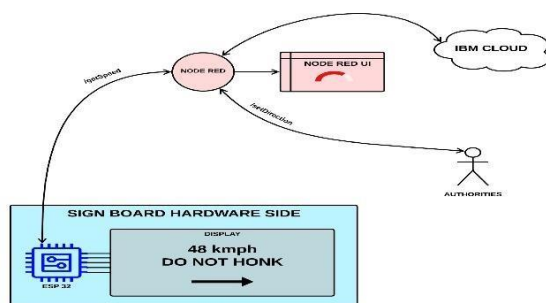


# Sprint 3

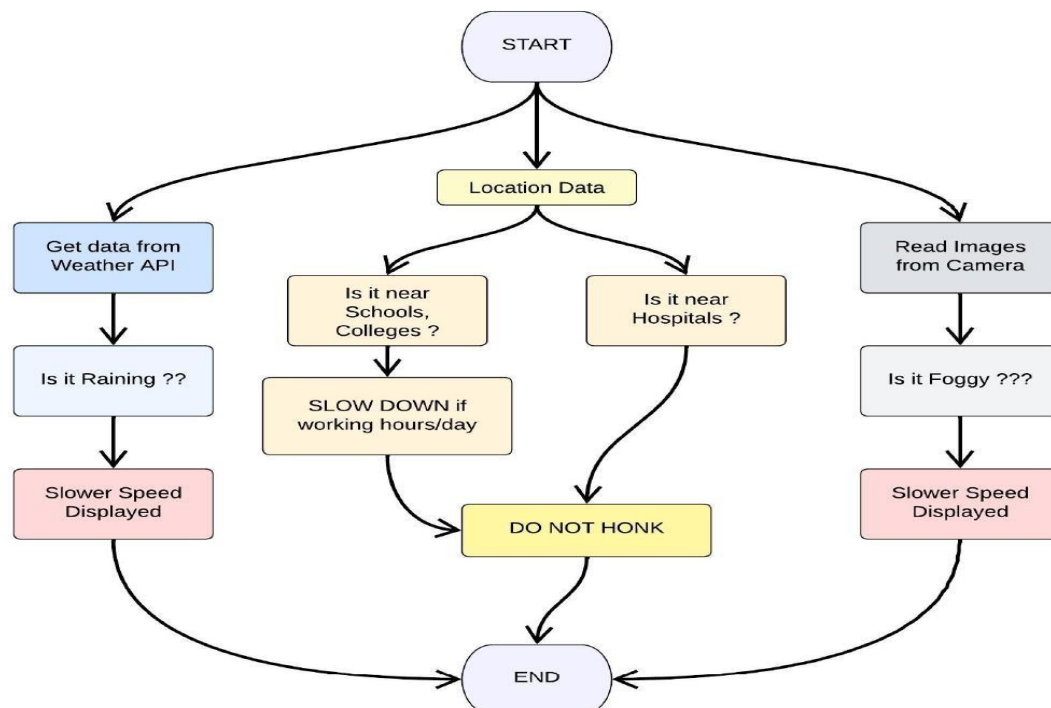
## Signs with Smart Connectivity for Better Road Safety

Team ID : PNT2022TMID52316

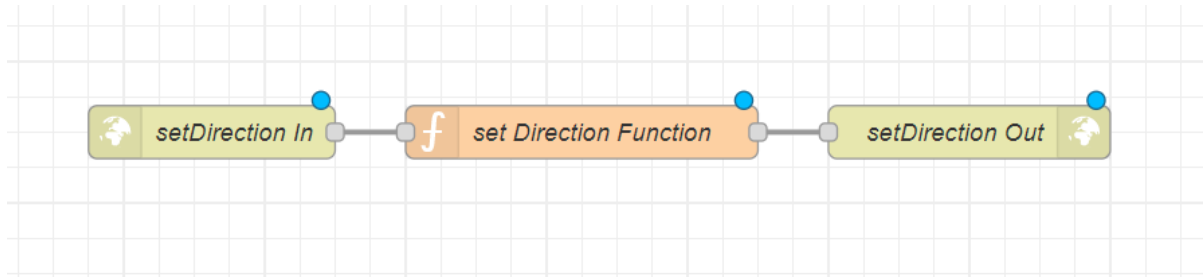
### Process flow



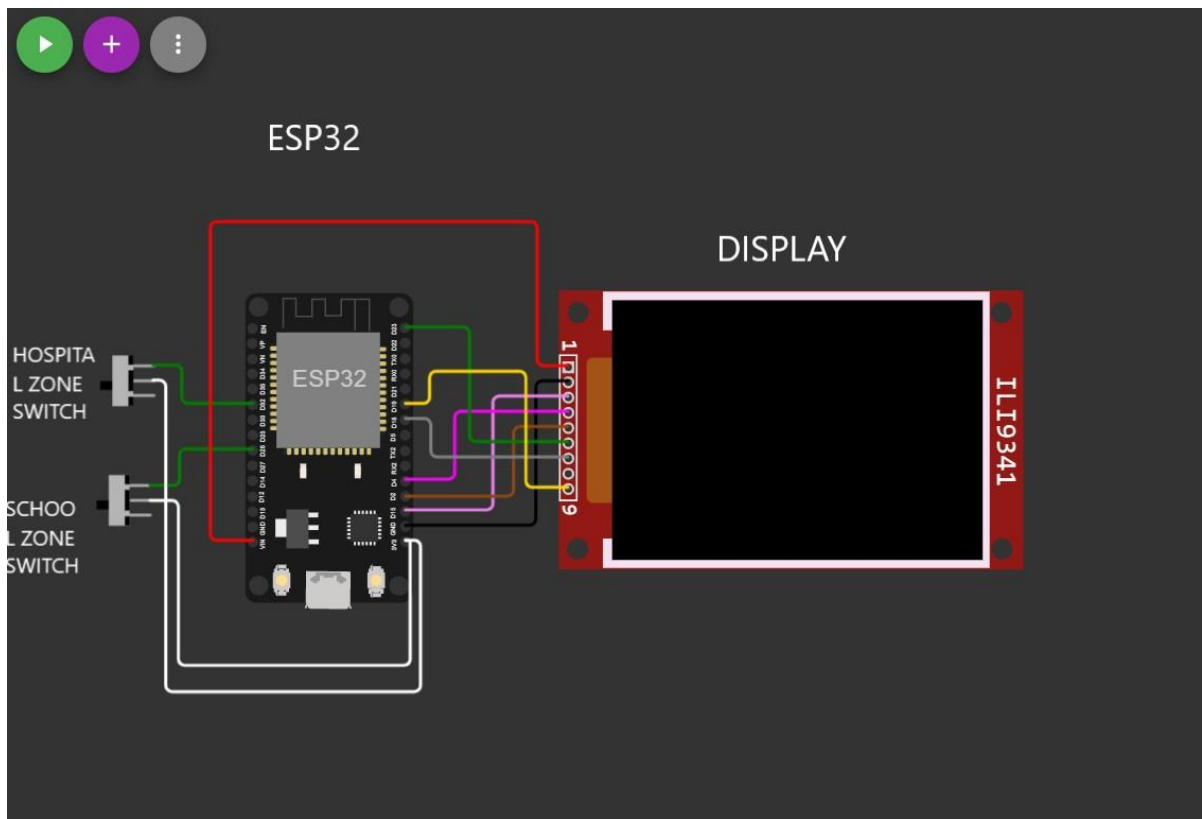
### Code flow



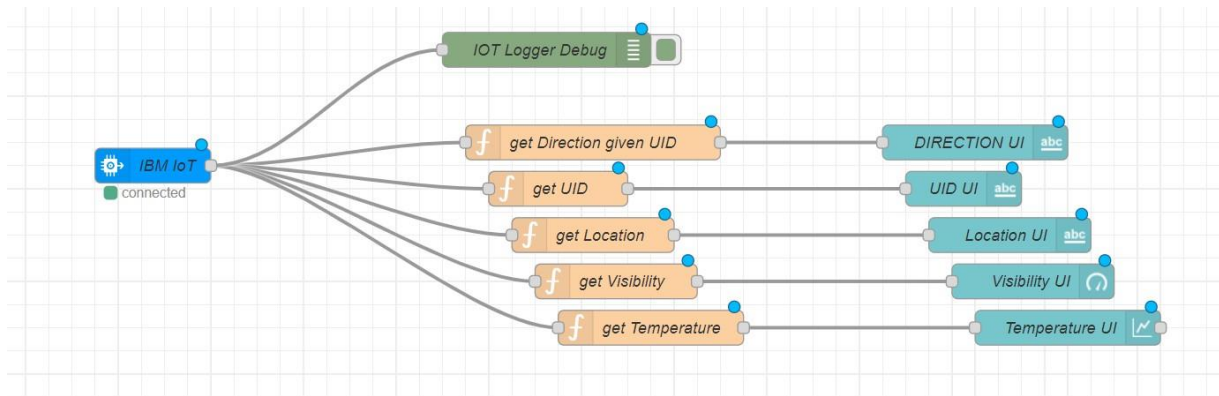
## Direction flow



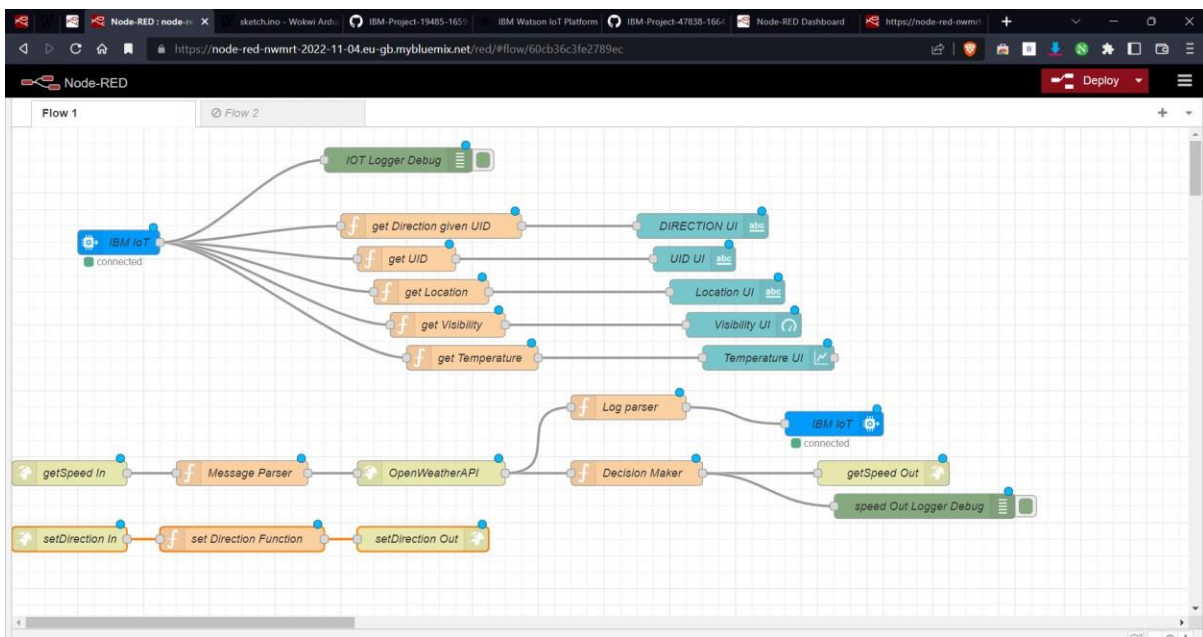
## Esp32 circuit diagram



## IOT flow Diagram



## Overall Node-Red flow



## Code

```

#include
<WiFi.h>

#include <HTTPClient.h>

```

```

#include <Adafruit_GFX.h>
#include <Adafruit_ILI9341.h>
#include <string.h>

const char* ssid = "Wokwi-GUEST";
const char* password = "";

#define TFT_DC 2
#define TFT_CS 15
Adafruit_ILI9341 tft = Adafruit_ILI9341(TFT_CS, TFT_DC);

String myLocation = "Chennai,IN";
String usualSpeedLimit = "70"; // kmph

int schoolZone = 32;
int hospitalZone = 26;

int uid = 2504;

String getString(char x)
{
    String s(1, x);
    return s;
}

String stringSplitter1(String fullString,char delimiter='$')
{
    String returnString = "";
    for(int i = 0; i<fullString.length();i++) {
        char c = fullString[i];
        if(delimiter==c)
            break;
        returnString+=String(c);
    }
    return(returnString);
}

String stringSplitter2(String fullString,char delimiter='$')
{
    String returnString = "";
    bool flag = false;

```

```

        for(int i = 0; i<fullString.length();i++) {
            char c = fullString[i];
            if(flag)
                returnString+=String(c);
            if(delimiter==c)
                flag = true;
        }
        return(returnString);
    }
}

```

```

void rightArrow()
{
    int refX = 50;
    int refY = tft.getCursorY() + 40;

    tft.fillRect(refX,refY,100,20,ILI9341_RED);
    tft.fillTriangle(refX+100,refY-
30,refX+100,refY+50,refX+40+100,refY+10,ILI9341_RED);
}

```

```

void leftArrow()
{
    int refX = 50;
    int refY = tft.getCursorY() + 40;

    tft.fillRect(refX+40,refY,100,20,ILI9341_RED);
    tft.fillTriangle(refX+40,refY-30,refX+40,refY+50,refX,refY+10,ILI9341_RED);
}

```

```

void upArrow()
{
    int refX = 125;
    int refY = tft.getCursorY() + 30;

    tft.fillTriangle(refX-40,refY+40,refX+40,refY+40,refX,refY,ILI9341_RED);
    tft.fillRect(refX-15,refY+40,30,20,ILI9341_RED);
}

```

```

String APICall() {
    HTTPClient http;

```

```

    String url = "https://node-red-nwmrt-2022-11-04.eu-
gb.mybluemix.net/getSpeed?";
    url += "location="+myLocation+"&";
    url += "schoolZone="+((String)digitalRead(schoolZone)).toString()+"&";
    url += "hospitalZone="+((String)digitalRead(hospitalZone)).toString()+"&";
    url += "usualSpeedLimit="+((String)usualSpeedLimit).toString()+"&";
    url += "uid="+((String)uid);
    http.begin(url.c_str());
    int httpResponseCode = http.GET();

    if (httpResponseCode>0) {
        String payload = http.getString();
        http.end();
        return(payload);
    }
    else {
        Serial.print("Error code: ");
        Serial.println(httpResponseCode);
    }
    http.end();
}

void myPrint(String contents) {
    tft.fillScreen(ILI9341_BLACK);
    tft.setCursor(0, 20);
    tft.setTextSize(4);
    tft.setTextColor(ILI9341_RED);
    //tft.println(contents);

    tft.println(stringSplitter1(contents));
    String c2 = stringSplitter2(contents);
    if(c2=="s") // represents Straight
    {
        upArrow();
    }
    if(c2=="l") // represents left
    {
        leftArrow();
    }
    if(c2=="r") // represents right
    {
        rightArrow();
    }
}

void setup() {

