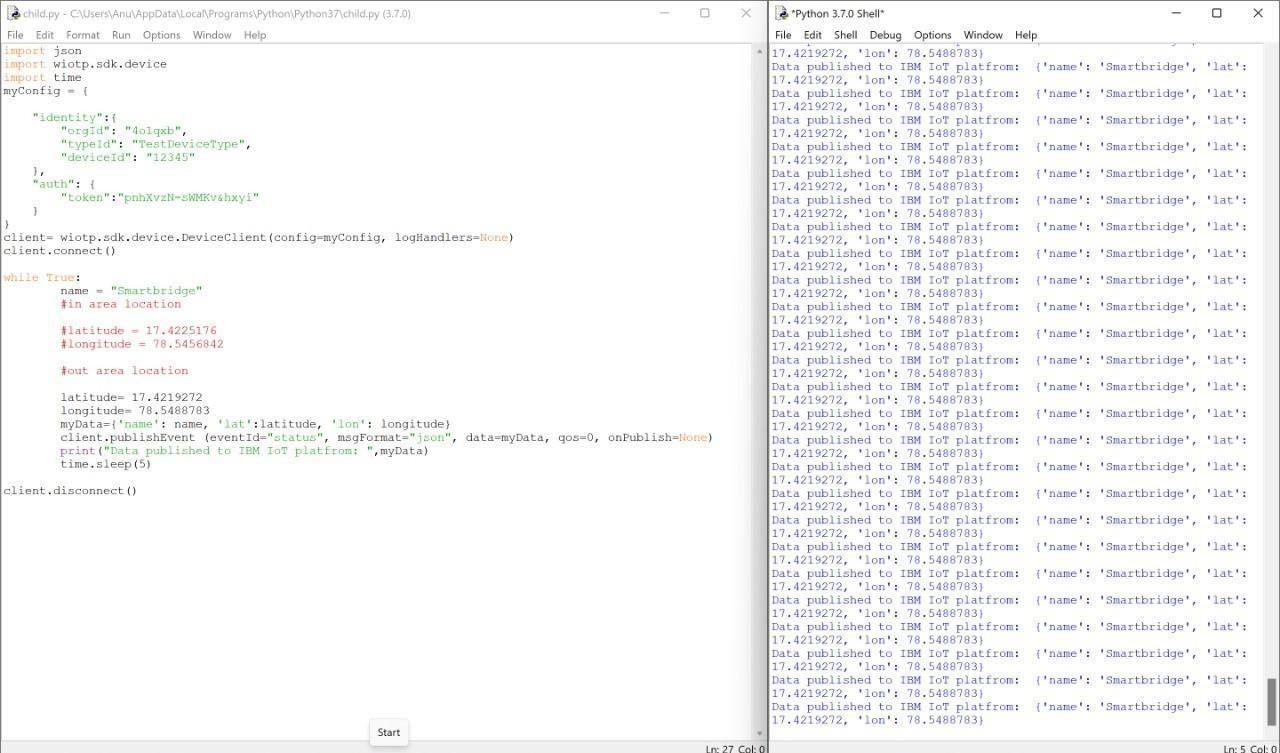
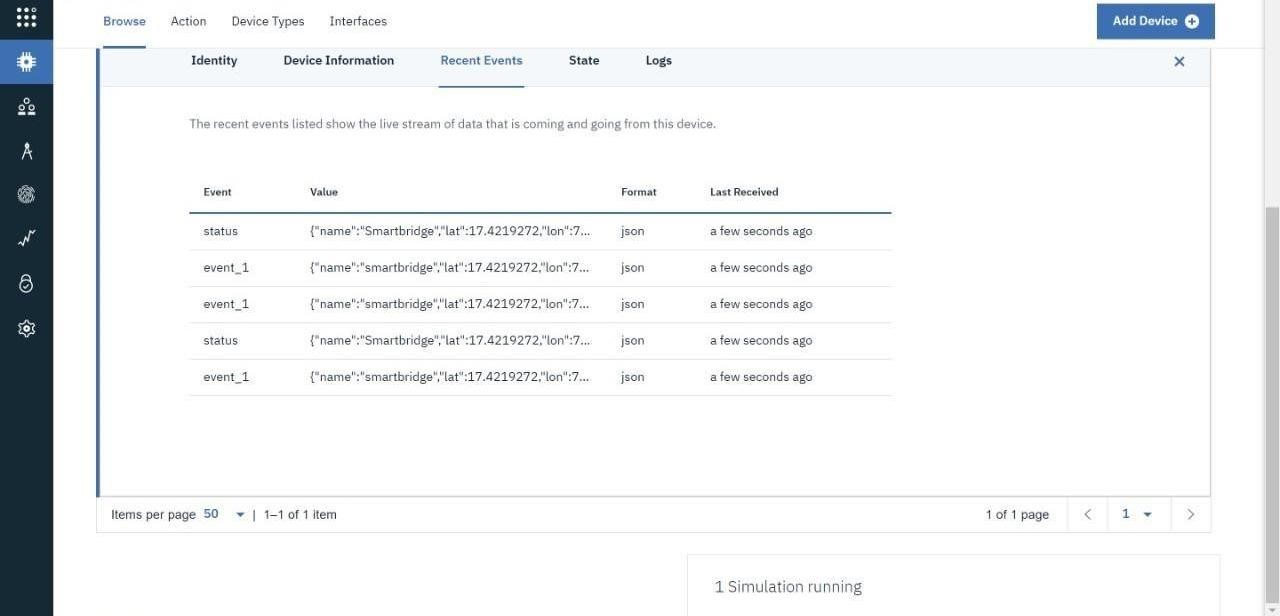


