**Programming:**

In this project two programs are used one for the Arduino and another one for the Nodemcu esp8266 Wi-Fi module.

**Arduino Programming:**

#include <SoftwareSerial.h>

SoftwareSerial nodemcu(2,3);

int parking1\_slot1\_ir\_s = 4; // parking slot1 infrared sensor connected with pin number 4 of arduino

int parking1\_slot2\_ir\_s = 5;

int parking1\_slot3\_ir\_s = 6;

int parking2\_slot1\_ir\_s = 7;

int parking2\_slot2\_ir\_s = 8;

int parking2\_slot3\_ir\_s = 9;

String sensor1;

String sensor2;

String sensor3;

String sensor4;

String sensor5;

String sensor6;

String cdata =””; // complete data, consisting of sensors values

void setup()

{

Serial.begin(9600);

nodemcu.begin(9600);

pinMode(parking1\_slot1\_ir\_s, INPUT);

pinMode(parking1\_slot2\_ir\_s, INPUT);

pinMode(parking1\_slot3\_ir\_s, INPUT);

pinMode(parking2\_slot1\_ir\_s, INPUT);

pinMode(parking2\_slot2\_ir\_s, INPUT);

pinMode(parking2\_slot3\_ir\_s, INPUT);

}

void loop()

{

p1slot1();

p1slot2();

p1slot3();

p2slot1();

p2slot2();

p2slot3();

   cdata = cdata + sensor1 +”,” + sensor2 + “,”+ sensor3 +”,”+ sensor4 + “,” + sensor5 + “,” + sensor6 +”,”; // comma will be used a delimeter

   Serial.println(cdata);

   nodemcu.println(cdata);

   delay(6000); // 100 milli seconds

   cdata = “”;

digitalWrite(parking1\_slot1\_ir\_s, HIGH);

digitalWrite(parking1\_slot2\_ir\_s, HIGH);

digitalWrite(parking1\_slot3\_ir\_s, HIGH);

digitalWrite(parking2\_slot1\_ir\_s, HIGH);

digitalWrite(parking2\_slot2\_ir\_s, HIGH);

digitalWrite(parking2\_slot3\_ir\_s, HIGH);

}

void p1slot1() // parkng 1 slot1

{

  if( digitalRead(parking1\_slot1\_ir\_s) == LOW)

  {

  sensor1 = “255”;

 delay(200);

  }

If ( digitalRead(parking1\_slot1\_ir\_s) == HIGH)

{

  sensor1 = “0”;

 delay(200);

}

}

void p1slot2() // parking 1 slot2

{

  If ( digitalRead(parking1\_slot2\_ir\_s) == LOW)

  {

  sensor2 = “255”;

  delay(200);

  }

If ( digitalRead(parking1\_slot2\_ir\_s) == HIGH)

  {

  sensor2 = “0”;

 delay(200);

  }

}

void p1slot3() // parking 1 slot3

{

  If ( digitalRead(parking1\_slot3\_ir\_s) == LOW)

  {

  sensor3 = “255”;

  delay(200);

  }

If ( digitalRead(parking1\_slot3\_ir\_s) == HIGH)

  {

  sensor3 = “0”;

 delay(200);

  }

}

// now for parking 2

void p2slot1() // parking 1 slot3

{

  if( digitalRead(parking2\_slot1\_ir\_s) == LOW)

  {

  sensor4 = “255”;

  delay(200);

  }

if( digitalRead(parking2\_slot1\_ir\_s) == HIGH)

  {

  sensor4 = “0”;

 delay(200);

  }

}

void p2slot2() // parking 1 slot3

{

  If ( digitalRead(parking2\_slot2\_ir\_s) == LOW)

  {

  sensor5 = “255”;

  delay(200);

  }

If ( digitalRead(parking2\_slot2\_ir\_s) == HIGH)

  {

  sensor5 = “0”;

 delay(200);

  }

}

void p2slot3() // parking 1 slot3

{

  if( digitalRead(parking2\_slot3\_ir\_s) == LOW)

  {

  sensor6 = “255”;

  delay(200);

  }

if( digitalRead(parking2\_slot3\_ir\_s) == HIGH)

  {

  sensor6 = “0”;

 delay(200);

  }

}

**Nodemcu esp8266 wifi module Programming:**

#define BLYNK\_PRINT Serial

#include <ESP8266WiFi.h>

#include <BlynkSimpleEsp8266.h>

#include <SoftwareSerial.h>

#include <SimpleTimer.h>

char auth[] = “ac173b0527c94a91a6cde0dcdfe6bdef”;

// WiFi credentials.

char ssid[] = “ZONG MBB-E8231-6E63”;

char pass[] = “08659650”;

SimpleTimer timer;

String myString;

char rdata; // received charactors

int firstVal, secondVal,thirdVal; // sensors

int led1,led2,led3,led4,led5,led6;

void myTimerEvent()

{

  // You can send any value at any time.

  // Please don’t send more that 10 values per second.

  Blynk.virtualWrite(V1, millis() / 1000);

}

void setup()

{

  Serial.begin(9600);

  Blynk.begin(auth, ssid, pass);

    timer.setInterval(1000L,sensorvalue1);

    timer.setInterval(1000L,sensorvalue2);

    timer.setInterval(1000L,sensorvalue3);

    timer.setInterval(1000L,sensorvalue4);

    timer.setInterval(1000L,sensorvalue5);

    timer.setInterval(1000L,sensorvalue6);

}

void loop()

{

   if (Serial.available() == 0 )

   {

  Blynk.run();

  timer.run(); // Initiates BlynkTimer

   }

  if (Serial.available() > 0 )

  {

    rdata = Serial.read();

    myString = myString+ rdata;

   // Serial.print(rdata);

    if( rdata == ‘\n’)

    {

     Serial.println(myString);

  // Serial.println(“fahad”);

// new code

String l = getValue(myString, ‘,’, 0);

String m = getValue(myString, ‘,’, 1);

String n = getValue(myString, ‘,’, 2);

String o = getValue(myString, ‘,’, 3);

String p = getValue(myString, ‘,’, 4);

String q = getValue(myString, ‘,’, 5);

// these leds represents the leds used in blynk application

led1 = l.toInt();

led2 = m.toInt();

led3 = n.toInt();

led4 = o.toInt();

led5 = p.toInt();

led6 = q.toInt();

  myString = “”;

    }

  }

}

void sensorvalue1()

{

int sdata = led1;

  Blynk.virtualWrite(V10, sdata);

}

void sensorvalue2()

{

int sdata = led2;

  Blynk.virtualWrite(V11, sdata);

}

void sensorvalue3()

{

int sdata = led3;

  Blynk.virtualWrite(V12, sdata);

}

void sensorvalue4()

{

int sdata = led4;

  Blynk.virtualWrite(V13, sdata);

}

void sensorvalue5()

{

int sdata = led5;

  Blynk.virtualWrite(V14, sdata);

}

void sensorvalue6()

{

int sdata = led6;

  Blynk.virtualWrite(V15, sdata);

}

String getValue(String data, char separator, int index)

{

    int found = 0;

    int strIndex[] = { 0, -1 };

    int maxIndex = data.length() – 1;

    for (int i = 0; i <= maxIndex && found <= index; i++) {

        if (data.charAt(i) == separator || i == maxIndex) {

            found++;

            strIndex[0] = strIndex[1] + 1;

            strIndex[1] = (i == maxIndex) ? i+1 : i;

        }

    }

    return found > index ? data.substring(strIndex[0], strIndex[1]) : “”;

}