```

```
WiFi.begin(ssid, password, 6);

tft.begin();
tft.setRotation(1);

tft.setTextColor(ILI9341_WHITE);
tft.setTextSize(2);
tft.print("Connecting to WiFi");

while (WiFi.status() != WL_CONNECTED) {
    delay(100);
    tft.print(".");
}

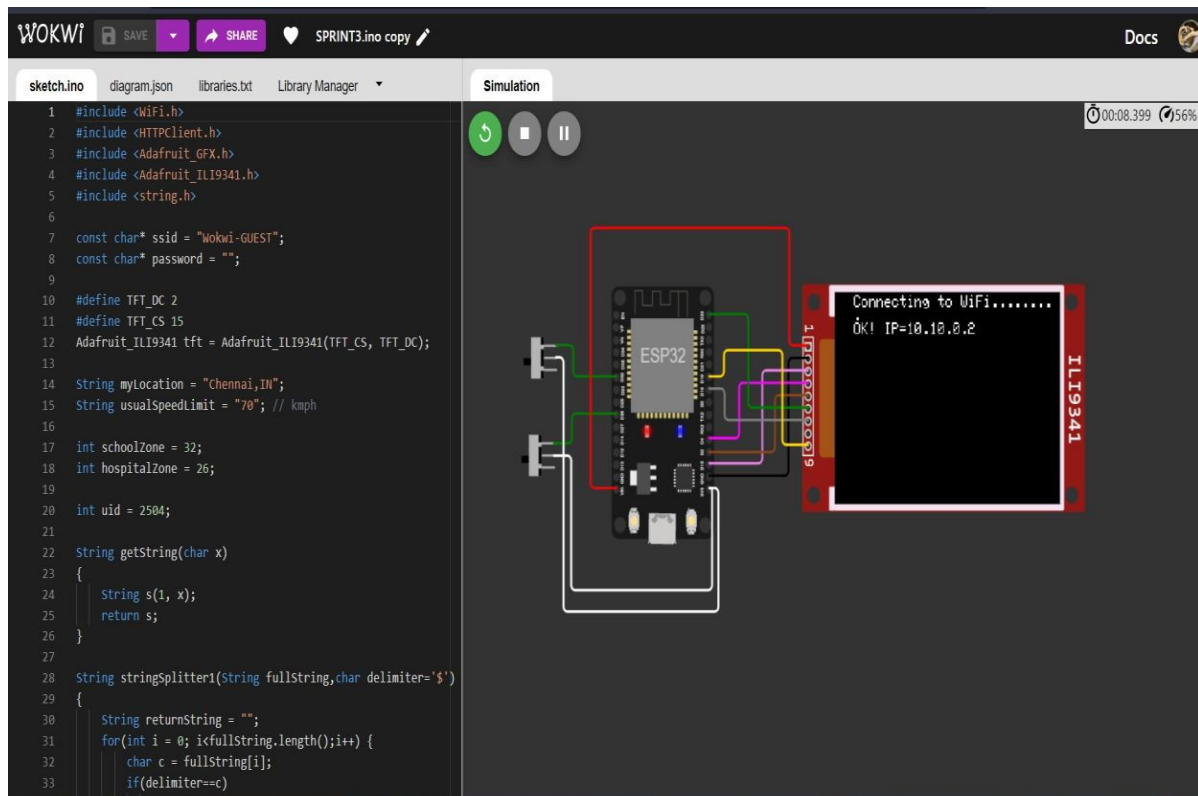
tft.print("\nOK! IP=");
tft.println(WiFi.localIP());
}

void loop() {

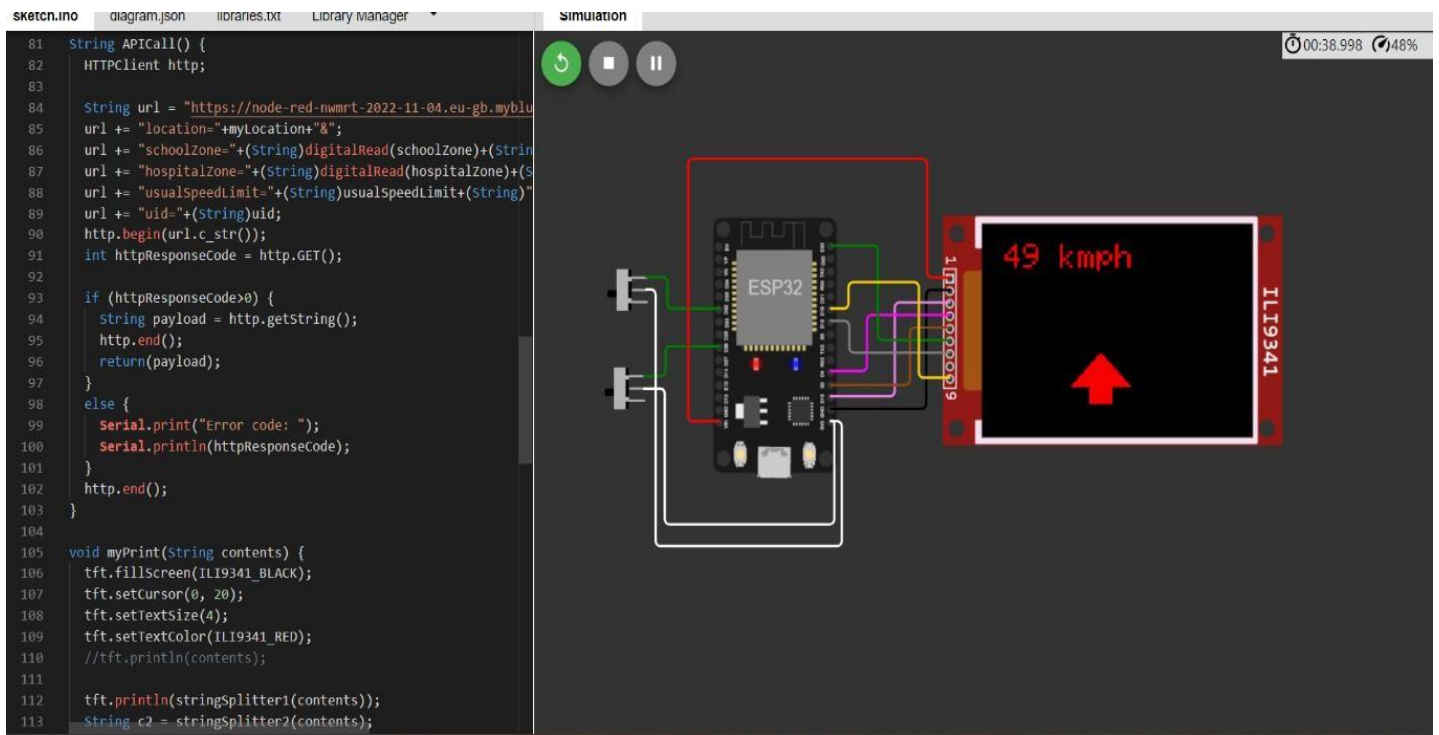
    myPrint(APICall());

    delay(100);
}
```

