Project Development - Delivery Of Sprint - 2

Date	14 November 2022
Team ID	PNT2022TMID39165
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-------
```

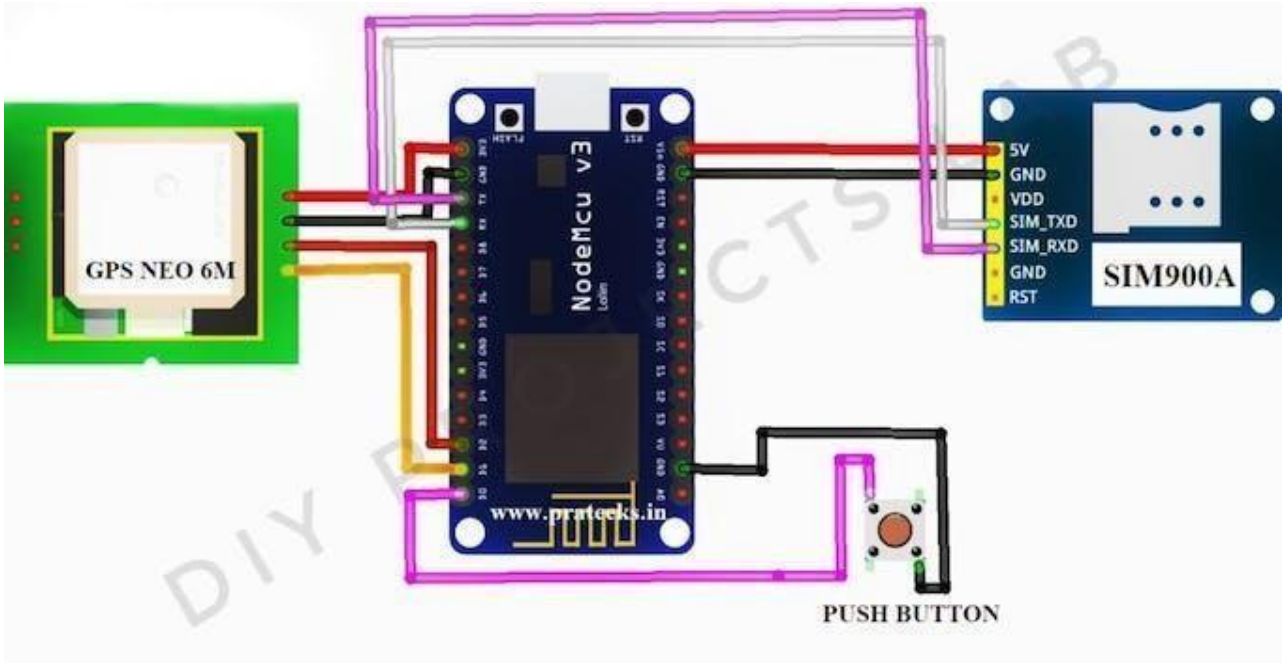
```
 char server [] =ORG ".messaging.internetofthings.ibmcloud.com";//servername
 char publish topic[]="ultrasonic/evt/Data/fmt/json";/*topic name and typeof
 event perform and format in which data to be send*/
char subscribetopic[]="ultrasonic/cmd/test/fmt/String";/*cmd REPRESENT
Command tupe and
COMMAND 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,
```

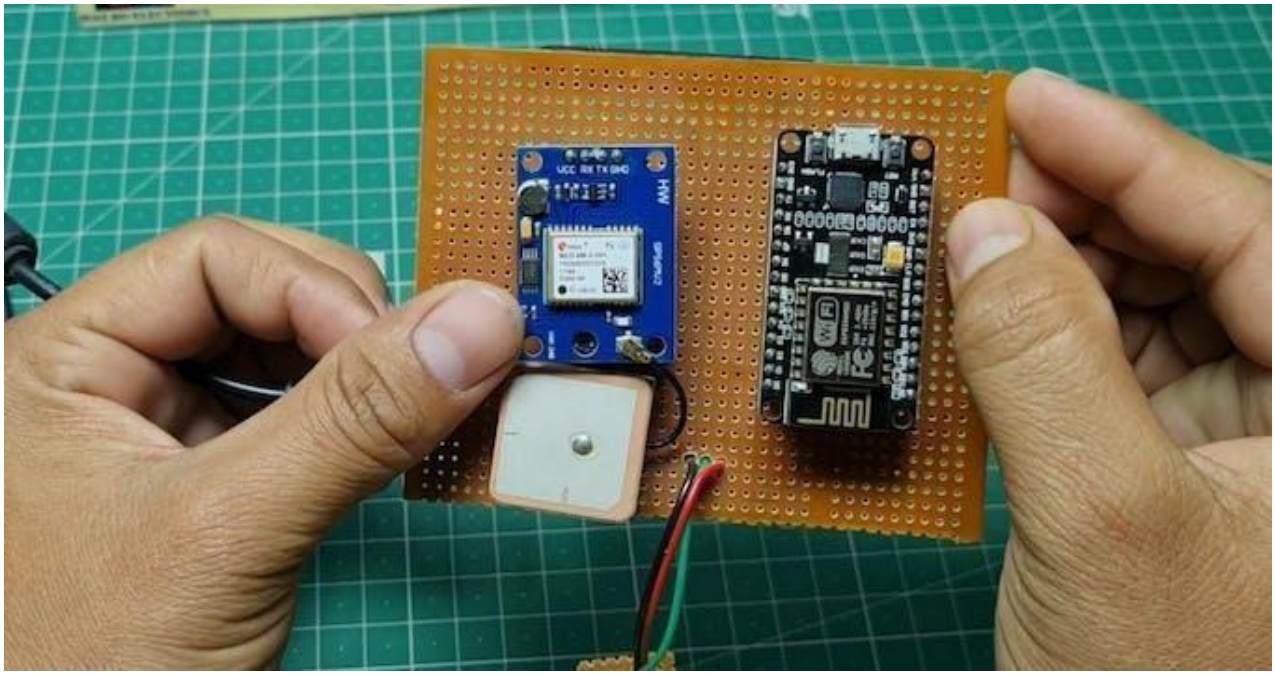
```
   token)){ Serial.print("."); delay(500);
   }
   initManagedDevice();
   Serial.println();
     }
}
void wificonnect()//function defenition for wificonnect
 {
      Serial.println();
      Serial.print("Connecting to ");
 WiFi.begin("vivo 1816", "taetae95",6);//PASSING THE WIFI
 CREDIDENTIALS TOESTABLISH 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");

          }
```

```
        }
  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: