Project Development- Delivery Of Sprint - 2

Date	18 November 2022
Team ID	PNT2022TMID38017
Project Name	IoT Based Safety Gadget for Child Safety Monitoring & Notification

NOTIFICATION:

This coding will make connection between IoT Device & Parent's application. When the child cross across the geofence message will be notified on parent's application.

CODING:

```
#include<WiFi.h>//library for wifi #include<PubSubClient.h>//library for
MQTT
void callback(char* subscribe topic, byte* payload, unsigned int payload length);
//---------------credentials of IBM Account------
#define ORG "frpi8s"// IBM ORGANIZATION ID
#define DEVICE_TYPE "NodeMCU"//DEVICE TYPE MENTIONED IN IOT
WATSON
PLATFORM #define DEVICE_ID "12345"//DEVICE ID MENTIONED IN
IOTWATSONPLATEFORM
#define TOKEN "12345678"//Token String data3;floatdist;
//------------customize the above value-------
char server [] =ORG ".messaging.internetofthings.ibmcloud.com";//servername
char publish topic[]="ultrasonic/evt/Data/fmt/json";/*topic name and typeof
event perform and format in which data to be send*/
char subscribetopic[]="ultrasonic/cmd/test/fmt/String";/*cmd REPRESENT
Command tupe and
COMMAND IS TEST OF FORMAT STRING*/
```

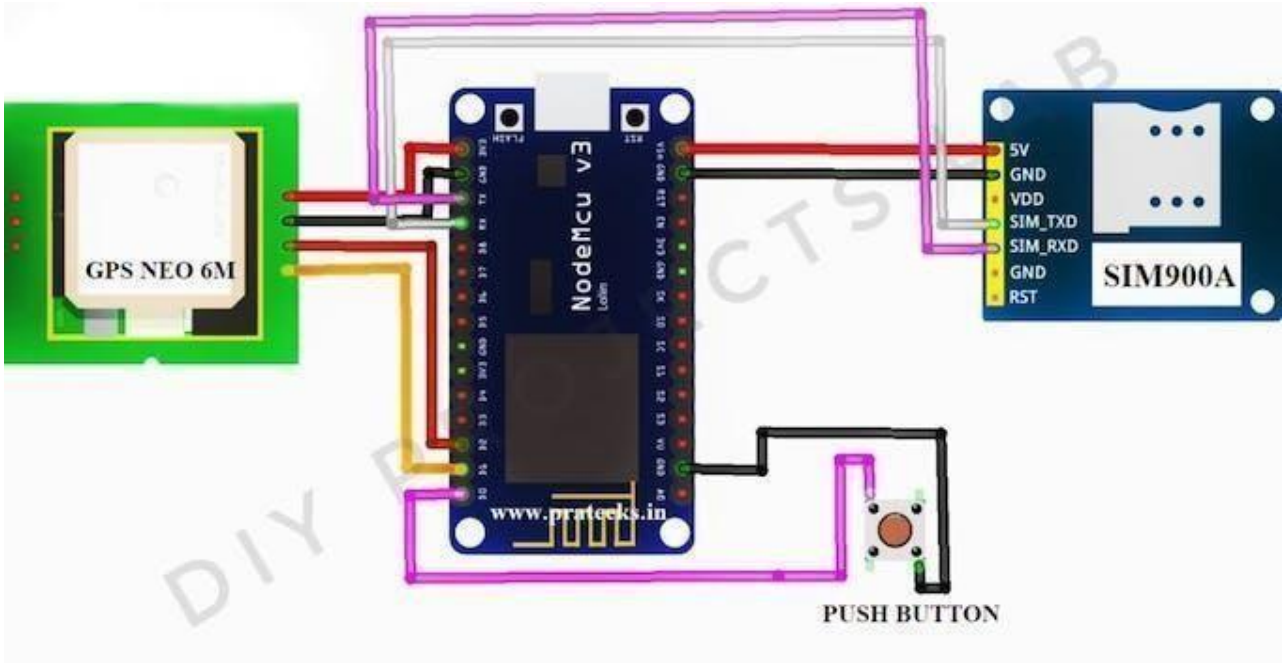
```
char authMethod[]="use-token-auth";//authentication method char
token[]=TOKEN; char clientid[]="d:" ORG ":" DEVICE_TYPE":"
DEVICE_ID;//CLIENT ID
//
WiFiClient wifiClient;// creating an instance for wificlient
PubSubClient client(server, 1883 , callback , wifiClient);/*calling the
predefined client id by passing parameter like server id,portand wificredential*/
int LED =4;
int trig =5; int echo=18; void setup(){
Serial.begin(115200); pinMode(trig,OUTPUT); pinMode(echo,INPUT);
pinMode(LED,OUTPUT); delay(10); Serial.println(); wificonnect();
mqttconnect(); void loop() { digitalWrite(trig,LOW);
digitalWrite(trig,HIGH);delayMicroseconds(10); digitalWrite(trig,LOW);
float dur=pulseIn(echo,HIGH); float dist=(dur * 0.0343)/2;
Serial.print("distance incm");
Serial.println(dist); PublishData(dist);
delay(1000); if (!client.loop()){
mqttconnect();
}
}
/*.....retriving to cloud. .....
*/ void PublishData(float dist){ mqttconnect();//function call for connecting to
ibm
/*creating the string in form of JSON to update the data to ibm cloud*/ Stringobject;
if(dist<100)
        { digitalWrite(LED,HIGH); Serial.println("no object is near");
object="Near";
    }
```

```
      else
          { digitalWrite(LED,LOW); Serial.println("no object found"); object="No";
          }
          String payload="{\"distance\":"; payload +=dist;
          payload +="," "\"object\":\""; payload += object;
          payload += "\"}";
          Serial.print("Sending payload: ");
          Serial.println(payload);
          if(client.publish(publishtopic, (char*) payload.c_str())){
             Serial.println("Publish ok");/* if its sucessfully upload data on the
   cloud then it will print publish ok in serial monitor or else it will print publish
   failed*/
   } else{
          Serial.println("Publish failed");
      } } void mqttconnect(){ if(!client.connected()){
Serial.print("Reconnectin g client to ");
Serial.println(server);while(!!!client.connect(clientid,authMethod,
   token)){ Serial.print("."); delay(500);
   }
   initManagedDevice();
   Serial.println();
     } } void wificonnect()//function defenition for
wificonnect

{
      Serial.println();
      Serial.print("Connecting to ");
WiFi.begin("vivo 1816", "taetae95",6);//PASSING THE WIFI
CREDIDENTIALS TOESTABLISH CONNECTION
```

