

# Source Code for “Seating Alignment Detection”

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## Code for esp8266 WiFi module

```
#include <ESP8266WiFi.h>
#include <WiFiClient.h>
#include <FirebaseArduino.h>
#define FIREBASE_AUTH "nIZ2fv2n8tx8lUhqQnFSJmdE3LTKTxhRAcl2QtFM"
#define FIREBASE_HOST "seatingalignmentproject-default-rtdb.firebaseio.com"
#define WIFI_SSID "vivo 1951"
#define WIFI_PASSWORD "mona@1410"
```

```
String values,sensor_data;
```

```
void setup()
{
  Serial.begin(9600);
  delay(1000);
  Serial.print("Scan start ... ");
  int n = WiFi.scanNetworks();
  Serial.print(n);
  Serial.println(" network(s) found");
```

```
for (int i = 0; i < n; i++)
{
    Serial.println(WiFi.SSID(i));
}
Serial.println();
WiFi.begin(WIFI_SSID, WIFI_PASSWORD);
while (WiFi.status() != WL_CONNECTED)
{
    Serial.println("fail");
    delay(500);
}
Firebase.begin(FIREBASE_HOST, FIREBASE_AUTH);
}
void loop()
{
    bool Sr =false;
    while(Serial.available())
    {
        sensor_data=Serial.readString();
        Sr=true;
    }
    delay(1000);
    if(Sr==true)
    {
```

```
values=sensor_data;

int fristCommaIndex = values.indexOf(',');

int secondCommaIndex =
values.indexOf(fristCommaIndex+1,values.length());

String Chair1 = values.substring(0, fristCommaIndex);

String Chair2 = values.substring(fristCommaIndex+1, secondCommaIndex);

Firebase.setString("Chair1",Chair1);

delay(10);

Firebase.setString("Chair2",Chair2);

delay(10);

delay(1000);

if (Firebase.failed())
{
    return;
}
}
}
```

## Screen Shot of esp8266 WiFi module code

code\_for\_esp8266\_ | Arduino 1.8.19

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code\_for\_esp8266\_

```
#include <ESP8266WiFi.h>
#include <WiFiClient.h>
#include <FirebaseArduino.h>

#define FIREBASE_AUTH "n1Z2rv2n8tw8lUhgQnF5Jed3JLTKtKhRACl3QcPM"
#define FIREBASE_HOST "seatingalignmentproject-default-rtdb.firebaseio.com"
#define WIFI_SSID "vivo 1951"
#define WIFI_PASSWORD "mone81410"

String values,sensor_data;

void setup() {
  //Initializes the serial connection at 9600 get sensor data from arduino.
  Serial.begin(9600);

  delay(1000);
  Serial.print("Scan start ... ");
  int n = WiFi.scanNetworks();
  Serial.print(n);
  Serial.println(" network(s) found");
  for (int i = 0; i < n; i++)
  {
    Serial.println(WiFi.SSID(i));
  }
  Serial.println();
  WiFi.begin(WIFI_SSID, WIFI_PASSWORD);
  while (WiFi.status() != WL_CONNECTED) {
    Serial.println("fail");
    delay(500);
  }

  Firebase.begin(FIREBASE_HOST, FIREBASE_AUTH);
}

void loop() {

  bool Sr =false;

  while(Serial.available()){

    //get sensor data from serial put in sensor_data
    sensor_data=Serial.readString();
    Sr=true;

  }

  delay(1000);

  if (Sr==true){

    values=sensor_data;

    //get comma indexes from values variable
    int fristCommaIndex = values.indexOf(',');
    int secondCommaIndex = values.indexOf(fristCommaIndex+1,values.length());

    //get sensors data from values variable by splitting by commas and put in to variables
    String Chair1 = values.substring(0, fristCommaIndex);
    String Chair2 = values.substring(fristCommaIndex+1, secondCommaIndex);

    //store ultrasonic sensor data as string in firebase
    Firebase.setString("Chair1",Chair1);
    delay(10);
    //store IR sensor 1 data as string in firebase
    Firebase.setString("Chair2",Chair2);
    delay(10);

    delay(1000);

    if (Firebase.failed()) {
      return;
    }
  }
}
```

Done Saving

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```
Firebase.begin(FIREBASE_HOST, FIREBASE_AUTH);

}

void loop() {

  bool Sr =false;

  while(Serial.available()){

    //get sensor data from serial put in sensor_data
    sensor_data=Serial.readString();
    Sr=true;

  }

  delay(1000);

  if (Sr==true){

    values=sensor_data;

    //get comma indexes from values variable
    int fristCommaIndex = values.indexOf(',');
    int secondCommaIndex = values.indexOf(fristCommaIndex+1,values.length());