## Output 1

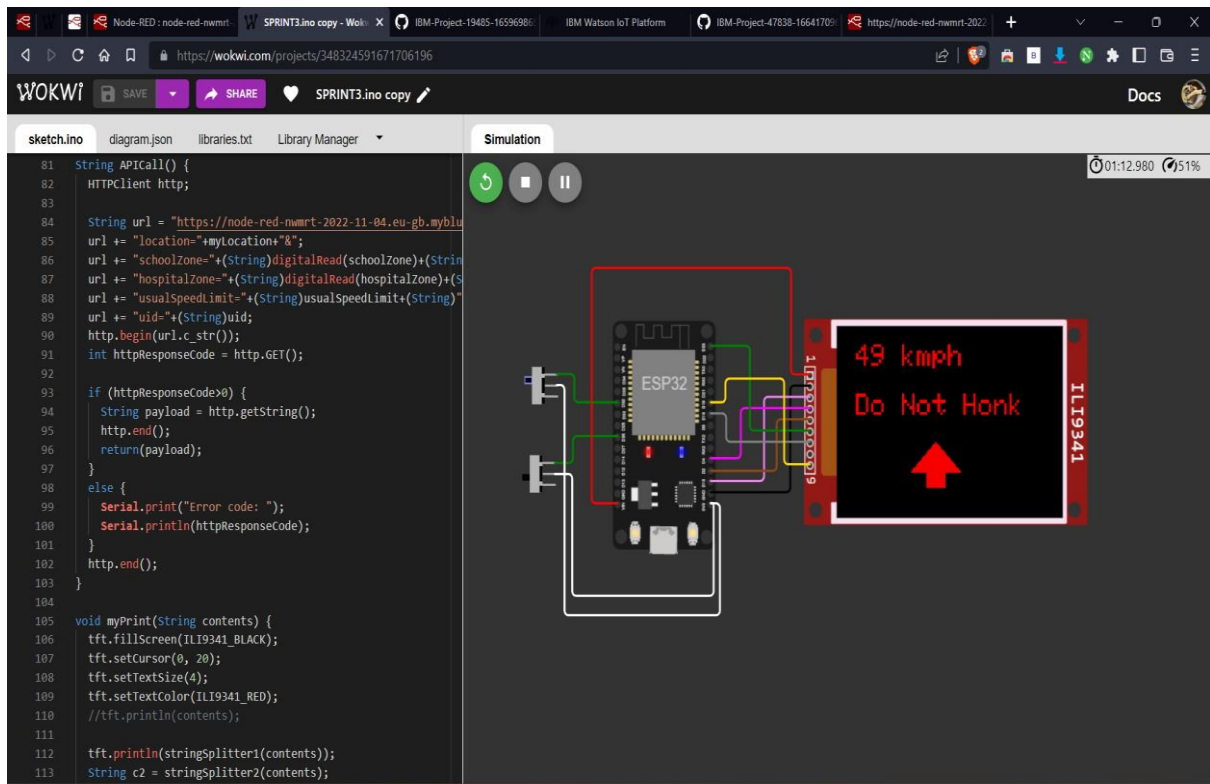


## Output 2

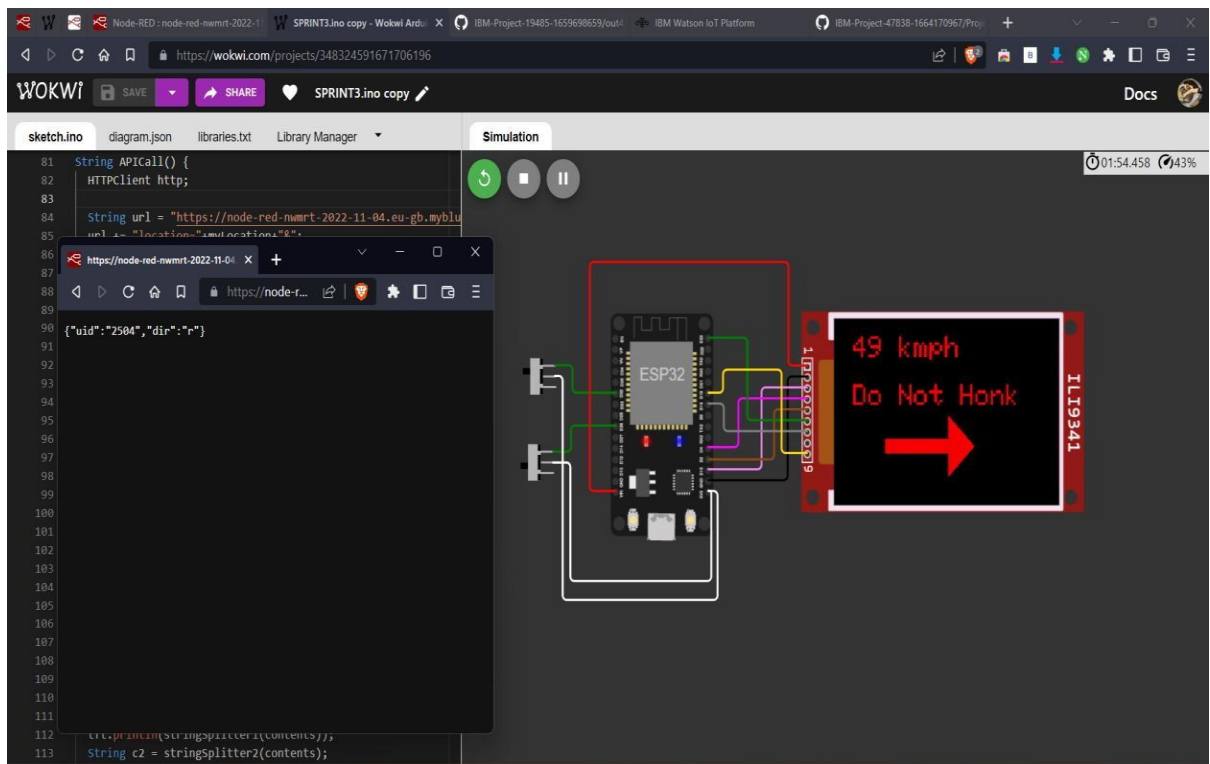


## Output 3





## Output 4



## Output 5

WOKWI

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sketch.ino diagram.json libraries.txt Library Manager Simulation

```
81 String APICall() {
82   HTTPClient http;
83
84   String url = "https://node-red-mmrt-2022-11-04.eu-gb.myblu
85   url = "location=simulation";
86
87   https://node-red-mmrt-2022-11-04
88   https://node-r...
89
90   {"uid": "2504", "dir": "1"}
91
92
93
94
95
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100
101
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109
110
111
112   txt.println(stringSplitter1(contents));
113   String c2 = stringSplitter2(contents);
```

02:20.290 54%

ESP32

ILI9341

49 kmph  
Do Not Honk  
←