VI. CODES

Arduino MEGA and Motor Shield connected to Arduino Uno (Master)

```
#include<Wire.h>
#include <Servo.h>
#include <AFMotor.h>

AF_DCMotor motor (2, MOTOR12_64KHZ);

Servo myservo1;
Servo myservo2;

int pos; int soundDetectedPin = A7;
int soundDetectedVal = HIGH;

int i,a;
int x = 0;


char str[4];
int value;

void setup() {
Serial.begin(4800);
pinMode (soundDetectedPin,INPUT);

myservo1.attach(10);

Wire.begin();
Serial.println("Motor Test");
}

void loop() {
 soundsensor();
 master();
}


void soundsensor()
{
 soundDetectedVal = analogRead (soundDetectedPin);
 soundDetectedVal=soundDetectedVal/35;  // 1025 maximum
 Serial.println(soundDetectedVal);
x=soundDetectedVal;
switch (soundDetectedVal)
{
 case 29:
       motor.setSpeed(255);
       motor.run(FORWARD);
       delay (100);

       for (pos = 135; pos >= 50; pos--) {
       myservo1.write (pos);
       delay (3);
       motor.run(RELEASE);
       }

   a=50;
   break;

case 28:
       motor.setSpeed(255);
       motor.run(FORWARD);
       delay (50);
       for (pos = 130; pos >= 55; pos--) {
       myservo1.write (pos);
       delay (9);
       motor.run(RELEASE);
      }
  a=55;
  break;

case 27:
       delay (12);

       for (pos = 125; pos >= 60; pos--) {
       myservo1.write (pos);
       delay (12);
       }
  motor.run(FORWARD);
  a=60;
  break;

case 26:
       delay (15);

       for (pos = 120; pos >= 65; pos--) {
       myservo1.write (pos);
       delay (15);
       }
  a=65;
  break;

 case 25:
       delay (18);

for (pos = 115; pos >= 70; pos--) {
       myservo1.write (pos);
delay (18);
       }
   a=70;
   break;

 case 24:
       delay (21);

for (pos = 110; pos >= 75; pos--) {
       myservo1.write (pos);
delay (21);
       }
   a=75;
   break;

 case 23:
       delay (24);

for (pos = 105; pos >= 80; pos--) {
```

```
        myservo1.write (pos);
delay (24);
        }
    a=80;
    break;

 case 22:
        delay (27);

for (pos = 100; pos >= 85; pos--) {
        myservo1.write (pos);
delay (27);
        }
    a=85;
    break;

 case 21:
        delay (30);

for (pos = 95; pos >= 90; pos--) {
        myservo1.write (pos);
delay (30);
        }
    a=90;
    break;

 case 20:
        delay (35);

for (pos = 95; pos >= 90; pos--) {
        myservo1.write (pos);
delay (35);
        }
    a=90;
    break;

 case 19:
        delay (40);

for (pos = 95; pos >= 90; pos--) {
        myservo1.write (pos);
delay (40);
        }
    a=90;
    break;

 case 18:
        delay (45);

for (pos = 95; pos >= 90; pos--) {
        myservo1.write (pos);
delay (45);
        }
    a=90;
    break;

 case 17:
        delay (50);

        for (pos = 95; pos >= 90; pos--) {
        myservo1.write (pos);
        delay (50);
        }
    a=90;
    break;

case 16:
      delay (55);

      for (pos = 95; pos >= 90; pos--) {
      myservo1.write (pos);
      delay (55);
      }
  a=90;
  break;

 case 15:
      delay (60);

      for (pos = 95; pos >= 90; pos--) {
      myservo1.write (pos);
      delay (60);
      }
  a=90;
  break;

case 14:
      delay (65);

      for (pos = 95; pos >= 90; pos--) {
      myservo1.write (pos);
      delay (65);
      }
  a=90;
  break;

case 13:
      delay (70);

      for (pos = 95; pos >= 90; pos--) {
      myservo1.write (pos);
      delay (70);
      }
  a=90;
  break;

case 12:
      delay (75);

      for (pos = 95; pos >= 90; pos--) {
      myservo1.write (pos);
      delay (75);
      }
  a=90;
  break;

case 11:
      delay (80);

      for (pos = 95; pos >= 90; pos--) {
      myservo1.write (pos);
      delay (80);
      }
  a=90;
  break;

case 10:
      delay (85);

      for (pos = 95; pos >= 90; pos--) {
      myservo1.write (pos);
      delay (85);
```

```
      }
   a=90;
   motor.run(RELEASE);
   break;

 case 5:
       delay (20);

       for (pos = 120; pos >= 60; pos--) {
       myservo1.write (pos);
       delay (20);
       }
   motor.run(RELEASE);
   a=60;
   break;

 case 1:
        myservo1.write (130);
       return loop();
        break;

 case 0:
        myservo1.write (130);
        motor.run(RELEASE);
        return loop();
        break;
}

for (pos = a; pos <= 130; pos++) {
myservo1.write (pos);
       delay (3);
      }


}

void master() {
  Wire.beginTransmission(9); // transmit to device #9
  Wire.write(x);             // sends x
  Wire.endTransmission();    // stop transmitting
}
```

