#include<Servo.h>

Servo servo1,servo2,servo3,servo4,servo5;

void setup() {

pinMode(7,OUTPUT);

pinMode(8,OUTPUT);

pinMode(9,OUTPUT);

int inpos=90, playpos=0; //remember to set it according to the angle of the fingers after test !!!!

servo1.attach(2);

servo2.attach(3);

servo3.attach(4);

servo4.attach(5);

servo5.attach(6);

servo1.write(inpos);

servo2.write(inpos);

servo3.write(inpos);

servo4.write(inpos);

servo5.write(inpos);

Serial.println("Setting all the servos to initial position");

int note, mode;

int count1=0,count2=0,count3=0,count4=0,count5=0,count6=0,count7=0,count8=0,count9=0,count10=0,count11=0,count12=0,count13=0,count14=0,count15=0,count16=0,count17=0,count18=0,count19=0,count20=0,count21=0;

String ch[]={"c","b","a","c","d","-g","e","c",".c","b","d","b","a"};

Serial.begin(9600);

//loop to count the notes in the data

for (int i = 0; i <= 50; i++)

{

if (ch[i] == "-a")

{ count1++; }

else if (ch[i] == "-b")

{ count2++; }

else if (ch[i] == "-c")

{ count3++; }

else if (ch[i] == "-d")

{ count4++; }

else if (ch[i] == "-e")

{ count5++; }

else if (ch[i] == "-f")

{ count6++; }

else if (ch[i] == "-g")

{ count7++; }

else if (ch[i] == "a")

{ count8++; }

else if (ch[i] == "b")

{ count9++; }

else if (ch[i] == "c")

{ count10++; }

else if (ch[i] == "d")

{ count11++; }

else if (ch[i] == "e")

{ count12++; }

else if (ch[i] == "f")

{ count13++; }

else if (ch[i] == "g")

{ count14++; }

else if (ch[i] == ".a")

{ count15++; }

else if (ch[i] == ".b")

{ count16++; }

else if (ch[i] == ".c")

{ count17++; }

else if (ch[i] == ".d")

{ count18++; }

else if (ch[i] == ".e")

{ count19++; }

else if (ch[i] == ".f")

{ count20++; }

else if (ch[i] == ".g")

{ count21++; }

}

//showing data to select mode

Serial.print(" -C(1) : ");Serial.println(count3);

Serial.print(" -D(2) : ");Serial.println(count4);

Serial.print(" -E(3) : ");Serial.println(count5);

Serial.print(" -F(4) : ");Serial.println(count6);

Serial.print(" -G(5) : ");Serial.println(count7);

Serial.print(" -A(6) : ");Serial.println(count1);

Serial.print(" -B(7) : ");Serial.println(count2);

Serial.print(" C(8) : ");Serial.println(count10);

Serial.print(" D(9) : ");Serial.println(count11);

Serial.print(" E(10) : ");Serial.println(count12);

Serial.print(" F(11) : ");Serial.println(count13);

Serial.print(" G(12) : ");Serial.println(count14);

Serial.print(" A(13) : ");Serial.println(count8);

Serial.print(" B(14) : ");Serial.println(count9);

Serial.print(" .C(15) : ");Serial.println(count17);

Serial.print(" .D(16) : ");Serial.println(count18);

Serial.print(" .E(17) : ");Serial.println(count19);

Serial.print(" .F(18) : ");Serial.println(count20);

Serial.print(" .G(19) : ");Serial.println(count21);

Serial.print(" .A(20) : ");Serial.println(count15);

Serial.print(" .B(21) : ");Serial.println(count16);

//asking for mode note

Serial.print(" Mode note : ");

while (Serial.available()==0) {}

mode = Serial.parseInt();

Serial.println(mode);

int sev3=mode;//initial position of servo 3

//calculating the total number of notes in the data

int len=count1+count2+count3+count4+count5+count6+count7+count8+count9+count10+count11+count12+count13+count14+count12+count16+count17+count18+count19+count20+count21;

