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**Safety Gadget for Child Safety Monitoring and
Notification**
IBM NALAIYATHIRAN

Project Development –Delivery of Sprint 2
Creating Node –Red service and connect with IBM cloud and Web UI

TITLE	IOT based child safety gadget for child safety monitoring and notification
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Creating Node-RED service:

The screenshot shows the Node-RED web interface in a browser. The flow is titled "Flow 1" and starts with an "IBM IoT" node (connected). The flow branches into several parallel paths, each representing a different sensor or data point. These paths are connected to various output nodes:

- Child safety:** A "child safety" node connected to a "msg payload" node.
- Temperature:** A "temp" node connected to a "gauge" node, which is then connected to a "Temperature" node.
- Latitude:** A "latitude" node connected to a "gauge" node, which is then connected to a "Latitude" node.
- Child Zone:** A "your_child_zone" node connected to a "Child Zone" node.
- Longitude:** A "longitude" node connected to a "Longitude" node.
- Worldmap:** A "worldmap" node (connected 0) is also present in the flow.

The debug console on the right shows the following log entries:

```
11/10/2022, 10:00:45 PM node: 65909d205fd4648
iot-2/type/ABCD/id/13/levIoTSensorpsdata/fmt/json :
msg.payload : Object
{
  temp: 50, lat:
  12.131629972663186, lon:
  78.19606388397351, name: "Child" }

11/10/2022, 10:00:45 PM node: 65909d205fd4648
iot-2/type/ABCD/id/13/levIoTSensorpsdata/fmt/json :
msg.payload : Object
{
  your_child_zone: "Outside the
  geofence" }

11/10/2022, 10:00:45 PM node: 65909d205fd4648
iot-2/type/ABCD/id/13/levIoTSensorpsdata/fmt/json :
msg.payload : Object
{
  temp_status: "High temperature" }
```

The screenshot shows the Node-RED web interface in a browser. The flow is titled "Flow 1" and starts with a "[get]/sensor" node. This node is connected to a "function" node, which is then connected to an "http" node. The flow also includes several parallel paths for sensor data:

- Latitude:** A "latitude" node connected to a "Latitude" node.
- Child Zone:** A "your_child_zone" node connected to a "Child Zone" node.
- Longitude:** A "longitude" node connected to a "Longitude" node.
- Worldmap:** A "worldmap" node (connected 0) is also present in the flow.

The debug console on the right shows the following log entries:

```
11/10/2022, 10:01:08 PM node: 65909d205fd4648
iot-2/type/ABCD/id/13/levIoTSensorpsdata/fmt/json :
msg.payload : Object
{
  temp: 44, lat:
  12.132579338848833, lon:
  78.19807517188046, name: "Child" }

11/10/2022, 10:01:09 PM node: 65909d205fd4648
iot-2/type/ABCD/id/13/levIoTSensorpsdata/fmt/json :
msg.payload : Object
{
  your_child_zone: "Outside the
  geofence" }

11/10/2022, 10:01:09 PM node: 65909d205fd4648
iot-2/type/ABCD/id/13/levIoTSensorpsdata/fmt/json :
msg.payload : Object
{
  temp_status: "High temperature" }
```

Connecting with IBM Cloud:

Using IBM IOT node through API key

The screenshot displays the IBM Watson IoT Platform dashboard in a web browser. The browser's address bar shows the URL `zwx6lb.internetofthings.ibmcloud.com/dashboard/apps/browse/add`. The dashboard header includes the text "IBM Watson IoT Platform" and a user profile for "613519106013@smartinternz.com" with ID "zwx6lb".

The main content area features a success message: "The API key has been added." Below this, a warning states: "Authentication tokens are non-recoverable. If you misplace this token, you will need to re-register the API key to generate a new authentication token."

Two sections are visible:

- Generated Details:**

API Key	a-zwx6lb-z7sryerler
Authentication Token	dO&H(qcUv)icaFOYcb
- API Key Information:**

Description	-
Role	Standard Application
Expires	Never

A warning icon and text are present: "Make a note of the generated authentication token. Lost authentication tokens cannot be recovered. If you lose the token, you must reregister the API to generate a new token."

A notification bubble at the bottom right of the dashboard indicates "1 Simulation running".

The Windows taskbar at the bottom shows the search bar and various application icons, with the system clock displaying "10:07 PM 11/10/2022".

