

Traffic Light System

Internet of Things

Assessment 2

Submitted By:

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Video Link

https://drive.google.com/file/d/19u-_O6fxJ5bFpMibPUlsQQzxlowByDR2/view?usp=sharing

Code

/*

Sketch generated by the Arduino IoT Cloud Thing "Untitled"

<https://create.arduino.cc/cloud/things/50962faf-bc7b-46d4-8a5f-cf9cb66c5d2b>

Arduino IoT Cloud Variables description

The following variables are automatically generated and updated when changes are made to the Thing

```
int switch_;  
bool green_led;  
bool orange_led;  
bool red_led;
```

Variables which are marked as READ/WRITE in the Cloud Thing will also have functions which are called when their values are changed from the Dashboard.

These functions are generated with the Thing and added at the end of this sketch.

*/

```
#include "thingProperties.h"
```

```
void setup() {  
  // Initialize serial and wait for port to open:  
  Serial.begin(9600);
```

```

// This delay gives the chance to wait for a Serial Monitor without blocking if none is found
delay(1500);
pinMode(14,OUTPUT); //South orange

pinMode(27,OUTPUT); //East orange
pinMode(26,OUTPUT); //West orange
pinMode(25,OUTPUT); //North orange
pinMode(33,OUTPUT); //East red
pinMode(32,OUTPUT); //South red
pinMode(22,OUTPUT); //
pinMode(21,OUTPUT); //North red
pinMode(2,OUTPUT); //West green
pinMode(4,OUTPUT); //North green
pinMode(5,OUTPUT); //East green
pinMode(18,OUTPUT); //South green
pinMode(12,OUTPUT); //North/ South green Pedestrian crossing
pinMode(13,OUTPUT); // West/East green Pedestrian crossing
pinMode(19,OUTPUT); //North/ South red Pedestrian crossing
pinMode(15,OUTPUT); //West/East red Pedestrian crossing
pinMode(23,OUTPUT); //buzzer

// Defined in thingProperties.h
initProperties();

// Connect to Arduino IoT Cloud
ArduinoCloud.begin(ArduinoIoTPreferredConnection);

/*

The following function allows you to obtain more information
related to the state of network and IoT Cloud connection and errors
the higher number the more granular information you'll get.

```

The default is 0 (only errors).

Maximum is 4

```
*/  
  
setDebugMessageLevel(2);  
ArduinoCloud.printDebugInfo();  
}
```

```
void loop() {  
  ArduinoCloud.update();  
  if(switch_==3){  
    onSwitchChange();  
  }else if(switch_==0){  
    onSwitchChange();  
  }  
}
```

```
/*  
  
Since RedLed is READ_WRITE variable, onRedLedChange() is  
executed every time a new value is received from IoT Cloud.
```

```
*/  
  
void onRedLedChange() {  
  // Add your code here to act upon RedLed change  
  
}
```

```
/*  
  
Since OrangeLed is READ_WRITE variable, onOrangeLedChange() is  
executed every time a new value is received from IoT Cloud.
```

```
*/
```

```

void onOrangeLedChange() {
    // Add your code here to act upon OrangeLed change
}

/*
    Since GreenLed is READ_WRITE variable, onGreenLedChange() is
    executed every time a new value is received from IoT Cloud.
*/
void onGreenLedChange() {
    // Add your code here to act upon GreenLed change
}

/*
    Since Switch is READ_WRITE variable, onSwitchChange() is
    executed every time a new value is received from IoT Cloud.
*/
void onSwitchChange() {
    // Add your code here to act upon Switch change
}

//Default Mode
if(switch_==0){
    digitalWrite(22, LOW); //west red
    digitalWrite(33, LOW); //east red
    digitalWrite(21, LOW); //north red
    digitalWrite(32, LOW); //south red
    digitalWrite(4, LOW); //north green
    digitalWrite(18, LOW); //south green
    digitalWrite(2, LOW); //west green
    digitalWrite(5, LOW); //east green
    digitalWrite(12, LOW); //north/south green pedestrian crossing
}