    //get sensors data from values variable by splitting by commas and put in to variables
    String Chair1 = values.substring(0, fristCommaIndex);
    String Chair2 = values.substring(fristCommaIndex+1, secondCommaIndex);

    //store ultrasonic sensor data as string in firebase
    Firebase.setString("Chair1",Chair1);
    delay(10);
    //store IR sensor 1 data as string in firebase
    Firebase.setString("Chair2",Chair2);
    delay(10);

    delay(1000);

    if (Firebase.failed()) {
      return;
    }
  }
}
```

Done Saving

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```
bool Sr =false;

while(Serial.available()){

  //get sensor data from serial put in sensor_data
  sensor_data=Serial.readString();
  Sr=true;

}

delay(1000);

if (Sr==true){

  values=sensor_data;

  //get comma indexes from values variable
  int fristCommaIndex = values.indexOf(',');
  int secondCommaIndex = values.indexOf(fristCommaIndex+1,values.length());

  //get sensors data from values variable by splitting by commas and put in to variables
  String Chair1 = values.substring(0, fristCommaIndex);
  String Chair2 = values.substring(fristCommaIndex+1, secondCommaIndex);

  //store ultrasonic sensor data as string in firebase
  Firebase.setString("Chair1",Chair1);
  delay(10);
  //store IR sensor 1 data as string in firebase
  Firebase.setString("Chair2",Chair2);
  delay(10);

  delay(1000);

  if (Firebase.failed()) {
    return;
  }
}
}
```

Done Saving

## Code for Arduino uno

```
const int trig1=11;
const int echo1=12;
const int trig2=9;
const int echo2=8;
long duration, duration1;
int distance, distance1;
String values;
void setup()
{
  pinMode(trig1, OUTPUT);
  pinMode(echo1, INPUT);
  pinMode(trig2, OUTPUT);
  pinMode(echo2, INPUT);
  Serial.begin(9600);
  delay(2000);
}
void loop()
{
  values= (getStatus1()+' '+getStatus2());
  delay(1000);
```

```
Serial.flush();  
delay(1000);  
  
Serial.println(values);  
delay(2000);  
}  
String getStatus1()  
{  
    digitalWrite(trig1, LOW);  
    delayMicroseconds(2);  
    digitalWrite(trig1, HIGH);  
    delayMicroseconds(10);  
    digitalWrite(trig1, LOW);  
    duration = pulseIn(echo1, HIGH);  
    distance = duration * 0.034 / 2;  
    if(distance <= 12)  
    {  
        return "Arranged";  
    }  
    return "Not Arranged";  
}  
String getStatus2()  
{  
    digitalWrite(trig2, LOW);
```

```
delayMicroseconds(2);  
digitalWrite(trig2, HIGH);  
delayMicroseconds(10);  
digitalWrite(trig2, LOW);  
duration1 = pulseIn(echo2, HIGH);  
distance1 = duration1 * 0.034 / 2;  
if(distance1 <= 12)  
{  
    return "Arranged";  
}  
return "Not Arranged";  
}
```

## Screen Shot of Arduino Uno code



The image displays two side-by-side screenshots of the Arduino IDE, version 1.8.19, showing code for an ultrasonic sensor project. The left window shows the full code, while the right window shows a zoomed-in view of the `getStatus1()` function.

```
arduino_uno_code_ | Arduino 1.8.19
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arduino_uno_code_
const int trig1=11;
const int echo1=12;

const int trig2=9;
const int echo2=8;

long duration, duration1;
int distance, distance1;

String values;

void setup() {
  pinMode(trig1, OUTPUT);
  pinMode(echo1, INPUT);
  pinMode(trig2, OUTPUT);
  pinMode(echo2, INPUT);

  Serial.begin(9600);

  delay(2000);
}

void loop() {
  values= (getStatus1()+" "+getStatus2());

  delay(1000);

  Serial.flush();
  delay(1000);

  Serial.println(values);
  delay(2000);
}

String getStatus1()
{
  digitalWrite(trig1, LOW);
  delayMicroseconds(2);
  digitalWrite(trig1, HIGH);
  delayMicroseconds(10);
  digitalWrite(trig1, LOW);
  duration = pulseIn(echo1, HIGH);
  distance = duration * 0.034 / 2;

  if(distance <= 12)
  {
    return "Arranged";
  }
  return "Not Arranged";
}

String getStatus2()
{
  digitalWrite(trig2, LOW);
  delayMicroseconds(2);
  digitalWrite(trig2, HIGH);
  delayMicroseconds(10);
  digitalWrite(trig2, LOW);
  duration1 = pulseIn(echo2, HIGH);
  distance1 = duration1 * 0.034 / 2;
  if(distance1 <= 12)
  {
    return "Arranged";
  }
  return "Not Arranged";
}
```