Fig.3, Out-Area Location



NODE-RED SERVICE

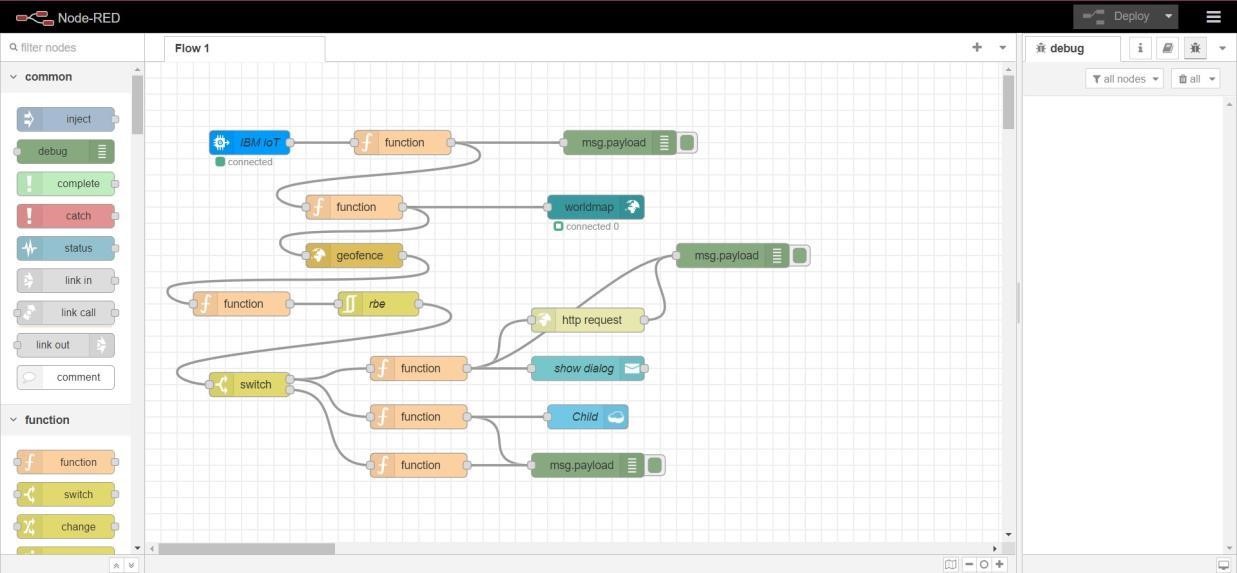


Fig.4,Create Node red service

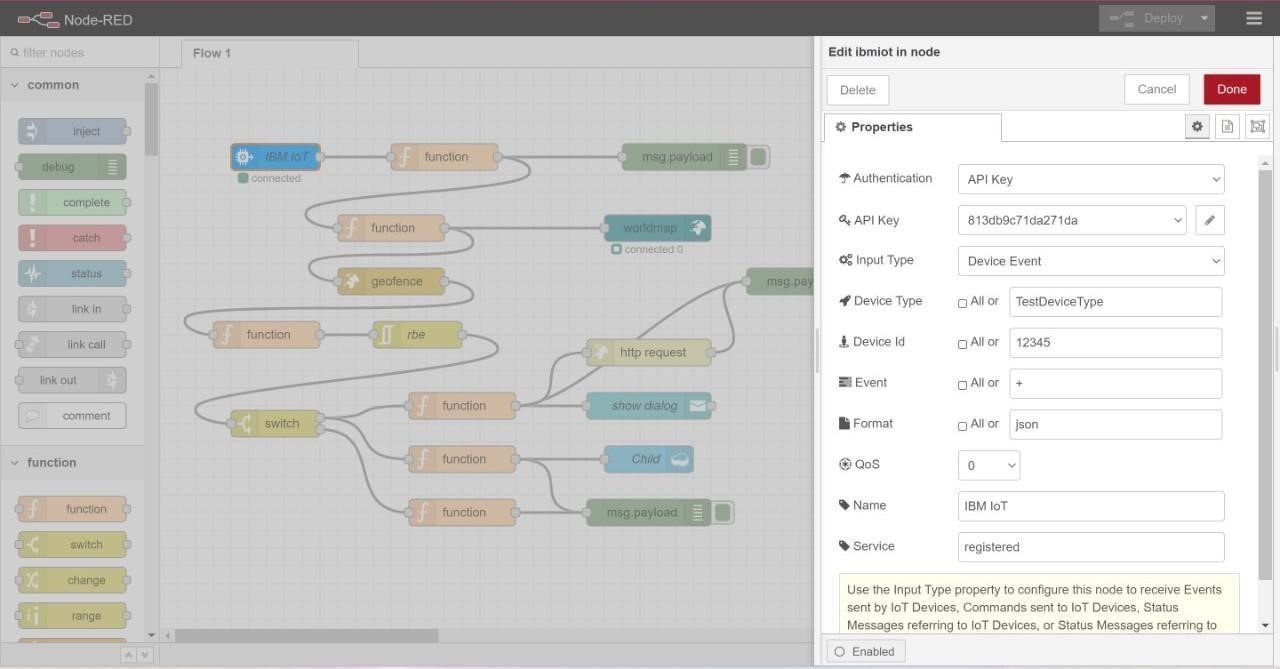
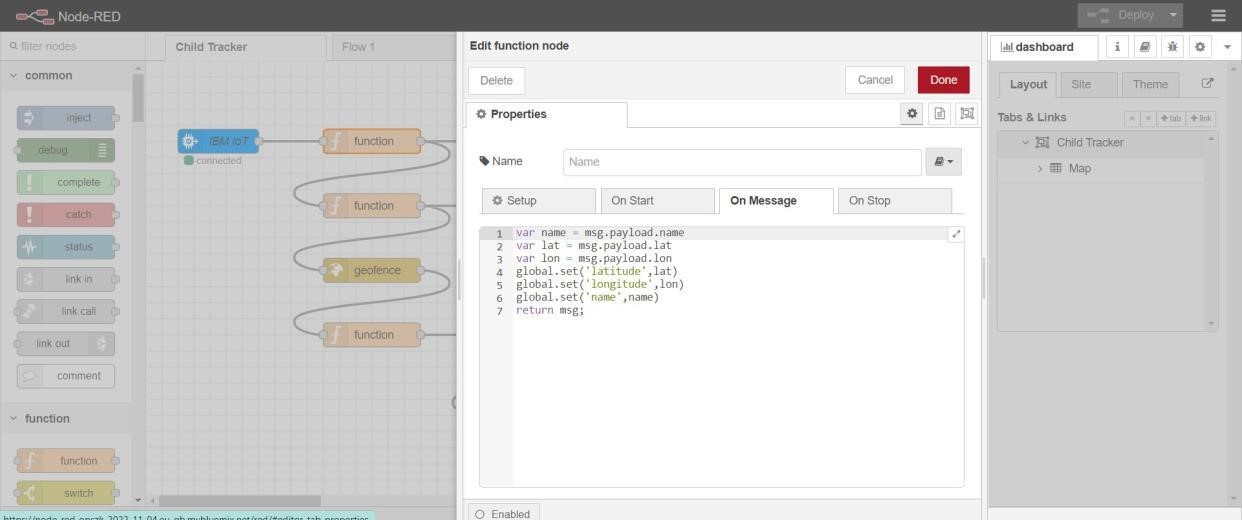
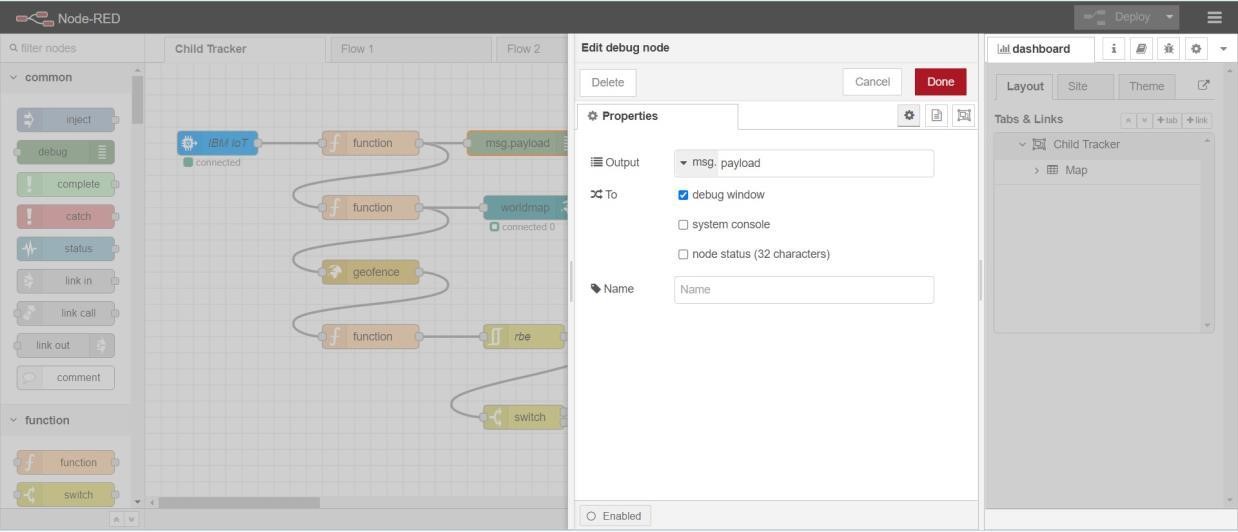
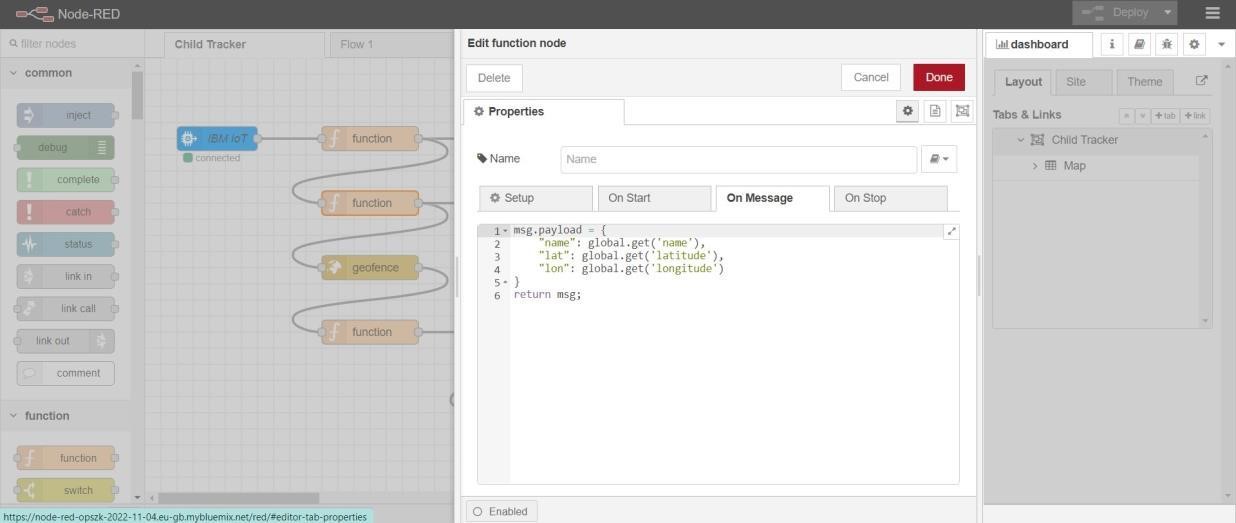
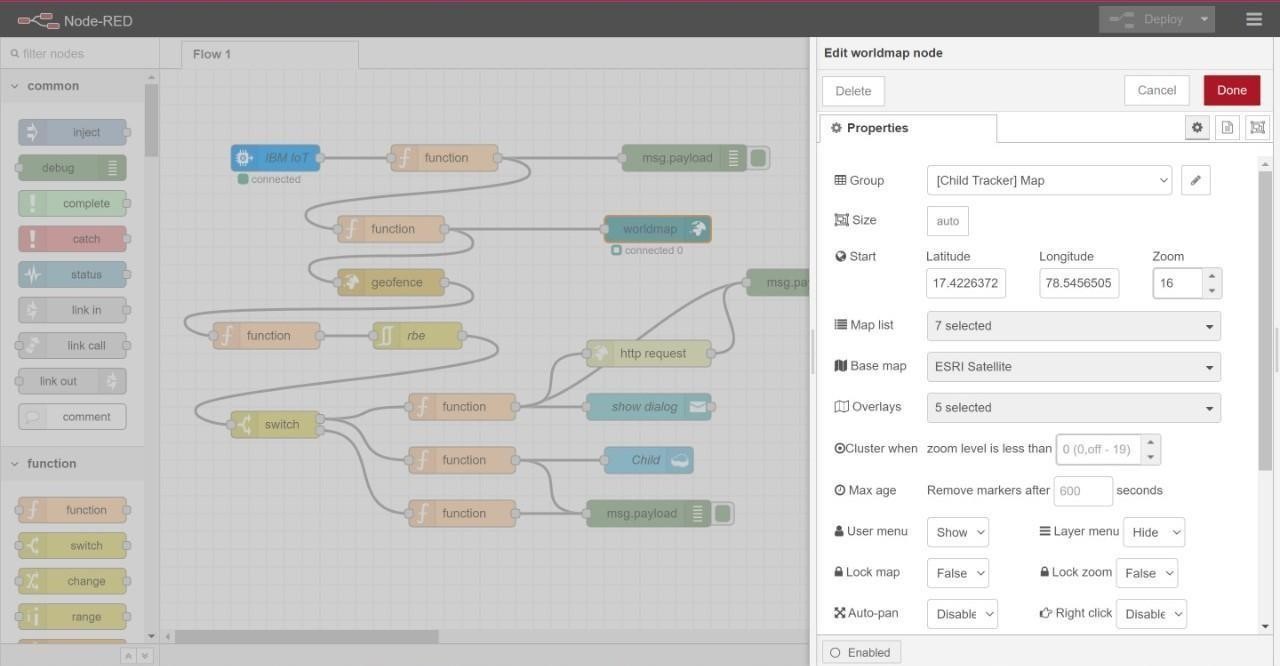


