VOICE CONTROLLED SMARTHOME

Alperen Ertürk

Baran Karadağ

Kubilay Kaan Deliktaş

1 OVERVIEW

1.1 Problem Statement and Objectives	The purpose of the our Project is you can control the lightning system of the house, you can open the door and roof with using voice. Our prototype includes leds, a model of a house to the turn off and on roof, door and lights with voice.
1.2 Background Information	Technology which feeds on with sounds has been increased over the decades . For instance Siri , Google's Voice Searching System , Voice Operated Remote Control can given as examples . People may use it at their homes and offices freely . By the way these project can help disabled people on their daily life .

2 METHODOLOGY

- **2.1 Project Design**
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  - We will use lights, roof and door in a small model of a house.Therefore there would be some technical issues which we need to get rid of them.If an example should be given; cable crowd. We are planning to hide the cables under the model.
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2.2 Project Components

- Arduino Mega, HC-06 Bluetooth Module, 4 leds, breadboard, cables, 2 servos, and other materials.

2.2.1 Code of The Project

```
#include <Servo.h>

        String voice;

        int
        led1 = 2, //Connect LED 1 To Pin #2
        led2 = 3, //Connect LED 2 To Pin #3
        led3 = 4, //Connect LED 3 To Pin #4
        led4 = 5, //Connect LED 4 To Pin #5
        led5 = 6; //Connect LED 5 To Pin #6
        int INA = 9;
        int INB = 8;
```

2.2.1 Code of The Project

```
void allon(){
    digitalWrite(led1, HIGH);
    digitalWrite(led2, HIGH);
    digitalWrite(led3, HIGH);
    digitalWrite(led4, HIGH);
    digitalWrite(led5, HIGH);
    }
```

2.2.1 Code of The Project

```
void alloff(){
    digitalWrite(led1, LOW);
    digitalWrite(led2, LOW);
    digitalWrite(led3, LOW);
    digitalWrite(led4, LOW);
    digitalWrite(led5, LOW);
    }
```

2.2.1 Code of The Project

```
Servo servo; //servo motor tanımlama
    Servo servo2;

    void setup() {
    Serial.begin(9600);
    pinMode(led1, OUTPUT);
    pinMode(led2, OUTPUT);
    pinMode(led3, OUTPUT);
    pinMode(led4, OUTPUT);
    pinMode(led5, OUTPUT);
    pinMode(INA,OUTPUT);
    pinMode(INB,OUTPUT);
    servo.attach(9);
    servo2.attach(10);//servo pin tanımı
    }
```

2.2.1 Code of The Project

```
void loop() {
        while (Serial.available()){

        delay(10);
        char c = Serial.read();
        if (c == '#') {break;}
        voice += c; Serial.println(c);
        }
        if (voice.length() > 0) {
        Serial.println(voice);
        if(voice == "*hepsini aç") {allon();}  //Turn Off All Pins (Call Function)
        else if(voice == "*hepsini kapat"){alloff();} //Turn On All Pins (Call Function)
```

2.2.1 Code of The Project

- //----------Turn On One-By-One----------//
- if(voice == "open one"||voice == "Open One"||voice == "Open one"||voice == "open One") {digitalWrite(led1, HIGH);}
- else if(voice == "open two"||voice == "Open Two"||voice == "Open two"||voice == "open Two") {digitalWrite(led2, HIGH);}
- else if(voice == "open three"||voice == "Open Three"||voice == "Open three"||voice == "open Three") {digitalWrite(led3, HIGH);}
- else if(voice == "*Open four") {digitalWrite(led4, HIGH);}
- else if(voice == "*5 aç") {digitalWrite(led5, HIGH);}

2.2.1 Code of The Project

- //----------Turn Off One-By-One----------//
- else if(voice == "close one"||voice == "Close One"||voice == "Close one"||voice == "close One") {digitalWrite(led1, LOW);}
- else if(voice == "close two"||voice == "Close Two"||voice == "Close two"||voice == "close Two") {digitalWrite(led2, LOW);}
- else if(voice == "close three"||voice == "Close Three"||voice == "Close three"||voice == "close Three") {digitalWrite(led3, LOW);}
- else if(voice == "*Close four") {digitalWrite(led4, LOW);}
- else if(voice == "*5 kapat") {digitalWrite(led5, LOW);}

