Project Development - Delivery Of Sprint-2

TeamID	**PNT2022TMID19127**
ProjectName	**IOT based safety gadget for child safetymonitoring and notification**
Date	**14-11-2022**

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:

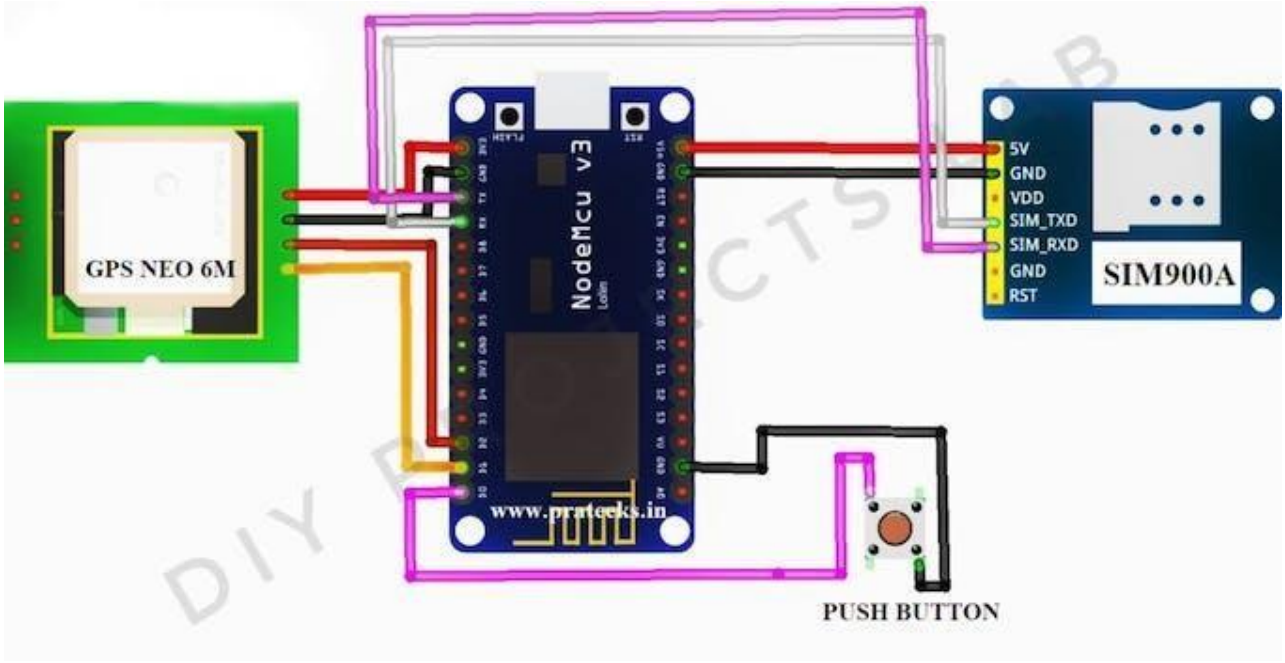
```
#include<WiFi.h>//library for wifi

#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 IOT
WATSONPLATEFORM

#define TOKEN "12345678"//Token String data3;float

dist;

//------------customize the above value-------
char server [] =ORG ".messaging.internetofthings.ibmcloud.com";//servername
```

```
char publish topic[]="ultrasonic/evt/Data/fmt/json";/*topic name
andtype of 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 in
cm"); 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*/ String
object;
          if(dist<100)
            {
                digitalWrite(LED,HIGH); Serial.println("no object is near");
object="Near";
```