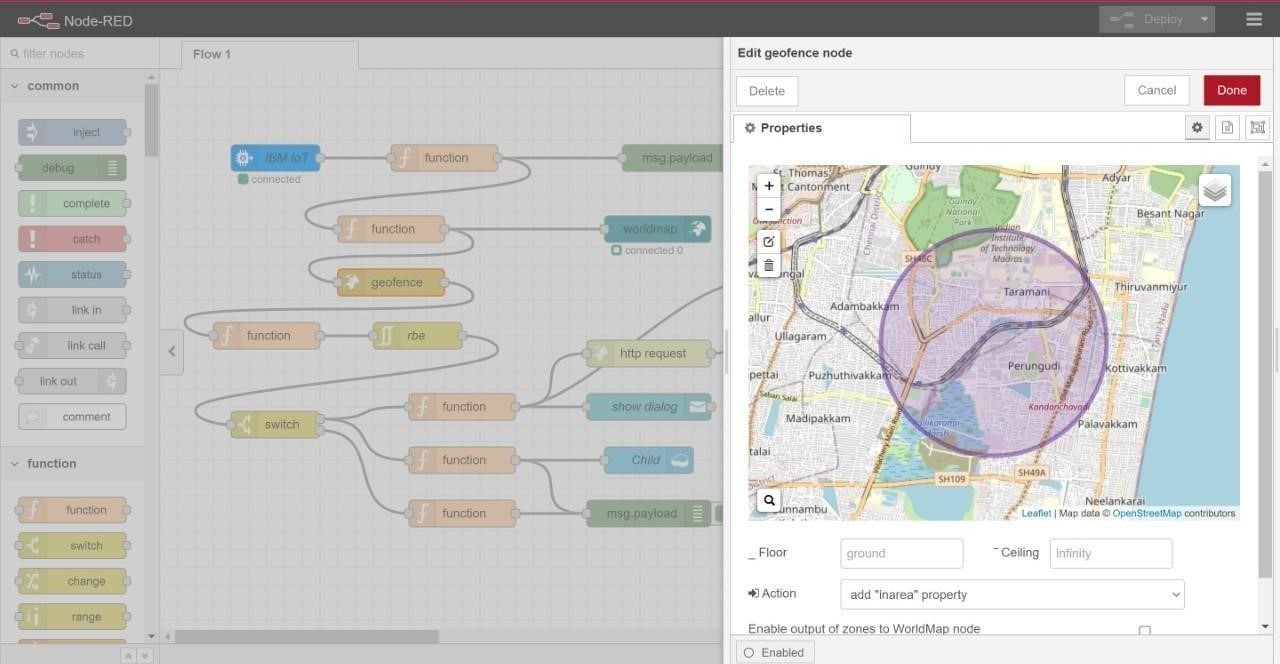
Fig.5,Code in each nodes

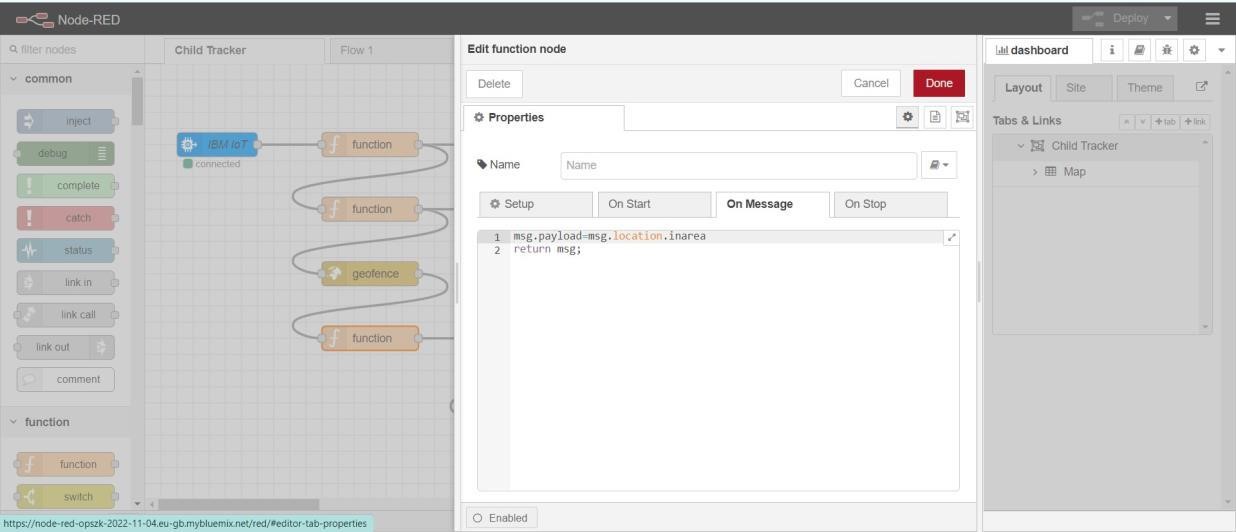


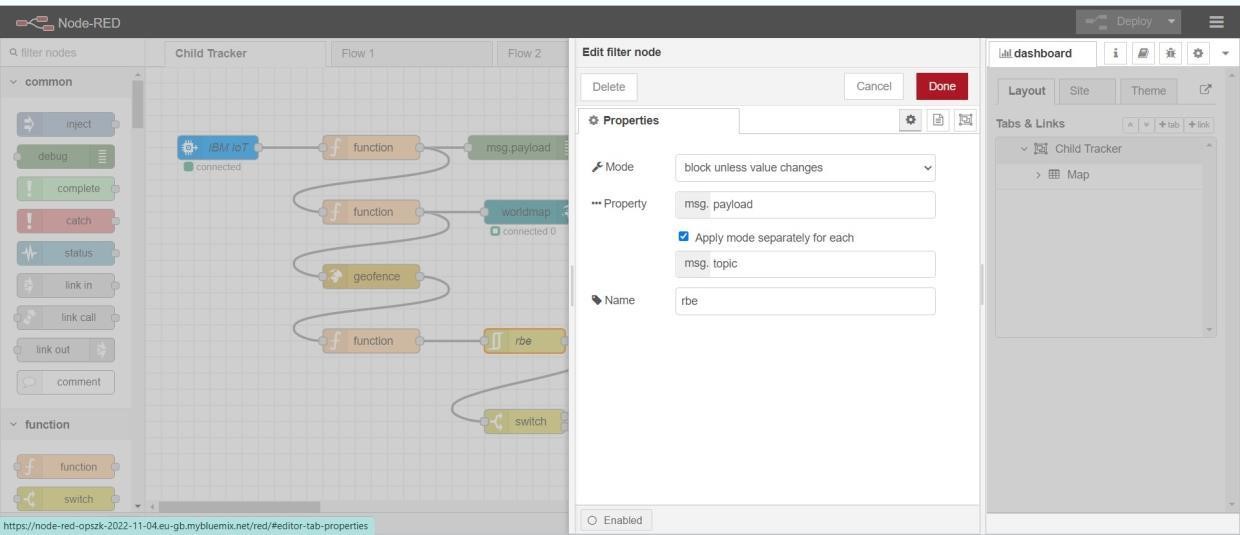


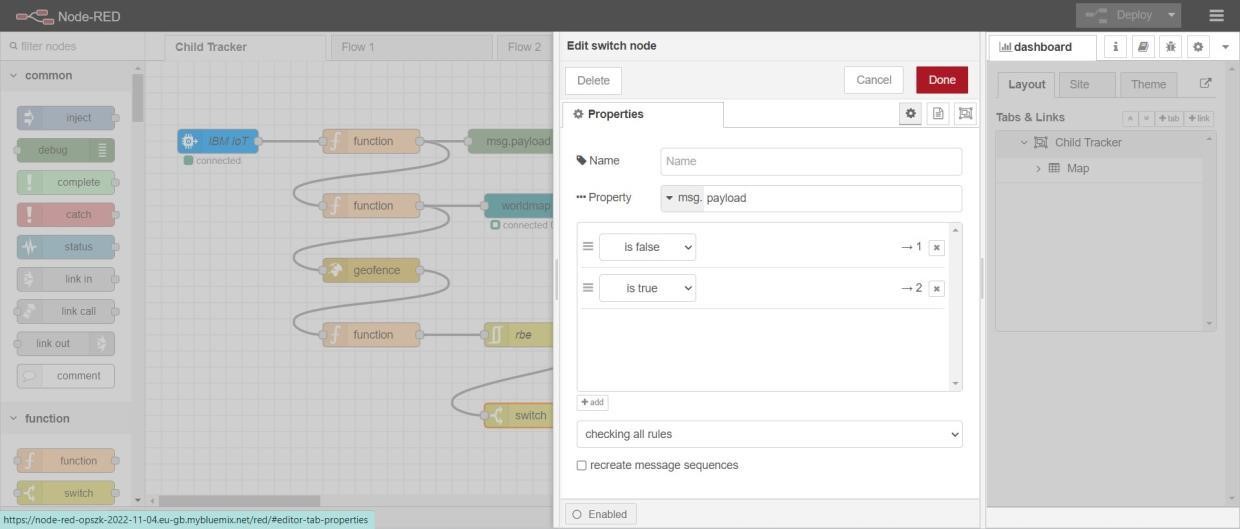


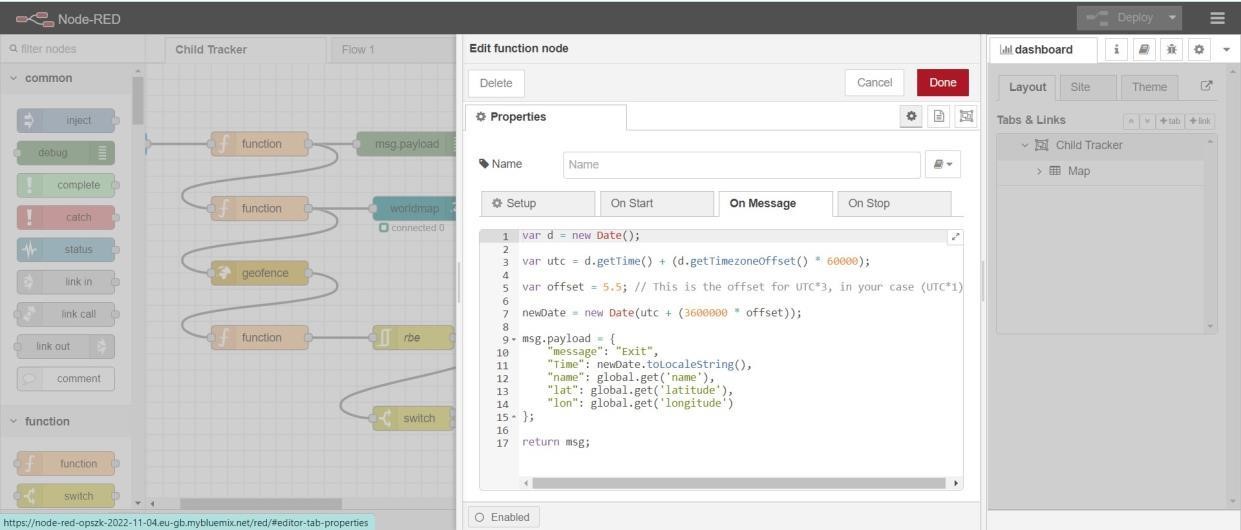