The screenshot shows the IBM Watson IoT Platform dashboard. The user is logged in as 613519106013@smartinternz.com. The dashboard displays a table of API keys. The selected key is a-zwx6lb-97epyzrfc, which is a Standard Application key. The API Key Information tab is active, showing the following details:

Key	Description	Last Edited By	Expires
a-zwx6lb-97epyzrfc	-	613519106013@smartinternz.com	Never

The Date Added and Last Update are both Nov 7, 2022 5:54 PM. A status bar at the bottom indicates "1 Simulation running".

Transferring values from Python Code:

The screenshot shows a Python script named `Child Safety device.py` and its execution output in a "Python 3.7.4 Shell".

Python Script:

```
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random

#Provide your IBM Watson Device Credentials
organization = "illzai"
deviceType = "latlonitem"
deviceId = "613510"
authMethod = "token"
authToken = "1092837465"
#api key (a-illzai-mbdxqo6z0s)
#api token (zSYzISuAWFxF_7GkT)

try:
    deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-method": authMethod}
    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
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(20,50)#random temperature for your child
    latitude=random.uniform(10.781377,10.78643)#random latitude for your child
    longitude=random.uniform(79.129113,79.134014)#random longitude for your child

    data = { 'temp': temperature, 'lat': latitude, 'lon':longitude, 'name':name }
    #print data
    def myOnPublishCallback():
        print("Published Temperature = %s C & Latitude = %s & Longitude = %s" % (temperature, latitude, longitude))
```

Python Shell Output:

```
Python 3.7.4 (tags/v3.7.4:09359112e, Jul 8 2019, 20:34:20) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/kutta/Desktop/IBM-Dr/Child Safety device.py =====
power on
checking connection to waston iot...
2022-11-10 22:14:21,799 ibmiotf.device.Client INFO Connected successfully: drillzal:latlonitem:613510
dear user ... welcome to IBM-IOT
i can provide your children live location and temperature

enter your child name:child
Published Temperature = 39 C latitude = 10.782749628132827 & longitude = 79.867253162 & to IBM Watson
Published Temperature = 39 C latitude = 10.782669248109656 & longitude = 79.1255540076 & to IBM Watson
Published Temperature = 43 C latitude = 10.781765104656792 & longitude = 79.077864707 & to IBM Watson
Published Temperature = 30 C latitude = 10.786083936690018 & longitude = 79.2366715787 & to IBM Watson
Published Temperature = 31 C latitude = 10.784810558975826 & longitude = 79.0117359415 & to IBM Watson
Published Temperature = 45 C latitude = 10.785949922923024 & longitude = 79.5563967668 & to IBM Watson
Published Temperature = 24 C latitude = 10.784168891438233 & longitude = 79.9528906442 & to IBM Watson
Published Temperature = 23 C latitude = 10.786248060883958 & longitude = 79.4368596464 & to IBM Watson
Published Temperature = 27 C latitude = 10.783808327214418 & longitude = 79.951933729 & to IBM Watson
Published Temperature = 43 C latitude = 10.786340416981865 & longitude = 79.7748803969 & to IBM Watson
Published Temperature = 49 C latitude = 10.786208956579015 & longitude = 79.2192551409 & to IBM Watson
Published Temperature = 45 C latitude = 10.783690544907325 & longitude = 79.504415061 & to IBM Watson
```

Node-Red:

Node-RED Dashboard

Flow 1

child safety

msg payload

function

Child name

gauge

Temperature

temp_status

Latitude

Child Zone

Longitude

worldmap

debug

```
11/10/2022, 10:00:45 PM node: 65909d20f5fd4648
iot-2/type/ABCD/id/13/evt/IoTSensorgpsdata/fmt/json :
msg.payload : Object
{ temp: 50, lat:
12.131629972663186, lon:
78.19606388397351, name: "Child" }

11/10/2022, 10:00:45 PM node: 65909d20f5fd4648
iot-2/type/ABCD/id/13/evt/IoTSensorgpsdata/fmt/json :
msg.payload : Object
{ your_child_zone: "Outside the
geofence" }

11/10/2022, 10:00:45 PM node: 65909d20f5fd4648
iot-2/type/ABCD/id/13/evt/IoTSensorgpsdata/fmt/json :
msg.payload : Object
{ temp_status: "High temperature" }

11/10/2022, 10:00:46 PM node: 65909d20f5fd4648
iot-2/type/ABCD/id/13/evt/IoTSensorgpsdata/fmt/json :
msg.payload : Object
{ temp: 50, lat:
12.129898691365163, lon:
78.1971804860123, name: "Child" }
```

Node-Red Dashboard:

Home

home

Child name

Child

Temperature

106

temp_status

Low temperature

gauge

106

0 units 100