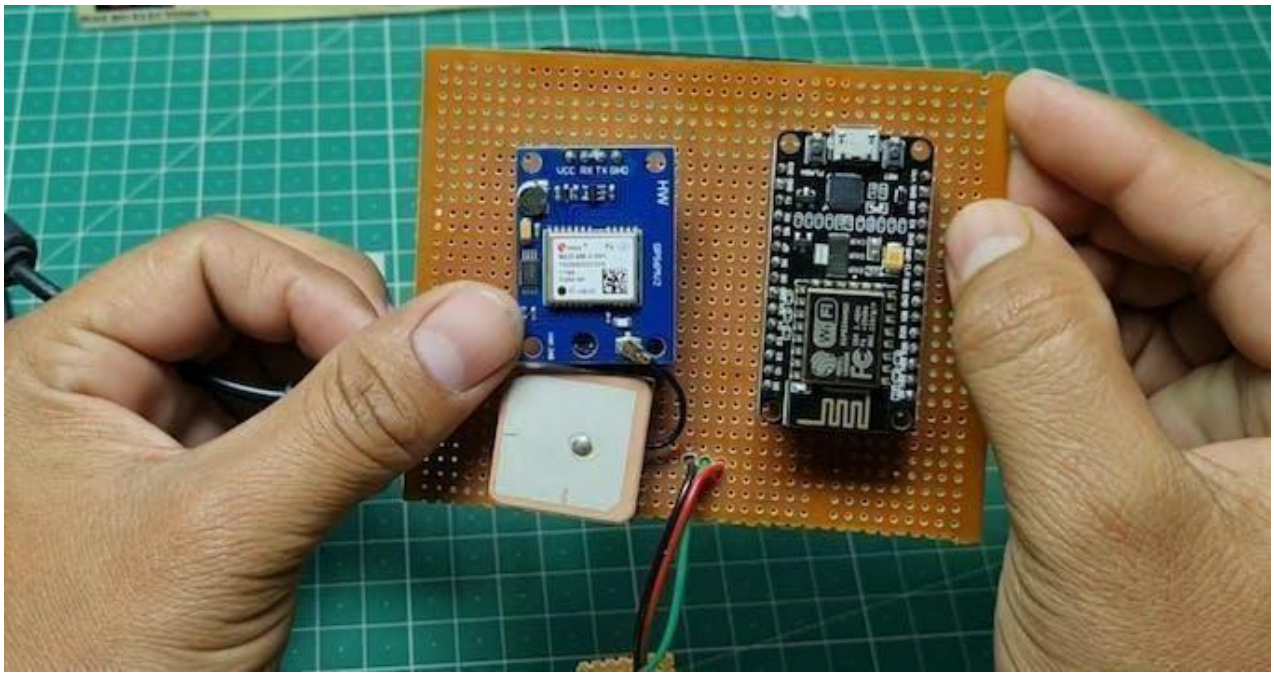
```
while (WiFi.status() !=WL_CONNECTED){ delay(500);
      Serial.print(".");
   }
          Serial.println("");
          Serial.println("WiFi connected");
          Serial.println("IP
address");
          Serial.println(WiFi.localIP());
    } void initManagedDevice(){ if(client.subscribe(subscribeto
  pic)){Serial.println((subscribetopic));
               Serial.println("subscribe to cmd OK");
       }else
         {     Serial.println("subscribe to cmd failed");

          }
          }     voidcallback(char*     subscribetopic,byte*payload,unsigned     int
  payloadLength)
      {
         Serial.print("callback invoked for topic: ");
        Serial.println(subscribetopic); for(int i=0; i< payloadLength; i++){
         //Serial.print((char)payload[i]); data3 +=(char)payload[i];
}
//Serial.println("dta: "+ data3);
//if(data3=="Near")
//{
//Serial.println(data3);
//digitalWrite(LED,HIGH);
//}
//else //{
```

```
//Serial.println(data3);
//digitalWrite(LED,LOW);//} data3="";
}
```