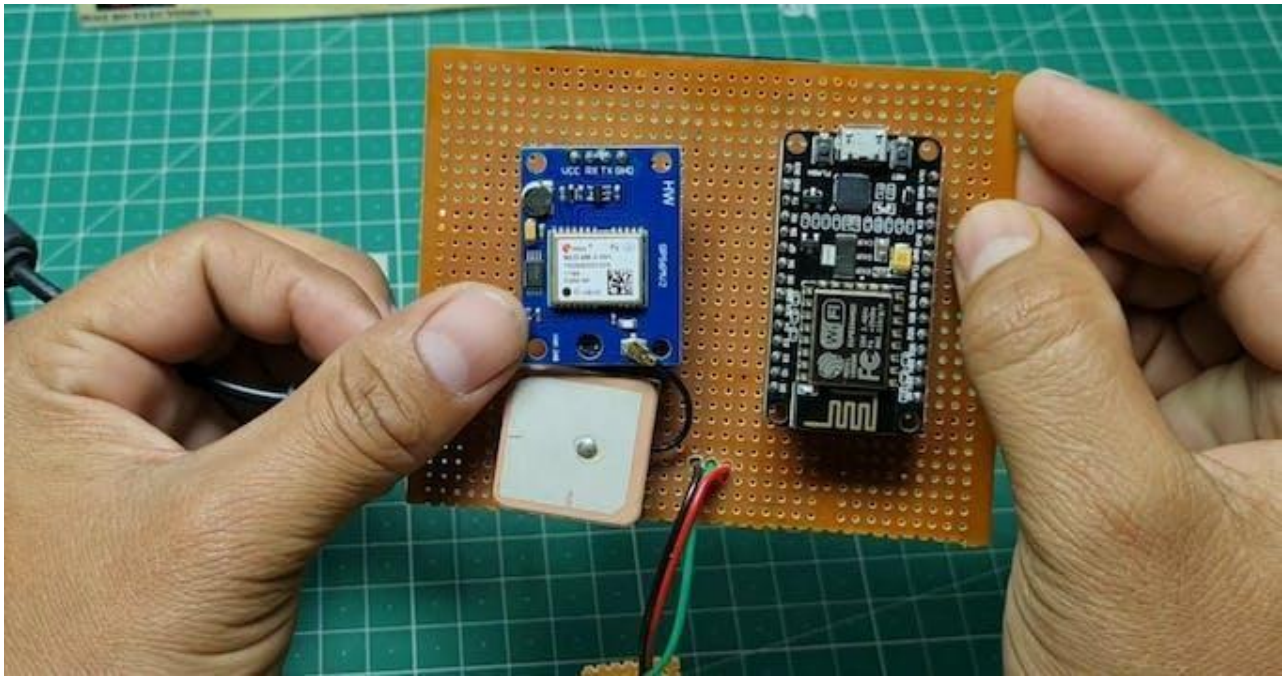
```
      }
       else
           {
               digitalWrite(LED,LOW); Serial.println("no object found"); object="No";
           }
           String payload="{\"distance\":"; payload +=dist;
           payload +="," "\"object\":\""; payload += object;
           payload += "\"}";
           Serial.print("Sending 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("Reconnecting 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 TO
ESTABLISH 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(subscribetopic)){
               Serial.println((subscribetopic)); Serial.println("subscribe to cmd OK");
       }else{
               Serial.println("subscribe to cmd failed");
           }

       }
void callback(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="";
}
```