```

```
digitalWrite(13,LOW);//west/east green pedestrian crossing
digitalWrite(25, HIGH);//north orange
digitalWrite(14, HIGH);//south orange
digitalWrite(26, HIGH);//west orange
digitalWrite(27, HIGH);//east orange
digitalWrite(15, HIGH);//west/east red pedestrian crossing
digitalWrite(19, HIGH);//north/south red pedestrian crossing
delay(4000);
```

```
digitalWrite(25, LOW);//north orange
digitalWrite(14, LOW);//South orange
digitalWrite(26, LOW);//west orange
digitalWrite(27, LOW);//east orange
digitalWrite(15, LOW);//west/east red pedestrian crossing
digitalWrite(19, LOW);//north/east red pedestrian crossing
delay(0);
```

```
digitalWrite(32,LOW);//North red
digitalWrite(21,LOW);//South red
digitalWrite(19, HIGH);//North/South red pedestrian crossing
digitalWrite(4, HIGH);//North green
digitalWrite(18, HIGH);//South green
digitalWrite(22, HIGH);//West red
digitalWrite(33, HIGH);//East red
digitalWrite(13, HIGH);//West/East green pedestrian crossing
delay(8000);
```

```
for (int i = 0; i <= 3; i++) {
digitalWrite(13, HIGH);//West/East green pedestrian crossing
```

```
digitalWrite(23, HIGH);//buzzer
delay(1000);
digitalWrite(13,LOW);//West/East green pedestrian crossing
digitalWrite(23, LOW);//buzzer
delay(500);
}
```

```
digitalWrite(22, LOW); //West red
digitalWrite(33, LOW);//East red
digitalWrite(21,LOW);//North red
digitalWrite(32,LOW);//South red
digitalWrite(4,LOW);//North green
digitalWrite(18,LOW);//South green
digitalWrite(2,LOW);//West green
digitalWrite(5,LOW);//East green
digitalWrite(12,LOW);//North/South green pedestrian crossing
digitalWrite(13,LOW);//West/East green pedestrian crossing
digitalWrite(25, HIGH);//North orange
digitalWrite(14, HIGH);//South orange
digitalWrite(26, HIGH);//West orange
digitalWrite(27, HIGH);//East orange
digitalWrite(27, HIGH);//East orange
digitalWrite(15, HIGH);//West/East red pedestrian crossing
digitalWrite(19, HIGH);//North/South red pedestrian crossing
delay(4000);
```

```
digitalWrite(25, LOW);//North orange
digitalWrite(14, LOW);//South orange
digitalWrite(26, LOW);//West orange
digitalWrite(27, LOW);//East orange
```

```
digitalWrite(15, LOW);//West/East red pedestrian crossing
digitalWrite(15, LOW);//West/East red pedestrian crossing
digitalWrite(19, LOW);//North/South red pedestrian crossing
delay(0);
```

```
digitalWrite(22,LOW);//West red
digitalWrite(33,LOW);//East red
digitalWrite(15, HIGH);//West/East red pedestrian crossing
digitalWrite(2, HIGH);//West green
digitalWrite(5, HIGH);//East green
digitalWrite(21, HIGH);//North red
digitalWrite(32, HIGH);//South red
digitalWrite(12, HIGH);//North/South green pedestrian crossing
delay(8000);
for (int i = 0; i <= 3; i++) {
digitalWrite(12, HIGH);//North/South green pedestrian crossing
digitalWrite(23, HIGH);//buzzer
delay(1000);
digitalWrite(12,LOW);//North/South green pedestrian crossing
digitalWrite(23, LOW);//buzzer
delay(500);
}
```