//loop to assign every character-note(chord) a number through an integer datatype "note" to use it in the algorithm

for(int i=0; i<=len; i++)

{

if(ch[i]=="-c")

{

note=1;

}

if(ch[i]=="-d")

{

note=2;

}

if(ch[i]=="-e")

{

note=3;

}

if(ch[i]=="-f")

{

note=4;

}

if(ch[i]=="-g")

{

note=5;

}

if(ch[i]=="-a")

{

note=6;

}

if(ch[i]=="-b")

{

note=7;

}

if(ch[i]=="c")

{

note=8;

}

if(ch[i]=="d")

{

note=9;

}

if(ch[i]=="e")

{

note=10;

}

if(ch[i]=="f")

{

note=11;

}

if(ch[i]=="g")

{

note=12;

}

if(ch[i]=="a")

{

note=13;

}

if(ch[i]=="b")

{

note=14;

}

if(ch[i]==".c")

{

note=15;

}

if(ch[i]==".d")

{

note=16;

}

if(ch[i]==".e")

{

note=17;

}

if(ch[i]==".f")

{

note=18;

}

if(ch[i]==".g")

{

note=19;

}

if(ch[i]==".a")

{

note=20;

}

if(ch[i]==".b")

{

note=21;

}

//most important part of the entire code, the algorithm by which the respective servos would activate/play along with the movement of the DC motor after setting the mode note

int diff=note-sev3;

if(diff>=-2) //this case is particularly for the movement of the hand to right side

{

int play=diff-2;

Serial.print(play);

if(play==-4)

{

Serial.print(" Servo 1 ");

servo1.write(playpos);

delay(500);

servo1.write(inpos);

}

else if(play==-3)

{

Serial.print(" Servo 2 ");

servo2.write(playpos);

delay(500);

servo2.write(inpos);

}

else if(play==-2)

{

Serial.print(" Servo 3 ");

servo3.write(playpos);

delay(500);

servo3.write(inpos);

}

else if(play==-1)

{

Serial.print(" Servo 4 ");

servo4.write(playpos);

delay(500);

servo4.write(inpos);

}

else if(play==0)

{

Serial.print(" Servo 5 ");

servo5.write(playpos);

delay(500);

servo5.write(inpos);

}

else //other cases would come according to the value of play after test

{

sev3+=play;

analogWrite(9,255);

digitalWrite(7,HIGH);

digitalWrite(8,LOW);

delay(5000);

analogWrite(9,0);

Serial.print(" Servo 5 ");

servo5.write(playpos);

delay(500);

servo5.write(inpos);

}

}

else if(diff<=-3) //this case is particularly for the movement of the hand to left side

{

int play=-diff-2;

Serial.print(play);

if(play==-4)

{

Serial.print(" Servo 1 ");

servo1.write(playpos);

delay(500);

servo1.write(inpos);

}

else if(play==-3)

{

Serial.print(" Servo 2 ");

servo2.write(playpos);

delay(500);

servo2.write(inpos);

}

else if(play==-2)

{

Serial.print(" Servo 3 ");

servo3.write(playpos);

delay(500);

servo3.write(inpos);

}

else if(play==-1)

{

Serial.print(" Servo 4 ");

servo4.write(playpos);

delay(500);

servo4.write(inpos);

}

else if(play==0)

{

Serial.print(" Servo 5 ");

servo5.write(playpos);

delay(500);

servo5.write(inpos);

}

else //other cases would come according to the value of play after test

{

sev3-=play;

analogWrite(9,255);

digitalWrite(7,LOW);

digitalWrite(8,HIGH);

delay(5000);

analogWrite(9,0);

Serial.print(" Servo 1 ");

servo1.write(playpos);

delay(500);

servo1.write(inpos);

}

}

}

}

void loop()

{

}