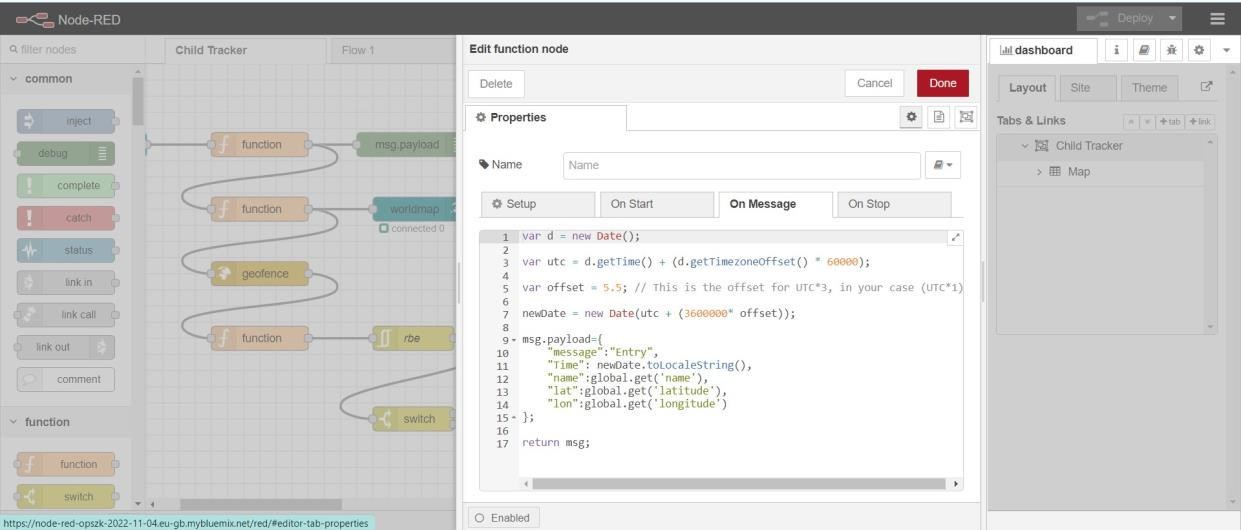


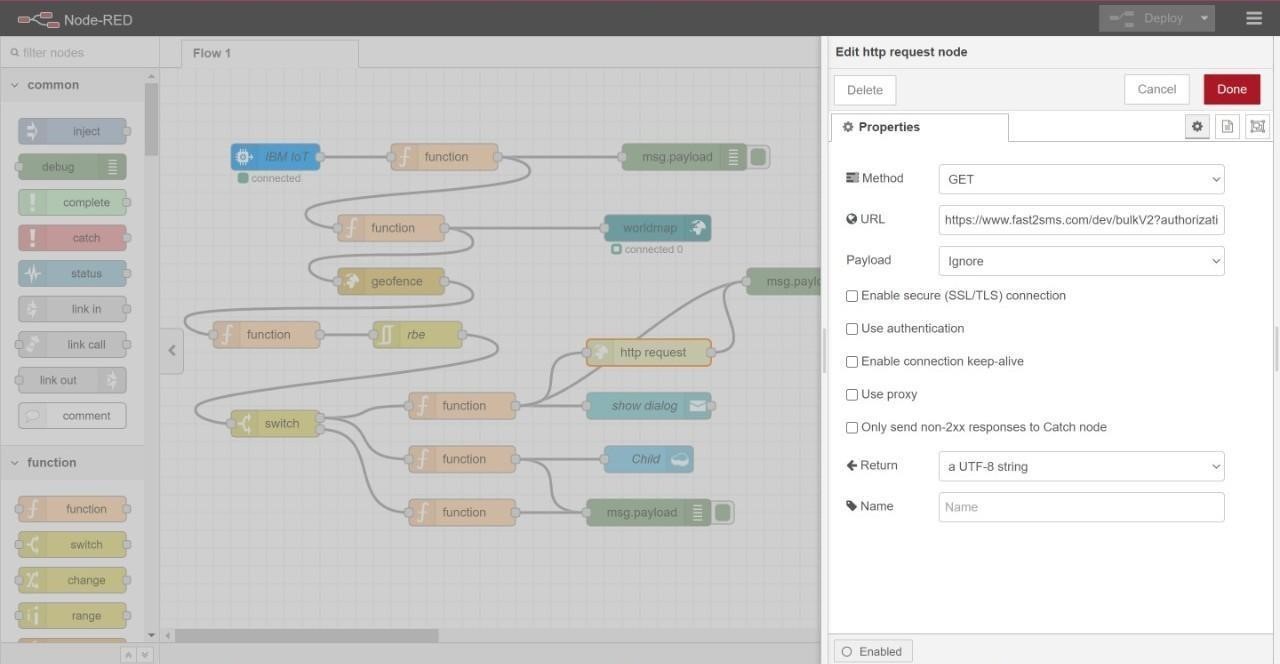


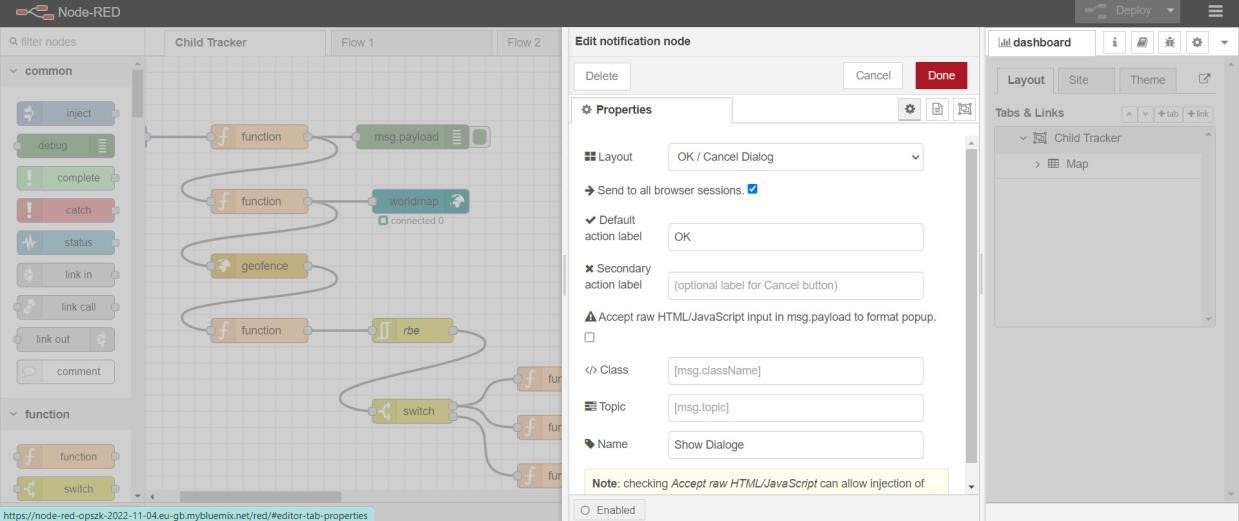


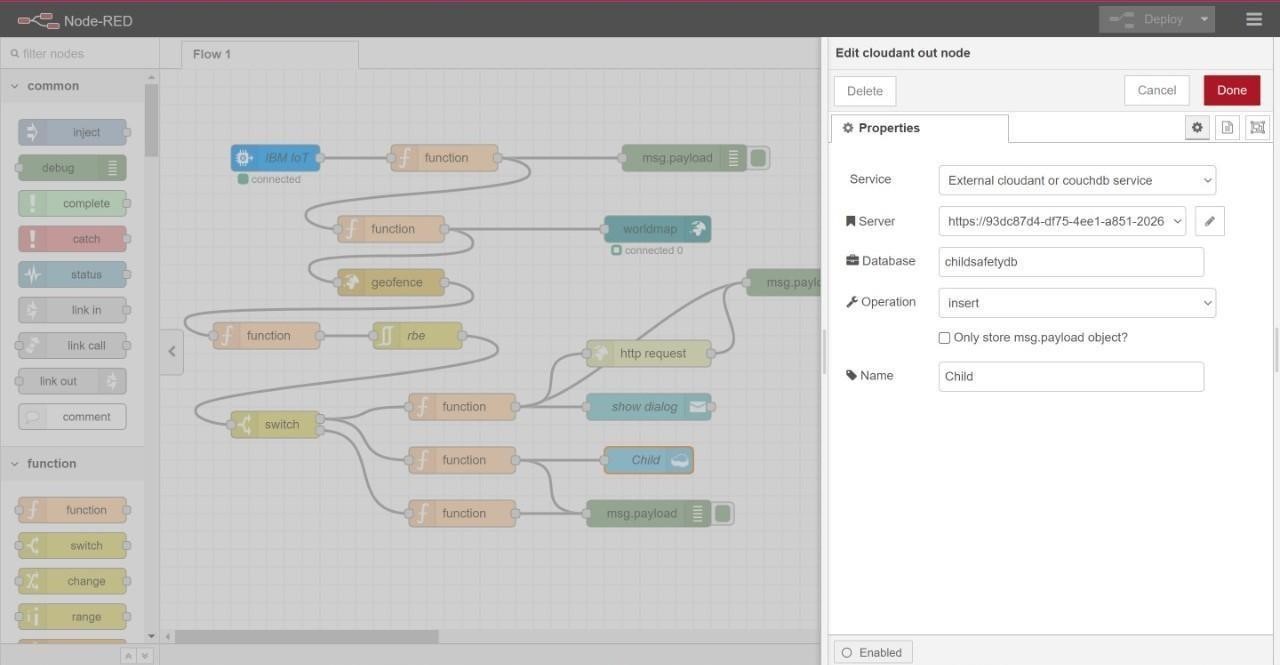




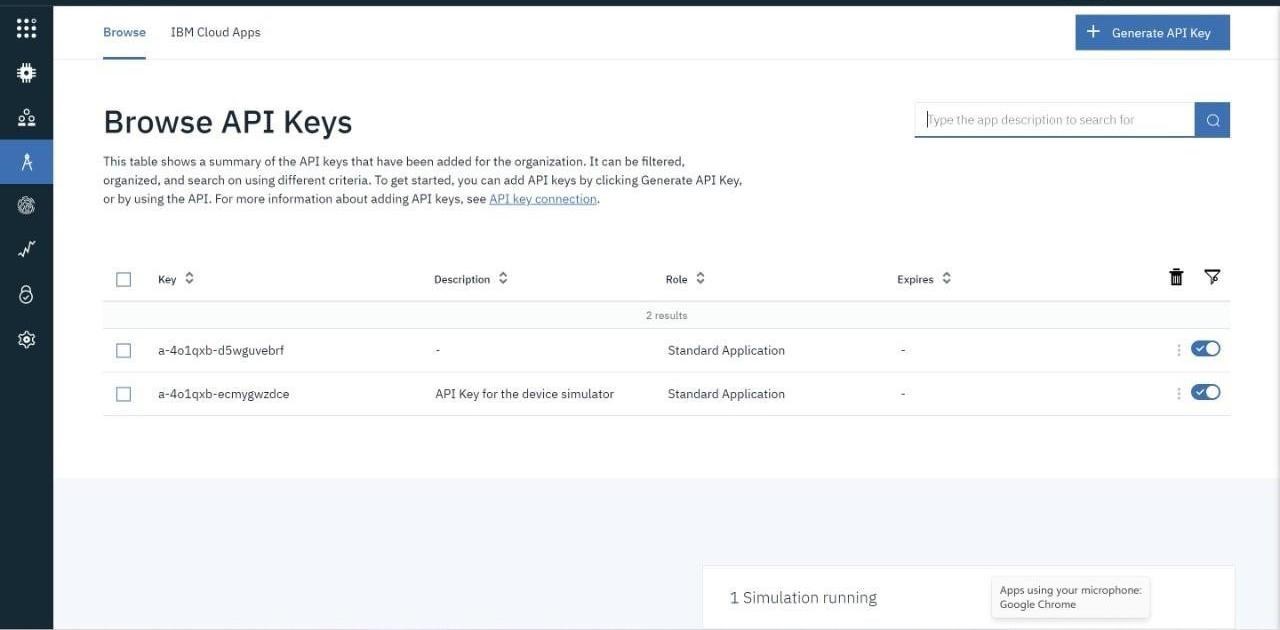


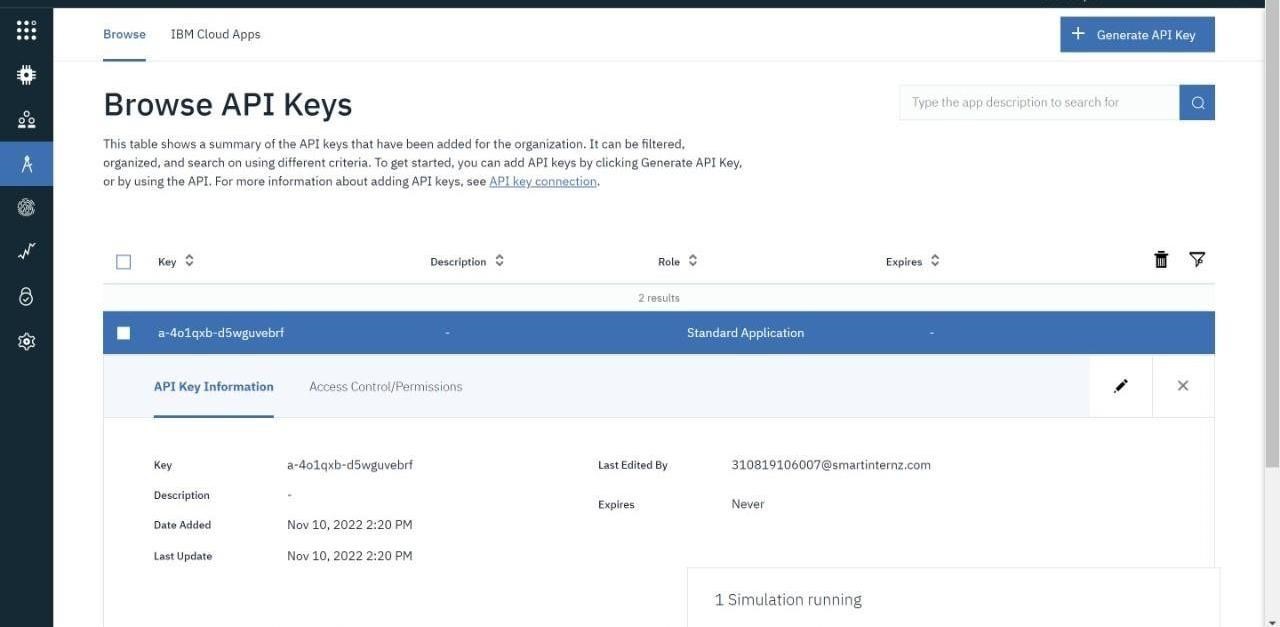