// North – South Mode

```
}else if(switch_==1){

    for (int i = 0; i <= 3; i++) {
digitalWrite(12, HIGH);//North/South green pedestrian crossing
digitalWrite(23, HIGH);//buzzer
digitalWrite(25, HIGH);//North orange
```



```
digitalWrite(14, HIGH);//South orange
digitalWrite(26, HIGH);//West orange
digitalWrite(27, HIGH);//East orange
delay(800);
digitalWrite(12,LOW);//North/South green pedestrian crossing
digitalWrite(23, LOW);//buzzer
delay(500);
}
digitalWrite(22, LOW); //West red
digitalWrite(33, LOW);//East red
digitalWrite(21,LOW);//North red
digitalWrite(32,LOW);//South red
digitalWrite(4,LOW);//North green
digitalWrite(18,LOW);//South green
digitalWrite(2,LOW);//West green
digitalWrite(5,LOW);//East green
digitalWrite(12,LOW);//North/South green pedestrian crossing
digitalWrite(13,LOW);//West/East green pedestrian crossing
digitalWrite(25, HIGH);//North orange
digitalWrite(14, HIGH);//South orange
digitalWrite(26, HIGH);//West orange
digitalWrite(27, HIGH);//East orange
digitalWrite(15, HIGH);//West/East red pedestrian crossing
digitalWrite(19, HIGH);//North/South red pedestrian crossing
delay(2000);

digitalWrite(25, LOW);//North orange
digitalWrite(14, LOW);//South orange
digitalWrite(26, LOW);//West orange
```

```
digitalWrite(27, LOW);//East orange
digitalWrite(15, LOW);//West/East red pedestrian crossing
digitalWrite(19, LOW);//North/South red pedestrian crossing
delay(0);
```

```
digitalWrite(32,LOW);//North red
digitalWrite(21,LOW);//South red
digitalWrite(4, HIGH);//North green
digitalWrite(18, HIGH);//South green
digitalWrite(22, HIGH);//West red
digitalWrite(33, HIGH);//East red
digitalWrite(13, HIGH);//West/East green pedestrian crossing
digitalWrite(19, HIGH);//North/South red pedestrian crossing
```

```
// West – East Mode
```

```
}else if(switch_==2){

    for (int i = 0; i <= 3; i++) {
digitalWrite(13, HIGH);//West/East green pedestrian crossing
digitalWrite(23, HIGH);//buzzer
digitalWrite(25, HIGH);//North orange
digitalWrite(14, HIGH);//South orange
digitalWrite(26, HIGH);//West orange
digitalWrite(27, HIGH);//East orange
delay(500);
digitalWrite(13,LOW);//West/East green pedestrian crossing
digitalWrite(23, LOW);//buzzer
delay(500);
    }
}
```

```
digitalWrite(22, LOW); //West red
digitalWrite(33, LOW); //East red
digitalWrite(21, LOW); //North red
digitalWrite(32, LOW); //South red
digitalWrite(4, LOW); //North green
digitalWrite(18, LOW); //South green
digitalWrite(2, LOW); //West green
digitalWrite(5, LOW); //East green
digitalWrite(12, LOW); //North/South green pedestrian crossing
digitalWrite(13, LOW); //West/East green pedestrian crossing
digitalWrite(25, HIGH); //North orange
digitalWrite(14, HIGH); //South orange
digitalWrite(26, HIGH); //West orange
digitalWrite(27, HIGH); //East orange
digitalWrite(27, HIGH); //East orange
digitalWrite(15, HIGH); //West/East red pedestrian crossing
digitalWrite(19, HIGH); //North/South red pedestrian crossing
delay(2000);
```

```
digitalWrite(25, LOW); //North orange
digitalWrite(14, LOW); //South orange
digitalWrite(26, LOW); //West orange
digitalWrite(27, LOW); //East orange
digitalWrite(15, LOW); //West/East red pedestrian crossing
digitalWrite(19, LOW); //North/South red pedestrian crossing
delay(0);
```

```
digitalWrite(22, LOW); //West red
digitalWrite(33, LOW); //East red
digitalWrite(15, HIGH); //West/East red pedestrian crossing
```

```
digitalWrite(2, HIGH);//West green
digitalWrite(5, HIGH);//East green
digitalWrite(21, HIGH);//North red
digitalWrite(32, HIGH);//South red
digitalWrite(12, HIGH);//North/South green pedestrian crossing
```

//Free Mode

```
}else if(switch_==3){
digitalWrite(4,LOW);//North green
digitalWrite(18,LOW);//South green
digitalWrite(2,LOW);//West green
digitalWrite(5,LOW);//East green
digitalWrite(21,LOW);//North red
digitalWrite(32,LOW);//South red
digitalWrite(22,LOW);//West red
digitalWrite(33,LOW);//East red
digitalWrite(12,LOW);//North/South green pedestrian crossing
digitalWrite(13,LOW);//West/East green pedestrian crossing
```

```
digitalWrite(25,HIGH);//North orange
digitalWrite(14,HIGH);//South orange
digitalWrite(26,HIGH);//West orange
digitalWrite(27,HIGH);//East orange
digitalWrite(15, HIGH);//West/East red pedestrian crossing
digitalWrite(19, HIGH);//North/South red pedestrian crossing
delay(1000);
```

```
digitalWrite(25,LOW);//North orange
digitalWrite(14,LOW);//South orange
digitalWrite(26,LOW);//West orange
```

```
digitalWrite(27,LOW);//East orange
digitalWrite(15, LOW);//West/East red pedestrian crossing
digitalWrite(19, LOW);//North/South red pedestrian crossing
delay(1000);
}
}
```