**IBM NALAIYA THIRAN 2022-23 PROJECT REPORT**

**SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY TEAM ID -** PNT2022TMID23663

**CODE**

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**#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 = "";**

1. **#define TFT\_DC 2**
2. **#define TFT\_CS 15**
3. **Adafruit\_ILI9341 tft = Adafruit\_ILI9341(TFT\_CS, TFT\_DC); 13**

**14 String myLocation = "Chennai,IN";**

**15 String usualSpeedLimit = "70"; // kmph 16**

1. **int schoolZone = 32;**
2. **int hospitalZone = 26;**

**19**

**20 int uid = 2504; // ID Unique to this Micro Contoller 21**

**22 String getString(char x) 23 {**

1. **String s(1, x);**
2. **return s; 26 }**

**27**

**28 String stringSplitter1(String fullString,char delimiter='$') 29 {**

1. **String returnString = "";**
2. **for(int i = 0; i<fullString.length();i++) {**
3. **char c = fullString[i];**
4. **if(delimiter==c)**
5. **break;**
6. **returnString+=String(c); 36 }**

**37 return(returnString); 38 }**

**39**

**40 String stringSplitter2(String fullString,char delimiter='$') 41 {**

1. **String returnString = "";**
2. **bool flag = false;**
3. **for(int i = 0; i<fullString.length();i++) {**
4. **char c = fullString[i];**
5. **if(flag)**
6. **returnString+=String(c);**
7. **if(delimiter==c)**
8. **flag = true; 50 }**

**51 return(returnString); 52 }**

**53**

**54 void rightArrow()**

**55 {**

1. **int refX = 50;**
2. **int refY = tft.getCursorY() + 40; 58**
3. **tft.fillRect(refX,refY,100,20,ILI9341\_RED);**
4. **tft.fillTriangle(refX+100,refY- 30,refX+100,refY+50,refX+40+100,refY+10,ILI9341\_RED);**

**61 }**

**62**

**63 void leftArrow()**

**64 {**

1. **int refX = 50;**
2. **int refY = tft.getCursorY() + 40; 67**
3. **tft.fillRect(refX+40,refY,100,20,ILI9341\_RED);**
4. **tft.fillTriangle(refX+40,refY- 30,refX+40,refY+50,refX,refY+10,ILI9341\_RED);**

**70 }**

**71**

**72 void upArrow()**

**73 {**

1. **int refX = 125;**
2. **int refY = tft.getCursorY() + 30; 76**
3. **tft.fillTriangle(refX-**

**40,refY+40,refX+40,refY+40,refX,refY,ILI9341\_RED);**

1. **tft.fillRect(refX-15,refY+40,30,20,ILI9341\_RED); 79 }**

**80**

1. **String APICall() {**
2. **HTTPClient http; 83**
3. **String url = "https://node-red-grseb-2022-11-05-test.eu- gb.mybluemix.net/getSpeed?";**
4. **url += "location="+myLocation+"&";**
5. **url +=**

**"schoolZone="+(String)digitalRead(schoolZone)+(String)"&";**

1. **url +=**

**"hospitalZone="+(String)digitalRead(hospitalZone)+(String)"& ";**

1. **url +=**

**"usualSpeedLimit="+(String)usualSpeedLimit+(String)"&";**

1. **url += "uid="+(String)uid;**
2. **http.begin(url.c\_str());**
3. **int httpResponseCode = http.GET(); 92**
4. **if (httpResponseCode>0) {**
5. **String payload = http.getString();**
6. **http.end();**
7. **return(payload); 97 }**
8. **else {**
9. **Serial.print("Error code: ");**
10. **Serial.println(httpResponseCode);**

**101 }**

**102 http.end();**

**103 } 104**

1. **void myPrint(String contents) {**
2. **tft.fillScreen(ILI9341\_BLACK);**
3. **tft.setCursor(0, 20);**
4. **tft.setTextSize(4);**
5. **tft.setTextColor(ILI9341\_RED);**
6. **//tft.println(contents); 111**
7. **tft.println(stringSplitter1(contents));**
8. **String c2 = stringSplitter2(contents);**
9. **if(c2=="s") // represents Straight**

**115 {**

**116 upArrow();**

**117 }**

**118 if(c2=="l") // represents left**

**119 {**

**120 leftArrow();**

**121 }**

**122 if(c2=="r") // represents right**

**123 {**

**124 rightArrow();**

**125 }**

**126 } 127**

1. **void setup() {**
2. **WiFi.begin(ssid, password, 6); 130**
3. **tft.begin();**
4. **tft.setRotation(1); 133**
5. **tft.setTextColor(ILI9341\_WHITE);**
6. **tft.setTextSize(2);**
7. **tft.print("Connecting to WiFi"); 137**

**138 while (WiFi.status() != WL\_CONNECTED) {**

**139 delay(100);**

**140 tft.print(".");**

**141 } 142**

1. **tft.print("\nOK! IP=");**
2. **tft.println(WiFi.localIP());**

**145 } 146**

1. **void loop() {**
2. **myPrint(APICall());**

**149 delay(100);**

**150 }**