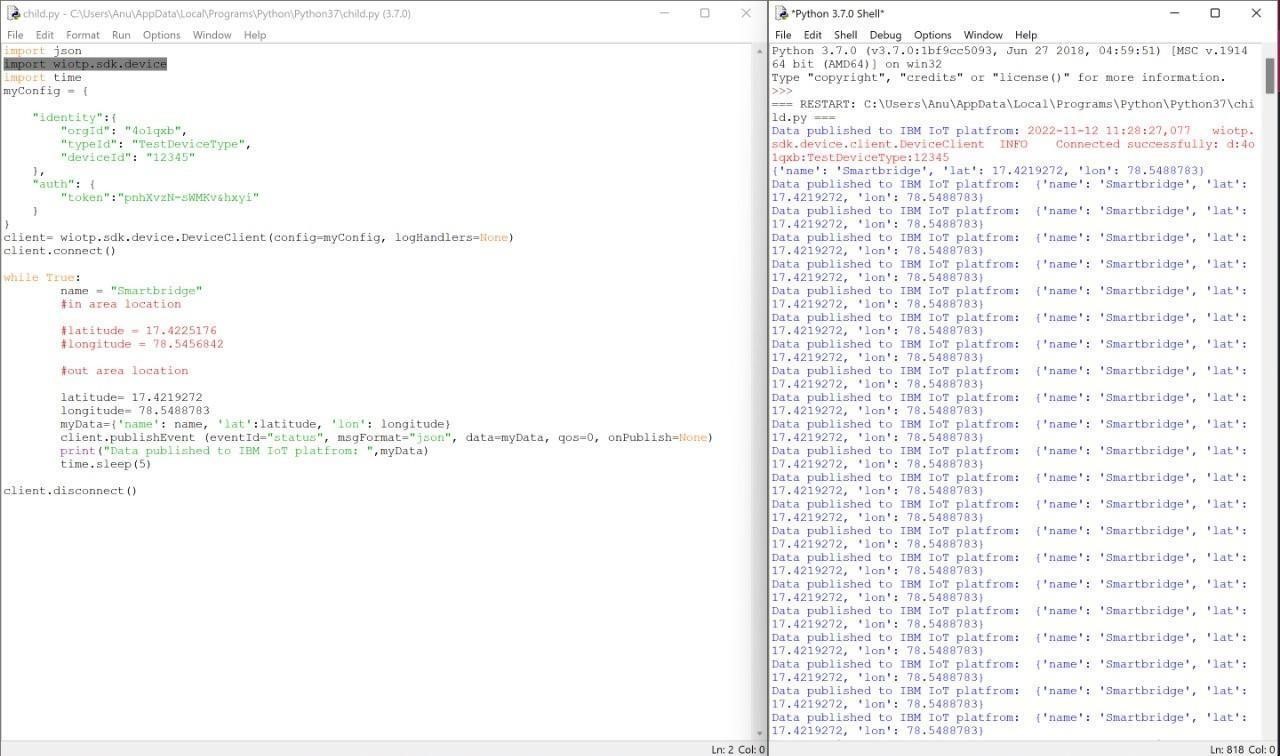


**Connecting with IBM Cloud: Using IBM IOT node through the API key**

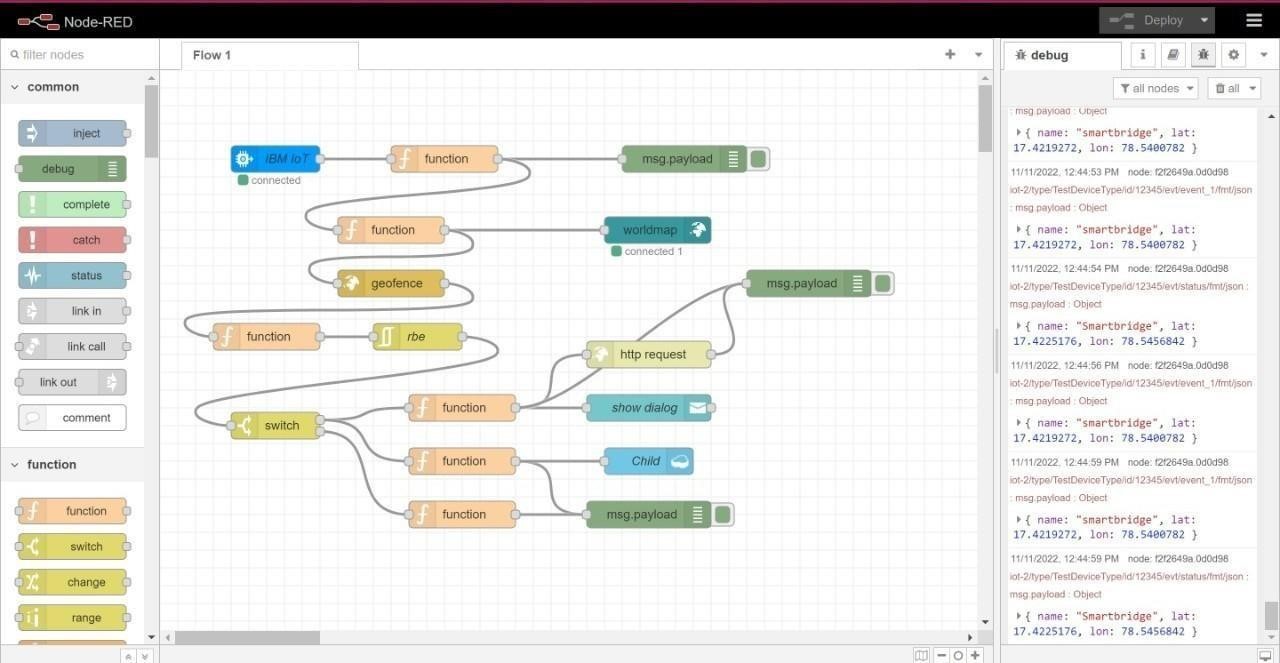




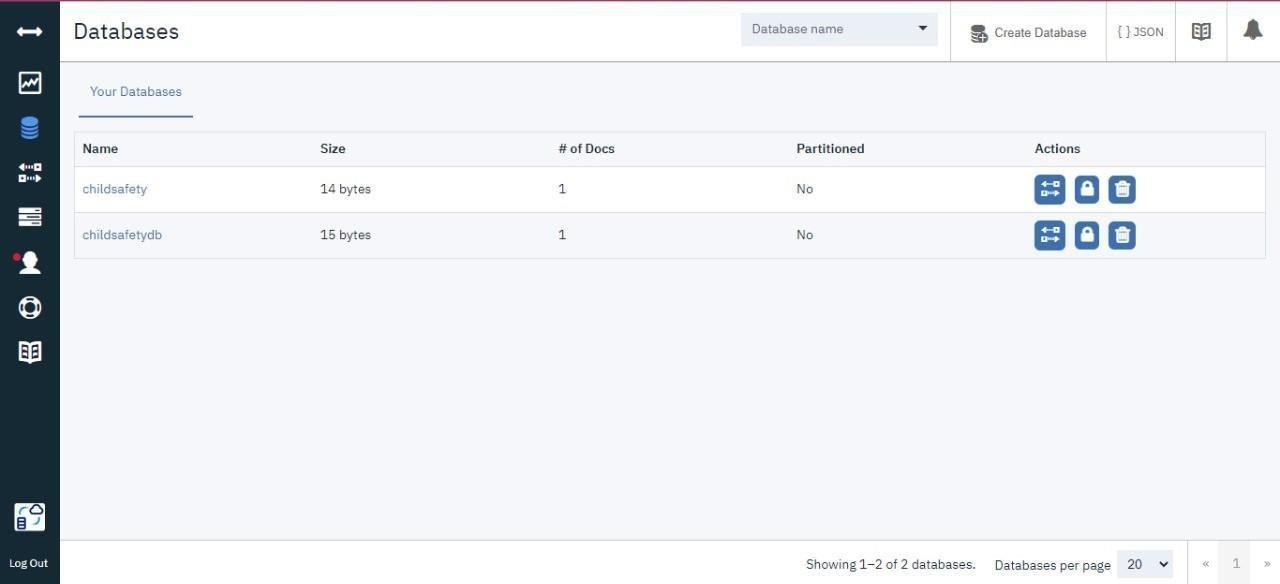
**Transferring values from Python Code:**