2.2.1 Code of The Project

```
if(voice == "roof open"||voice == "Roof Open"||voice == "Roof open"||voice == "roof Open")
        {
        voice == "Roof open" ;
        catiac();}
        if(voice == "roof close"||voice == "Roof Close"||voice == "Roof close"||voice == "roof Close"){
        voice == "Roof close";
        catikapat();}

        if(voice == "door open"||voice == "Door Open"||voice == "Door open"||voice == "door Open"){
        kapiac();}
        if(voice == "door close" || voice == "Door Close" || voice == "Door close" || voice == "door Close"){
        kapikapat();}
```

2.2.1 Code of The Project

-
- else if(voice == "*fanı aç") {digitalWrite(INB,HIGH);;}
- else if(voice == "*fanı kapat") {digitalWrite(INA,LOW);;}

2.2.1 Code of The Project

```
voice="";}
        }
        void catiac()
        {
        servo.write(180);
        delay(100);
        }
        void catikapat()
        {
        servo.write(1);
        delay(100);
        }
        void kapiac()
```

2.2.1 Code of The Project

```
{
    Serial.println("fonkisyon");
    servo2.write(180);
    delay(100);
    }
    void kapikapat()
    {
    servo2.write(0);
    delay(100);
    }
```

2.2.2 Software

•Arduino code is about detecting the voice of the user. When the voice detected code will send signal to required component of the project. Code consists void setup and void loop sections. Before that sections components are initialized to the pins of Arduino.

2.2.3 Final Products and Results

- Our codes work very well but the mechanism needs to be a bit more smoother.And one of our servo motor has got an issue in itself which makes a bit noise due to it is broken.Also we have got a connection issue with bluetooth sometimes.It can be hard to connect so we have taken a decent video to show it as a proof.But in general our mechanism and code works well without any mistakes

3 WORK PLAN

•Arduino programming is going to done together. Baran Karadağ is going to supply the materials and devices. Alperen Ertürk is going to design model and write the reports. Baran Karadağ and Kaan Deliktaş are going to combine the cables and other materials.Also Kaan Deliktaş is going to edit the project.

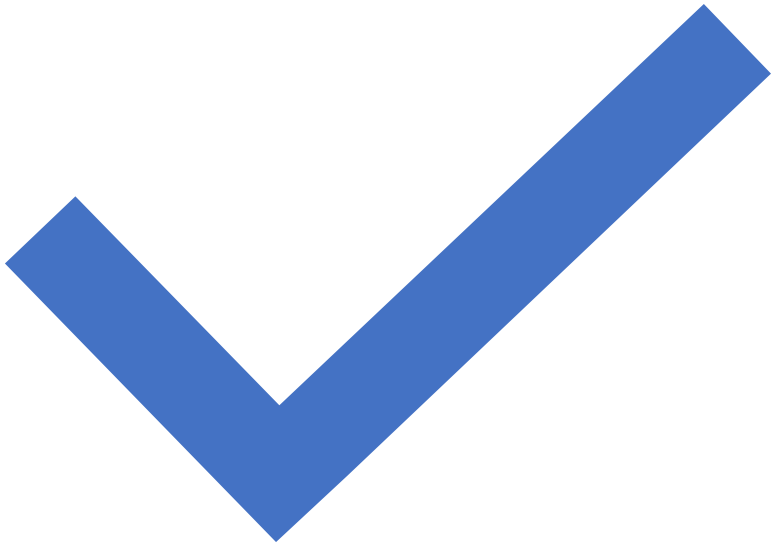
3.1 Tasks and Timeline

3.2 Cost Proposal

Component	Cost (TL)
Arduino MEGA	60
HC-06 Bluetooth Module	30
2 Servos	30
Cables and other materials	20
TOTAL	140

4 CONCLUSION

- We ran all to components of the project. We did not able to find a fan.So we decided to remove it.But the code section is still in the Arduino.We suggest that it was a big experience for team work and our job. We learned how to write an Arduino code and doing the connections in right order.



5 REFERENCES

Voice Activated Arduino (Bluetooth + Android), Available from: http://www.instructables.com/id/Voice-Activated-Arduino-Bluetooth-Android/

Servo Motor Control with Arduino, Available from:

http://www.allaboutcircuits.com/projects/servo-motor-control-with-an-arduino/

THANKS FOR LISTENING