

## PROJECT CODE

Date	18 November 2022
Team ID	PNT2022TMID15148
Project Name	Project – SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY

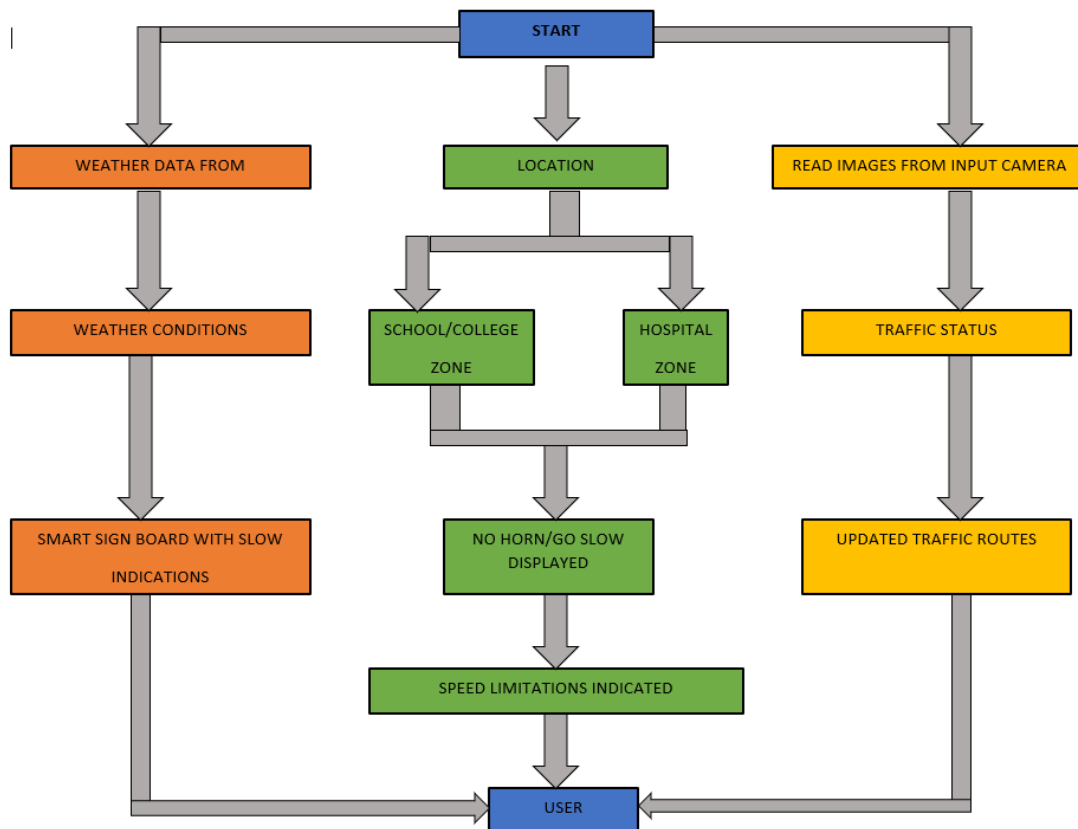
### Project Code:

### SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY

### Sprint Goals:

- Final outcomes for Better Road Safety

### Data Flow:

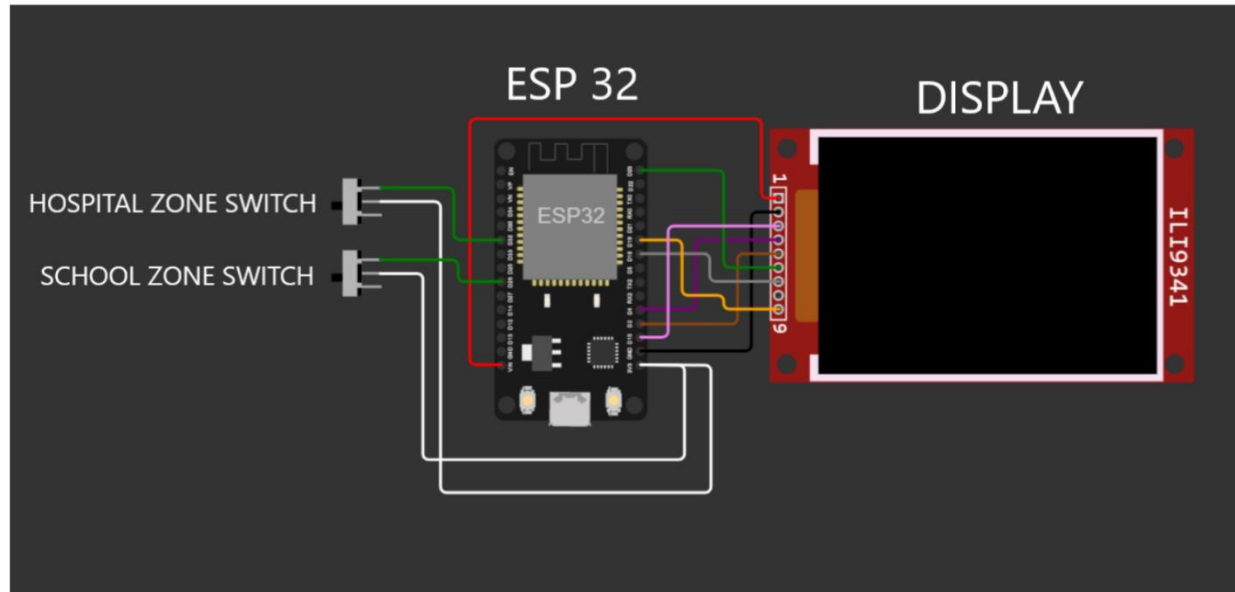


- Wokwi Circuit :

[Wokwi Code](#)

[Wokwi Link](#)

✓ Circuit Diagram :



#### ESP 32 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; // ID Unique to this Micro Contoller

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-grseb-2022-11-05-test.eu-
gb.mybluemix.net/getSpeed?";
    url += "location="+myLocation+"&";
    url += "schoolZone="+ (String)digitalRead(schoolZone)+(String) "&";
    url += "hospitalZone="+ (String)digitalRead(hospitalZone)+(String) "&";
    url += "usualSpeedLimit="+ (String)usualSpeedLimit+(String) "&";
    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());
}

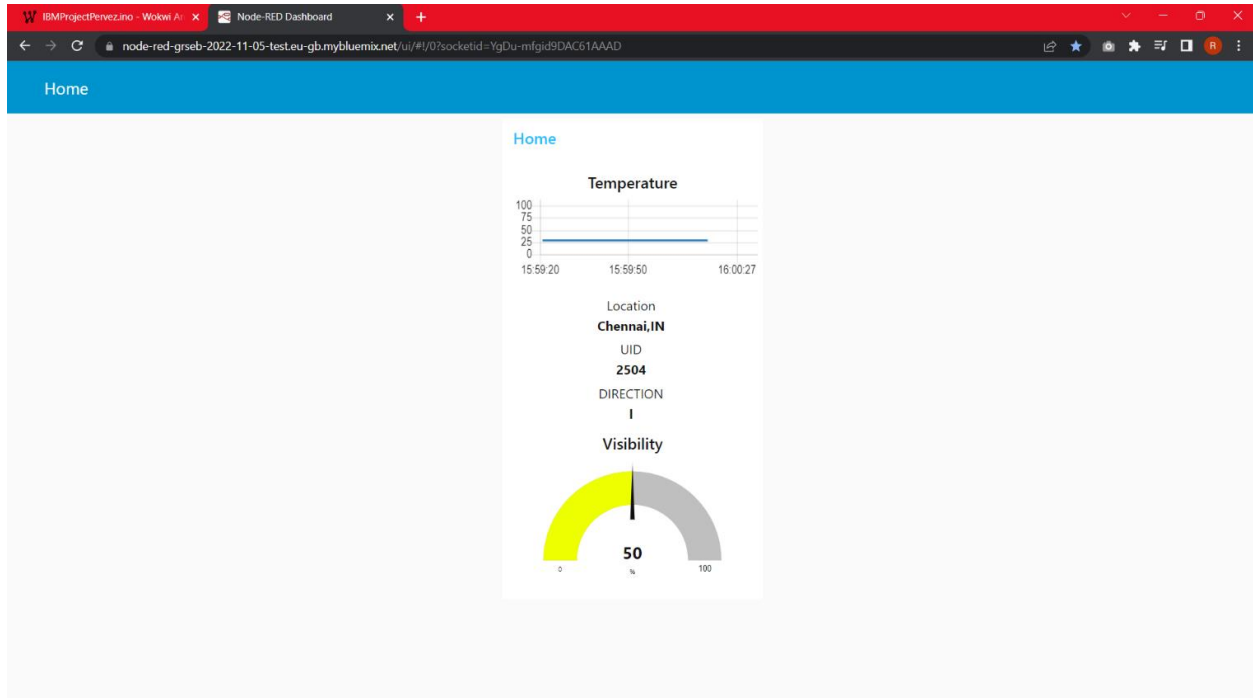
void loop() {
    myPrint(APICall());
    delay(100);
}

```

## Output :

- Node RED Dashboard :

### [LINK TO NODE RED DASHBOARD](#)



- Wokwi Output :

### [LINK TO WOKWI PROJECT](#)

W IBMProjectPervezino - Wokwi AI X +

wokwi.com/projects/348031776588825171

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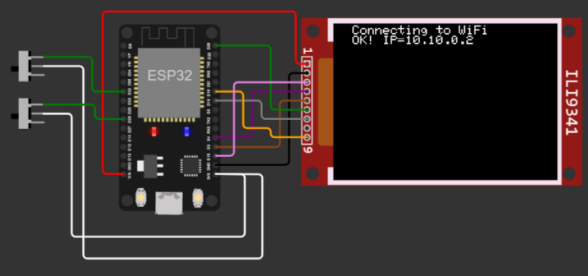
main.ino diagram.json libraries.txt

Library Manager