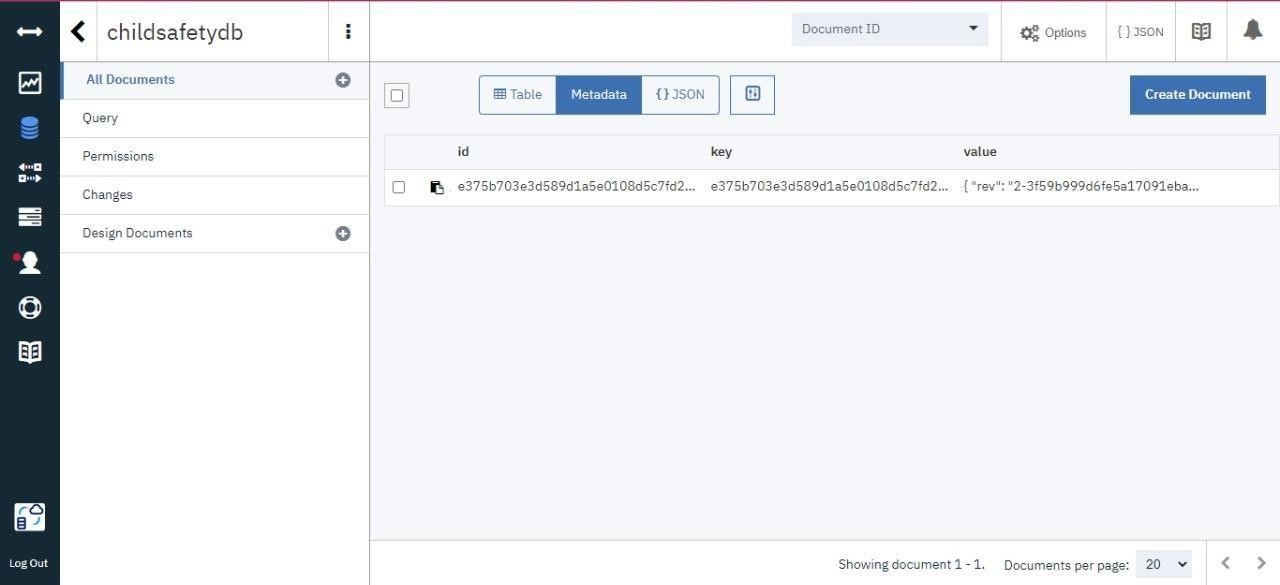


**Node-Red:**

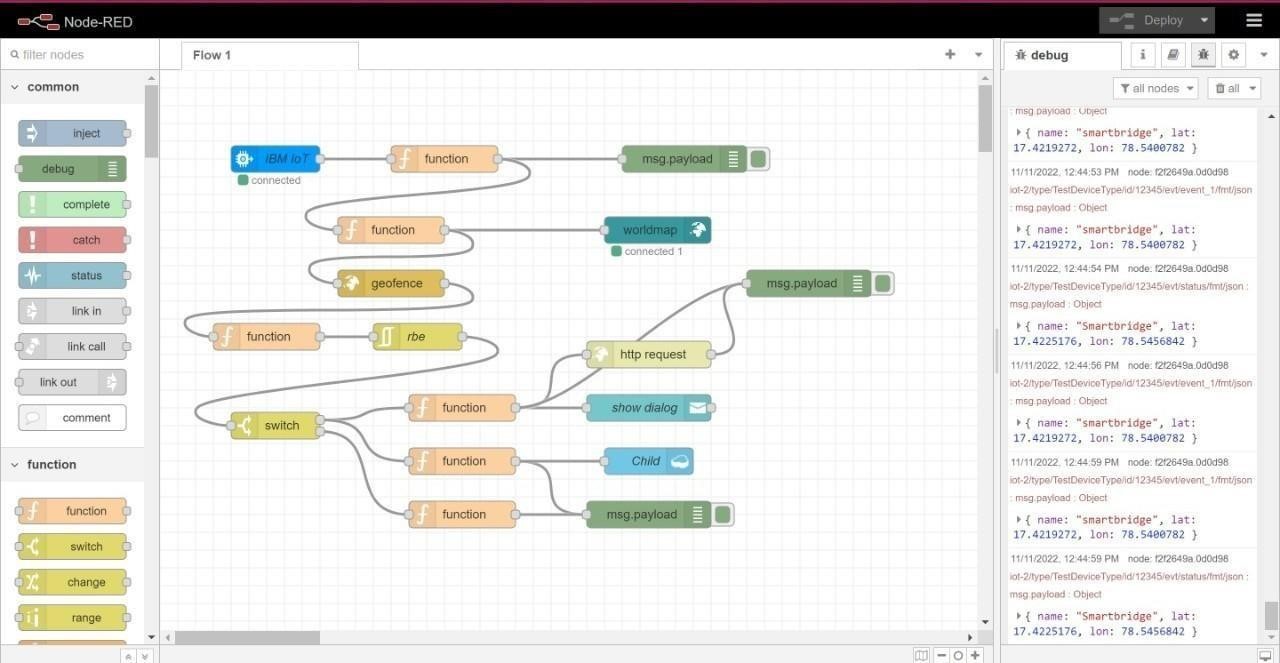


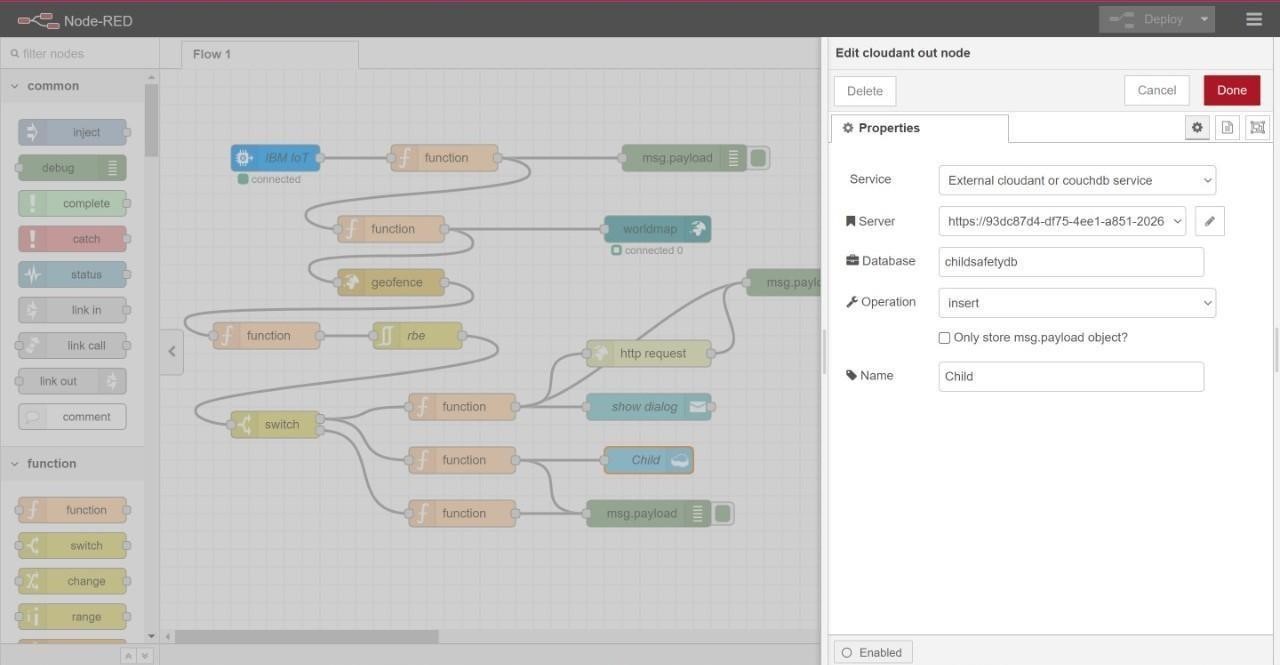
Creating Cloudant DB and integrating Node-Red with the Web UI