Arduino UNO connected to Arduino MEGA (Slave)

```
#include <Servo.h>
#include <Wire.h>
int x = 0;
int i,b;
char str[4];
int value;
Servo myservo2;

void setup() {
Serial.begin(9600);
Wire.begin(9);
Wire.onReceive(receiveEvent);
myservo2.attach(9);

}

void loop() {

   servo2();
}

void receiveEvent(int bytes) {
  x = Wire.read();    // read one character from the I2C
}

void servo2(){

switch(x)
{
case 29:
  b= 120;
  break;

case 28:
  b= 115;
  break;

case 27:
  b= 110;
  break;

case 26:
  b= 105;
  break;

case 25:
  b= 100;
  break;

case 24:
  b= 95;
  break;

case 23:
  b= 90;
  break;

case 22:
  b= 88;
  break;

case 21:
  b = 87;
  break;

case 20:
  b = 86;
  break;

case 5:
  myservo2.write (85);
  return loop();
  break;

case 4:
  myservo2.write (84);
```

```
 return loop();
 break;

case 3:
 myservo2.write (83);
 return loop();
 break;

case 2:
 myservo2.write (82);
 return loop();
 break;

case 1:
 myservo2.write (81);
 return loop();
 break;

case 0:
 myservo2.write (80);
 return loop();
break;
}
```

```
servo2move();
}

void servo2move () {

for (i=b;i<130;i++)
 {
 myservo2.write (i);
 delay(15);
 }
for (i=130;i>80;i--)
 {
 myservo2.write (i);
 delay(15);
 }
 myservo2.write (80);
delay(20);

}
```

Arduino UNO connected to Bluetooth Module

```
byte serialA;
int solval1 = A0, solval2 = A1;
int solval3 = A2, solval4 = A3;

void setup() {
Serial.begin(9600);
pinMode(solval1, OUTPUT);
pinMode(solval2, OUTPUT);
pinMode(solval3, OUTPUT);
pinMode(solval4, OUTPUT);
}

void loop() {
     analogWrite(solval1, 0);
        analogWrite(solval2, 0);
           analogWrite(solval3, 0);
              analogWrite(solval4, 0);
 if (Serial.available() > 0) {serialA = Serial.read();
Serial.println(serialA);

 switch (serialA) {
  case 'F':
   solenoidvalve4();
   Serial.println("RED");
   delay(30);
  // RED
  break;
  case 'R':
   solenoidvalve3();
   Serial.println("GREEN");
   delay(30);
  //GREEN
  break;
  case 'X':
   solenoidvalve2();
   delay(30);
   Serial.println("BLUE");
  //BLUE
  break;
  case 'A':
   solenoidvalve();
   delay(30);
   Serial.println("YELLOW");
  //YELLOW
  break;
 }
 }
}

void solenoidvalve(){
    analogWrite(solval1, 255);
}

void solenoidvalve2(){
    analogWrite(solval2, 255);
}

void solenoidvalve3(){
    analogWrite(solval3, 255);
}

void solenoidvalve4(){
    analogWrite(solval4, 255);
```

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