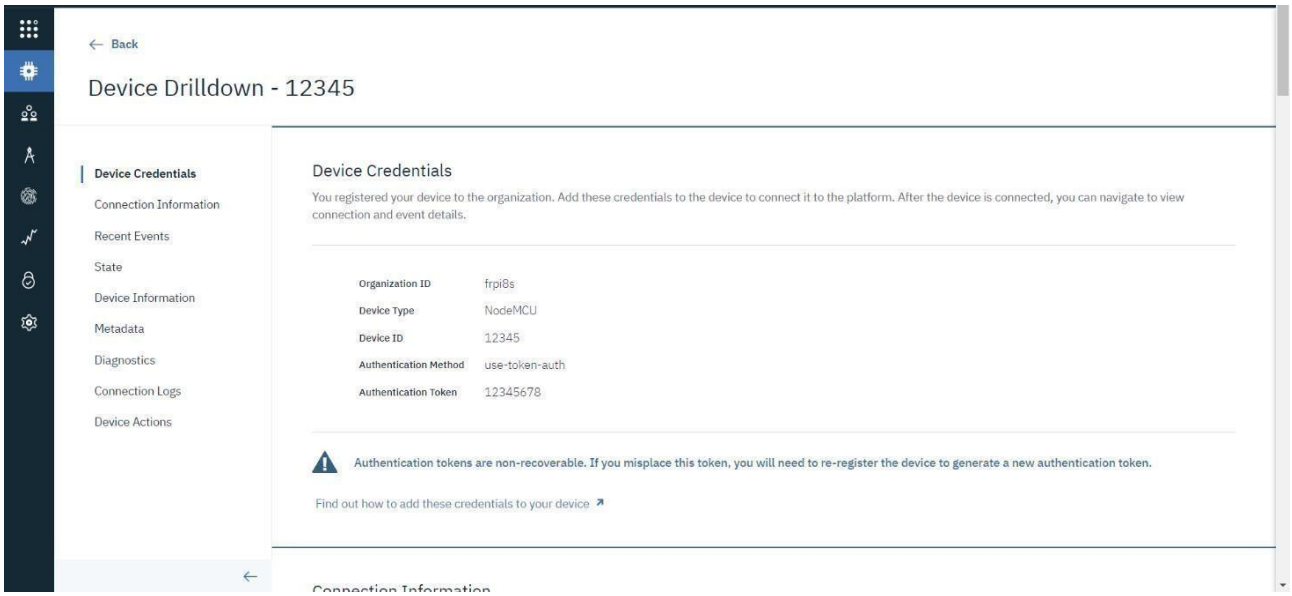
SCHEMATICDIAGRAM:

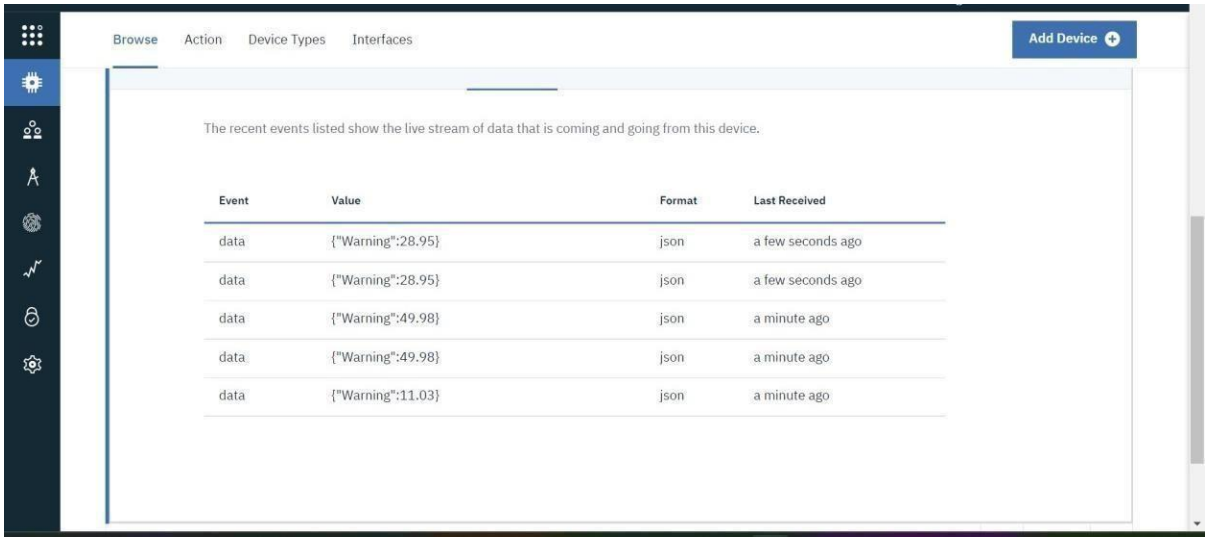


OUTPUT:



NOTIFY TO THIS DEVICE IBM WATSON CLOUD COMMUNICATION:


Back
Device Drilldown - 12345
Device Credentials
Connection Information
Recent Events
State
Device Information
Metadata
Diagnostics
Connection Logs
Device Actions
Device Credentials
You registered your device to the organization. Add these credentials to the device to connect it to the platform. After the device is connected, you can navigate to view connection and event details.
Organization ID frpi8s
Device Type NodeMCU
Device ID 12345
Authentication Method use-token-auth
Authentication Token 12345678
Authentication tokens are non-recoverable. If you misplace this token, you will need to re-register the device to generate a new authentication token.
Find out how to add these credentials to your device


Browse
Action
Device Types
Interfaces
Add Device
The recent events listed show the live stream of data that is coming and going from this device.
Event Value Format Last Received
data {"Warning":28.95} json a few seconds ago
data {"Warning":28.95} json a few seconds ago
data {"Warning":49.98} json a minute ago
data {"Warning":49.98} json a minute ago
data {"Warning":11.03} json a minute ago