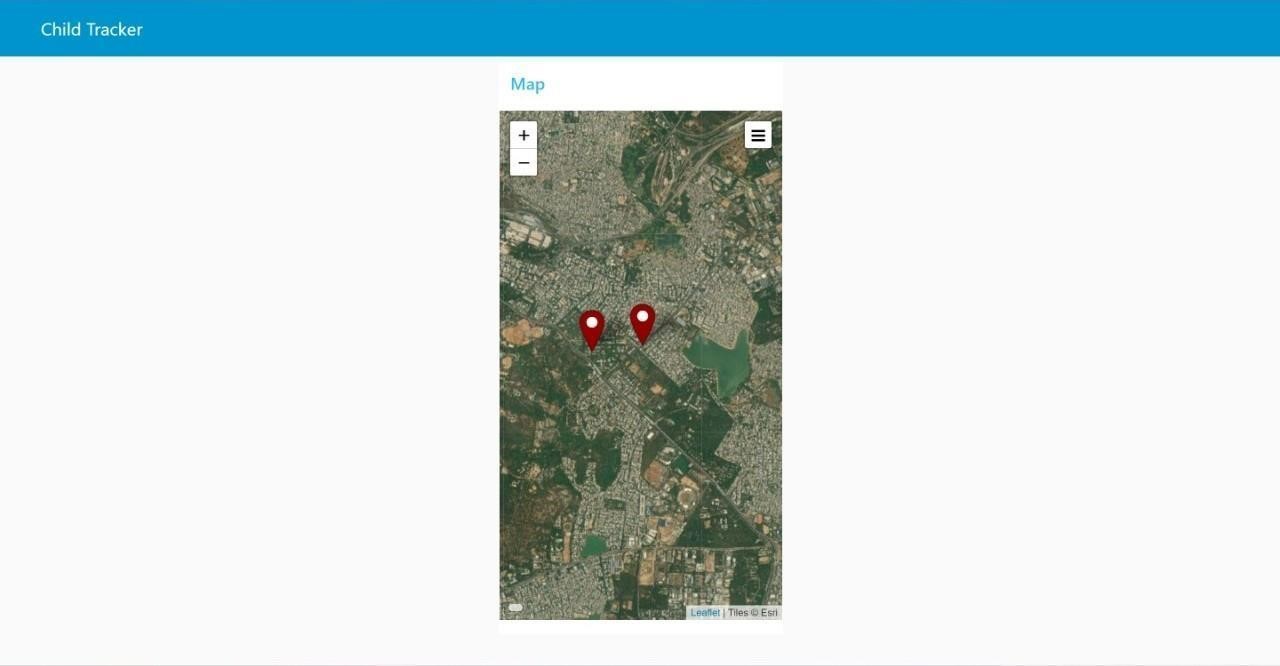


**Node-Red Service with Cloudant Database:**



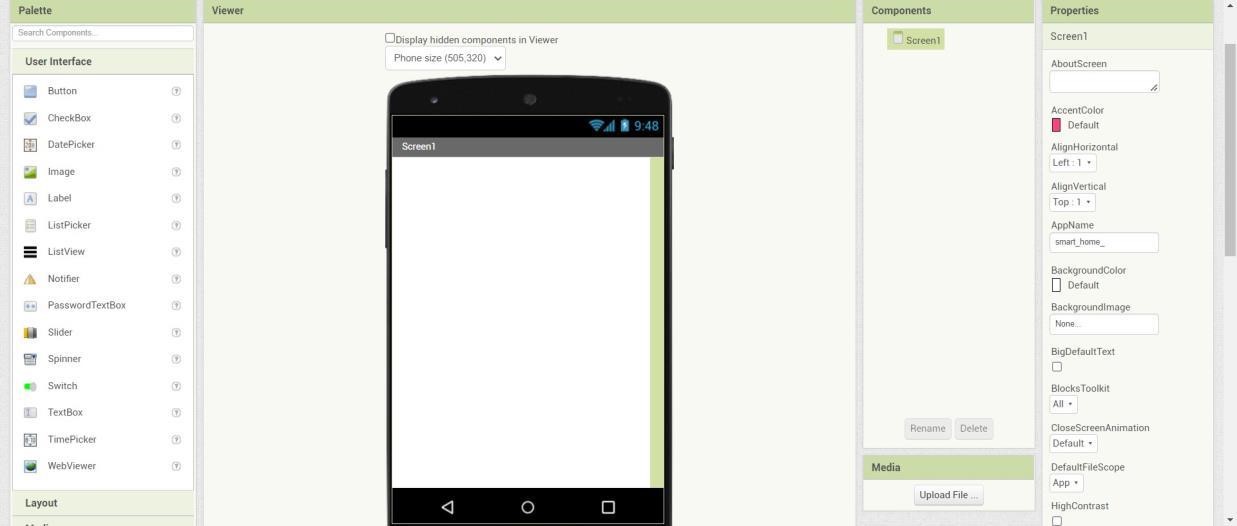


**Node-Red Dashboard(Web ui):**

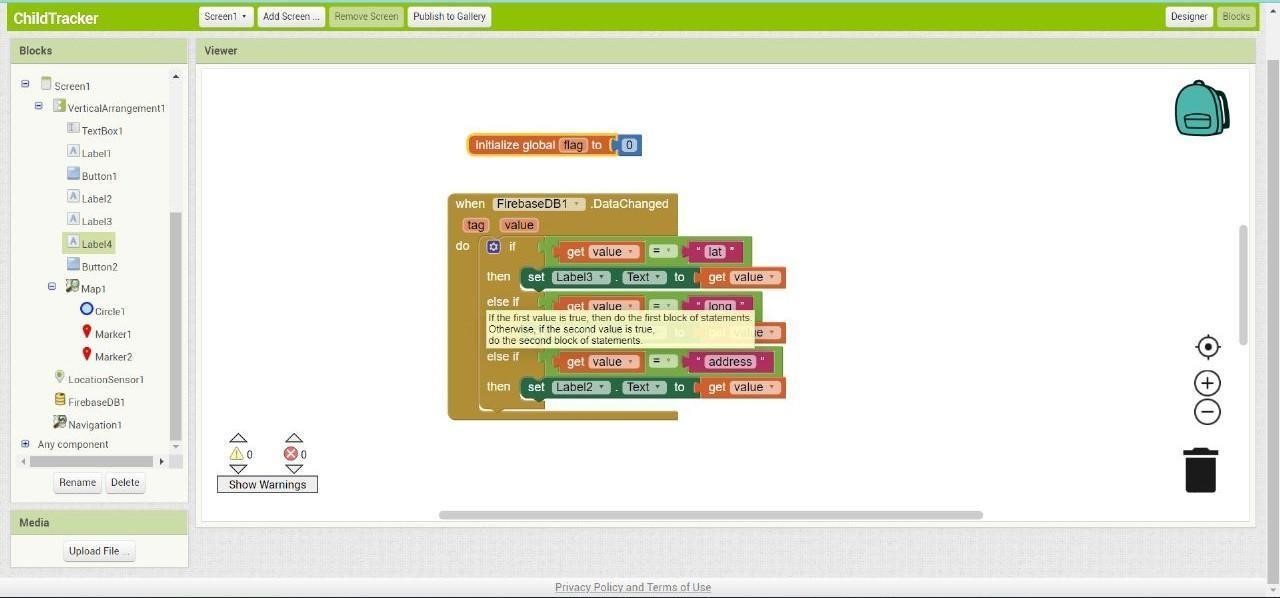


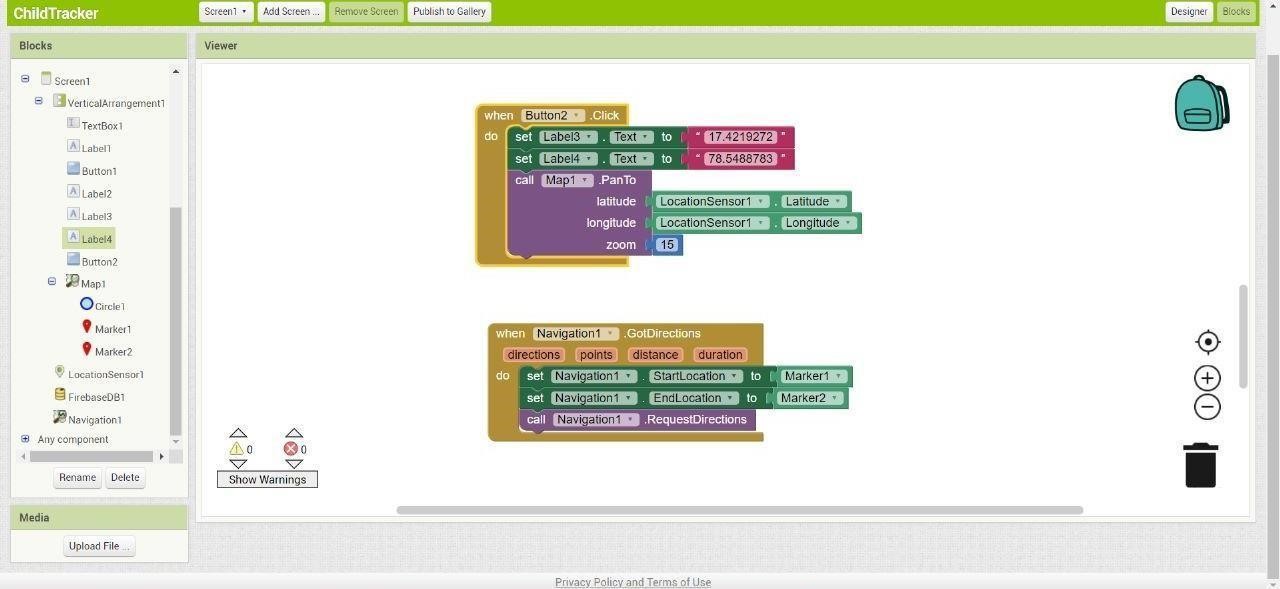
**Creating the MIT app and Showing the child's location**

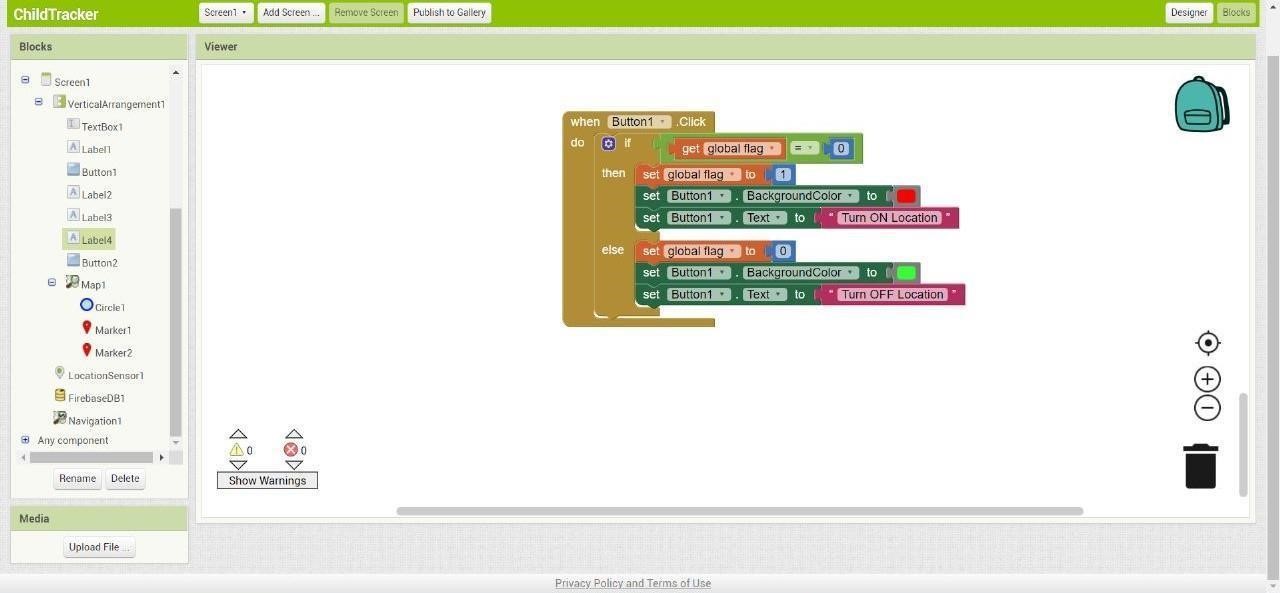
Create App in MIT App inventor:

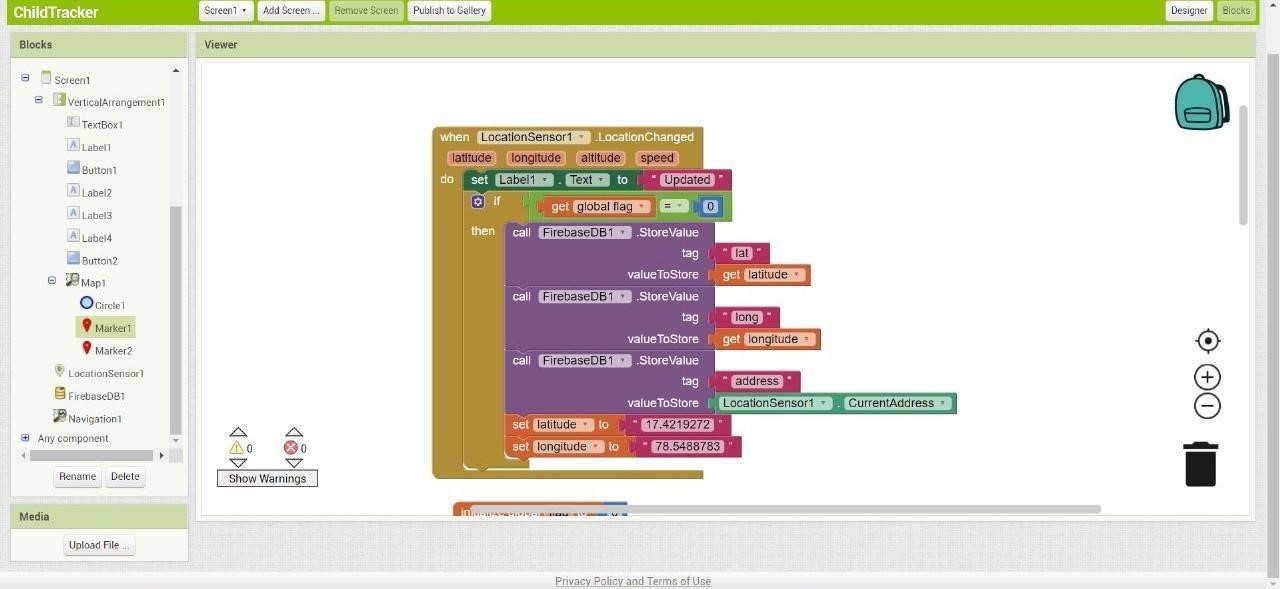


**Block Configuration:**

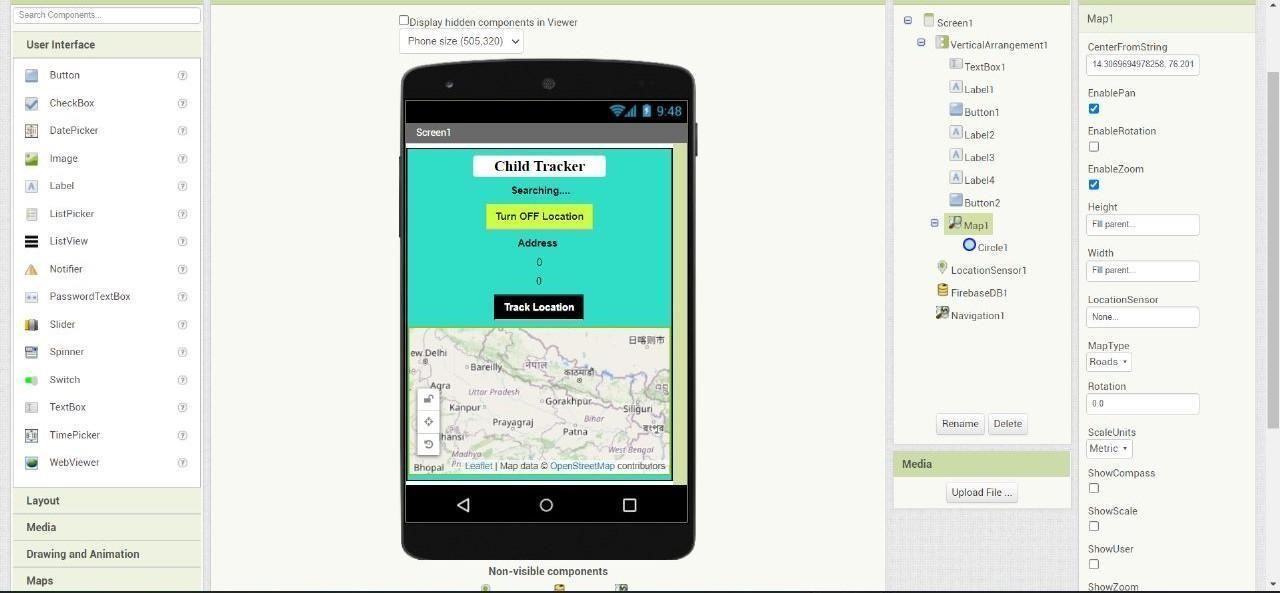




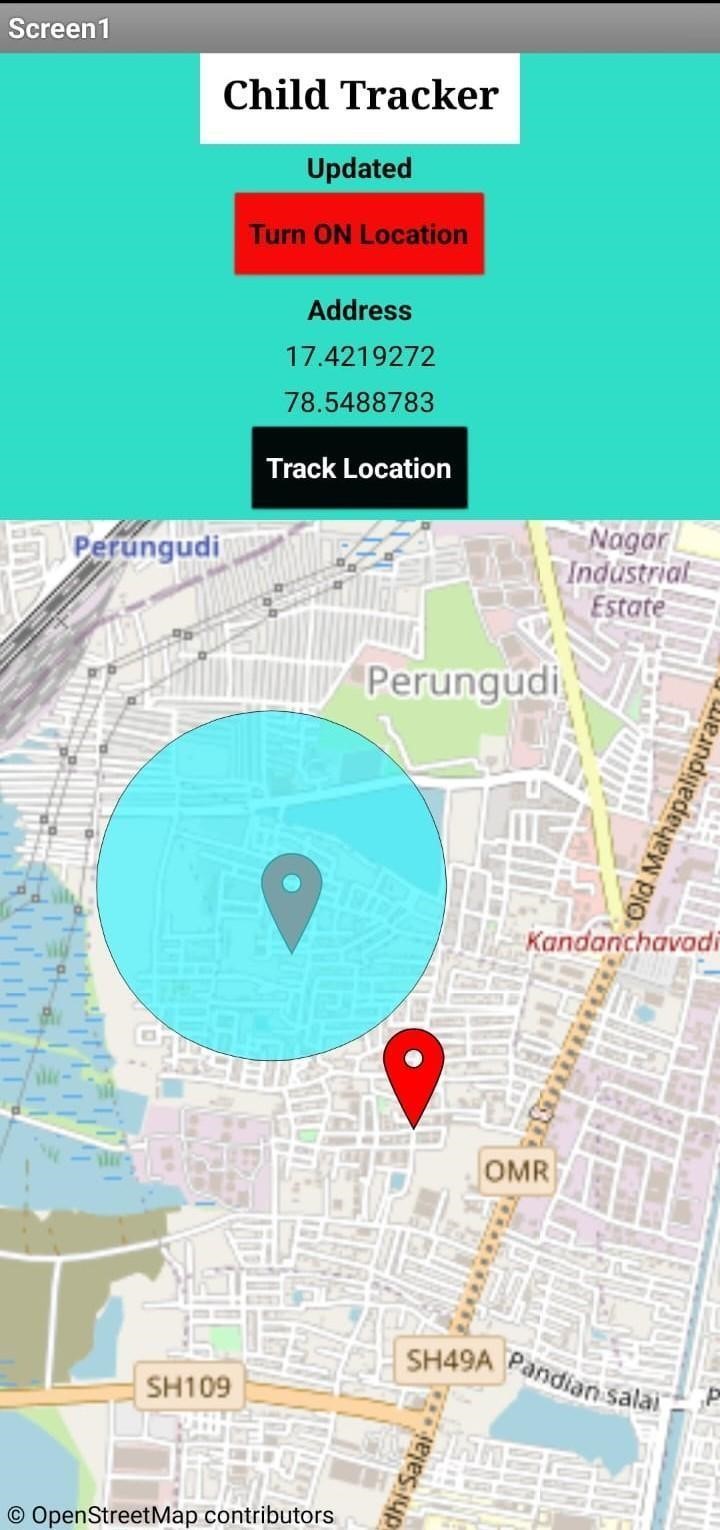




**Output(App inventor):**



**Location Status:**



## CONCLUSION

This paper to ensure the safety of children and increase their confidence. Many experimenters are operating in this area and have formulated different technologies to aid children. The key represented in this paper takes the advantage of smartphones which proposes affluent elements like Google maps, SMS, etc. The child safety and protection device is proficient in acting as a smart IoT device. It equips parents with real-time location, the surrounding temperature, and along with an alarm buzzer for their child’s circumstances and the capability to locate their child. This paper depicts the fundamental design concept and functionality along with the anticipated consequences.

# REFERENCES

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{2} Authors: Aditi Gupta, Vibhor Harit. Published in: 2016 IEEE. Title: Child

Safety & Tracking Management System by using GPS https://scholar.archive.org/work/djydjnxvovbdhhbthlunfw7tye

{3} Authors: 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. https://ijsrcseit.com/paper/CSEIT206288.pdf

{4} Authors: Akash Moodbidri, Hamid Shahnasser. Title: Child safety wearable device. Published in: 2017 IEEE.

https://ieeexplore.ieee.org/document/7899531