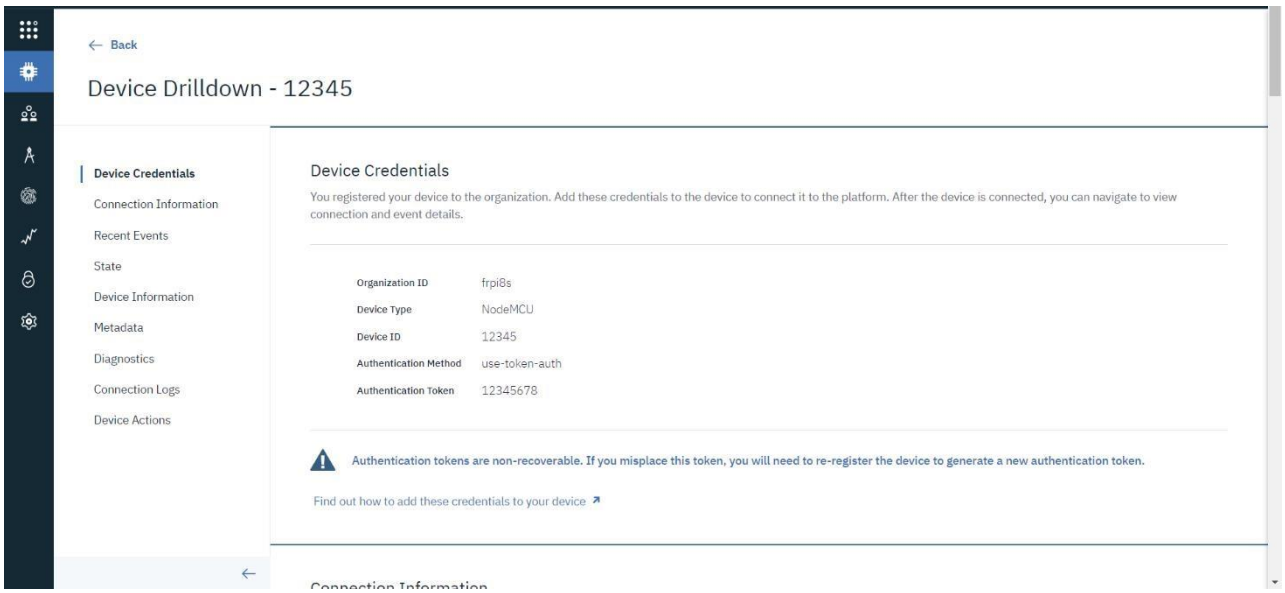
SCHEMATIC DIAGRAM:

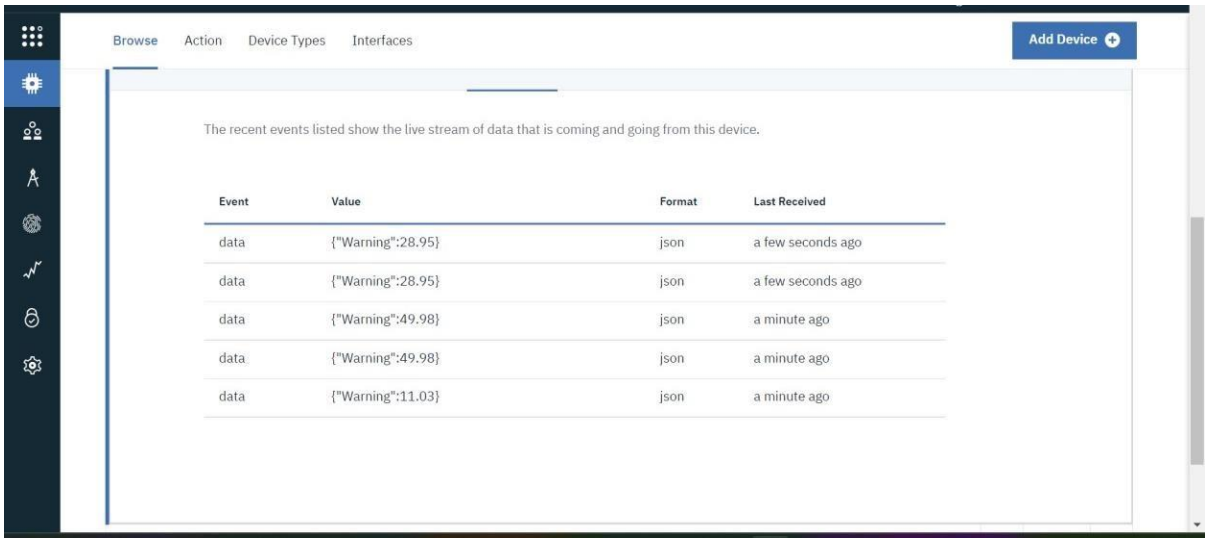


OUTPUT:



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