```
1 #include <WiFi.h>
2 #include <HTTPClient.h>
3 #include <Adafruit_GFX.h>
4 #include <Adafruit_IL19341.h>
5 #include <string.h>
6
7 const char* ssid = "Wokwi-GUEST";
8 const char* password = "";
9
10 #define TFT_DC 2
11 #define TFT_CS 15
12 Adafruit_IL19341 tft = Adafruit_IL19341(TFT_DC, TFT_CS);
13
14 String myLocation = "Chennai,IN";
15 String usualSpeedLimit = "70"; // kmph
16
17 int schoolZone = 32;
18 int hospitalZone = 26;
19
20 int uid = 2504;
21
22 String getString(char x)
23 {
24   String s(1, x);
25   return s;
26 }
27
28 String stringSplitter1(String fullString, char delimiter)
29 {
30   String returnString = "";
31   for(int i = 0; i < fullString.length(); i++)
32   {
33     char c = fullString[i];
34     if(delimiter == c)
35       break;
36     returnString += String(c);
37   }
38 }
```

Simulation

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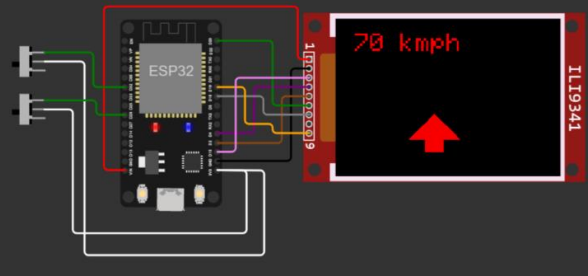
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25   return s;
26 }
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28 String stringSplitter1(String fullString, char delimiter)
29 {
30   String returnString = "";
31   for(int i = 0; i < fullString.length(); i++)
32   {
33     char c = fullString[i];
34     if(delimiter == c)
35       break;
36     returnString += String(c);
37   }
38 }
```

Simulation

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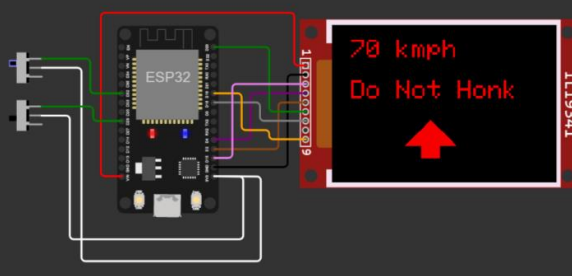
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32     char c = fullString[i];
33     if(delimiter==c)
34       break;
35     returnString+=String(c);
36 }
```

Simulation

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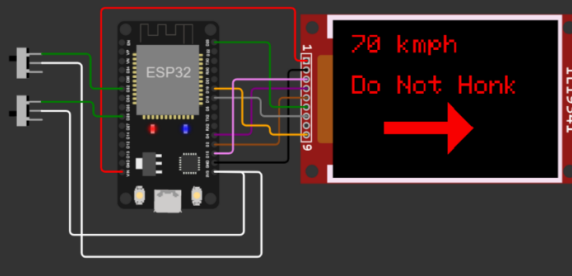
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30   String returnString = "";
31   for(int i = 0; i<fullString.length();i++
32     char c = fullString[i];
33     if(delimiter==c)
34       break;
35     returnString+=String(c);
36 }
```

Simulation

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Incognito

https://node-red-grseb-2022-11

set/setDirection?uid=2504&dir=r

{"uid": "2504", "dir": "r"}



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main.ino diagram.json libraries.txt Simulation

Library Manager

```
1 #include <WiFi.h>
2 #include <HTTPClient.h>
3 #include <Adafruit_GFX.h>
4 #include <Adafruit_ILI9341.h>
5 #include <string.h>
6
7 const char* ssid = "wokwi-GUEST";
8 const char* password = "12345678";
9
10 #define BuzzerPin 8
11 #define BuzzerPin 9
12 #define BuzzerPin 10
13
14 {"uid": "2504", "dir": "1"}
15
16
17 in
18 in
19
20 in
21
22 St
23 {
24
25
26 }
27
28 St
29 {
30
31
32 char c = fullString[i];
33 if(delimiter==c)
34   break;
35 returnString+=String(c);
36 }
```

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https://node-red-greeb-2022-11

set/setDirection?uid=2504&dir=1

ESP32

ILI9341

70 kmph  
Do Not Honk  
←