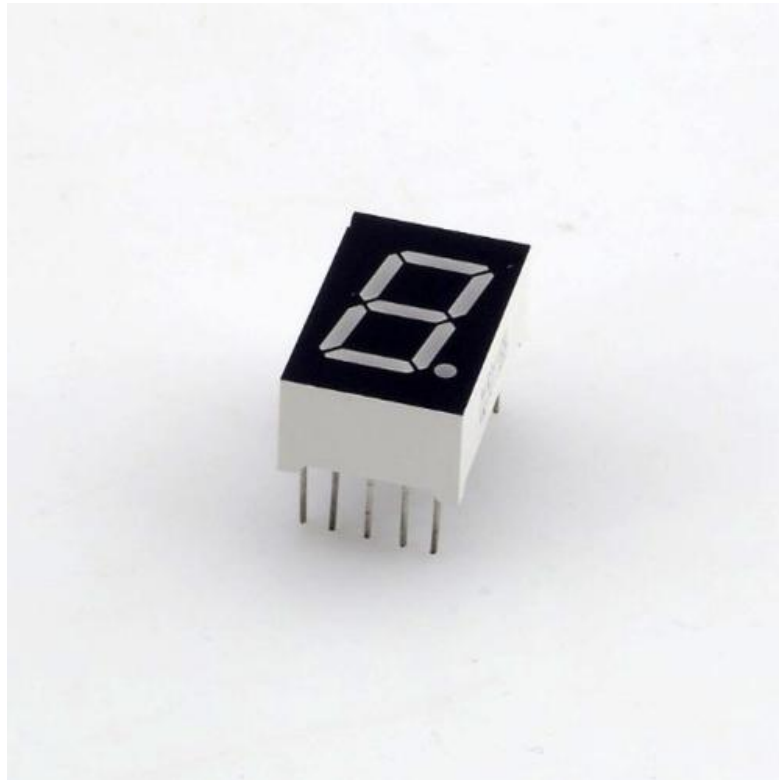


7 Segment LED



Overview :

This project will use a 7 Segment LED display to show the numbers 0 to 9

Materials :

Arduino Uno x 1

7 Segment LED Display x 1

220 ohm resistor x 8

Breadboard x 1

DuPont wires x 12

Product description :

A 7 Segment LED display is a semiconductor consisting of 7 larger Light Emitting Diodes or LED's to form the numbers 0-9 and a smaller LED for a decimal point. A diode is a semiconductor which only allows current to flow in one direction. An LED is a diode that emits light when current is flowing in that direction.

They are very common in daily life, for instance on microwave ovens, washing machines, temperature displays and digital clocks.

Display details:

For this particular 7 Segment display, the LED's are connected to a common cathode, or ground. Each segments has its own anode. When 5v is applied to the anode of each LED it turns on. When 0V voltage is applied it turns off. In order to limit the current into each LED, a 220 Ohm resistor is needed to avoid the LED's burning out.

Technical Parameters :

Product Name : 7 Segment LED Display

Type : Common Cathode

Emitted Color : Red

Pin Count : 10;

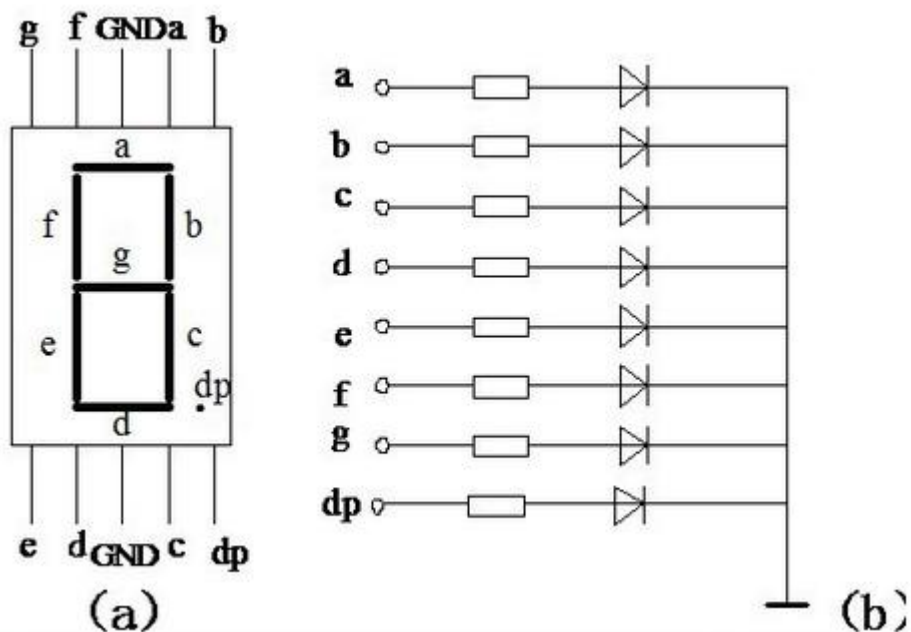
Pin Pitch : 2mm/0.08 inch

Material : Plastic, Metal;

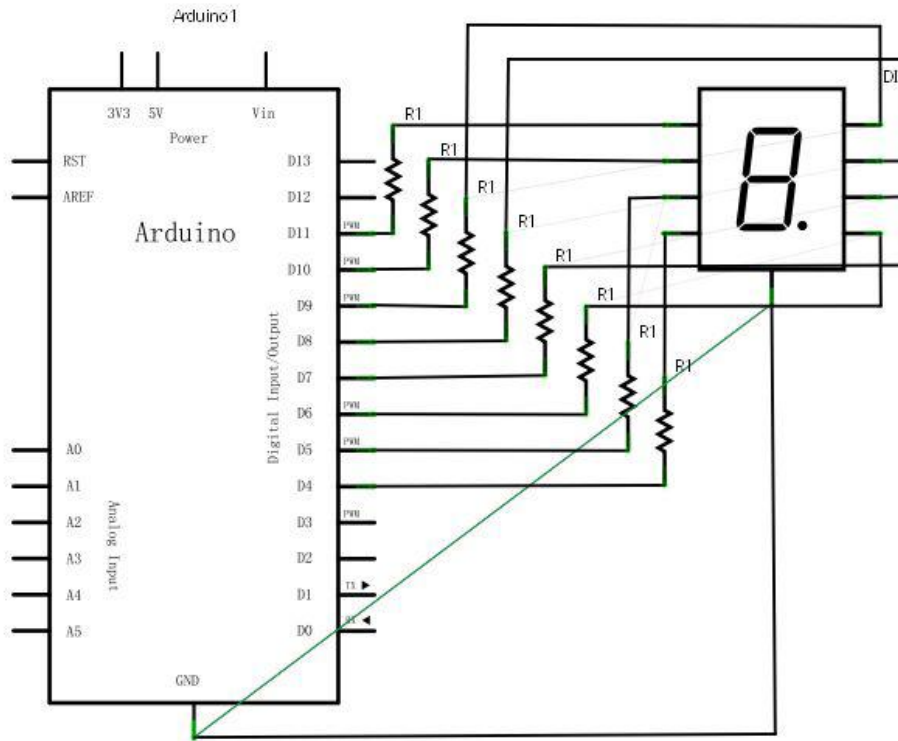
Color : Black, White

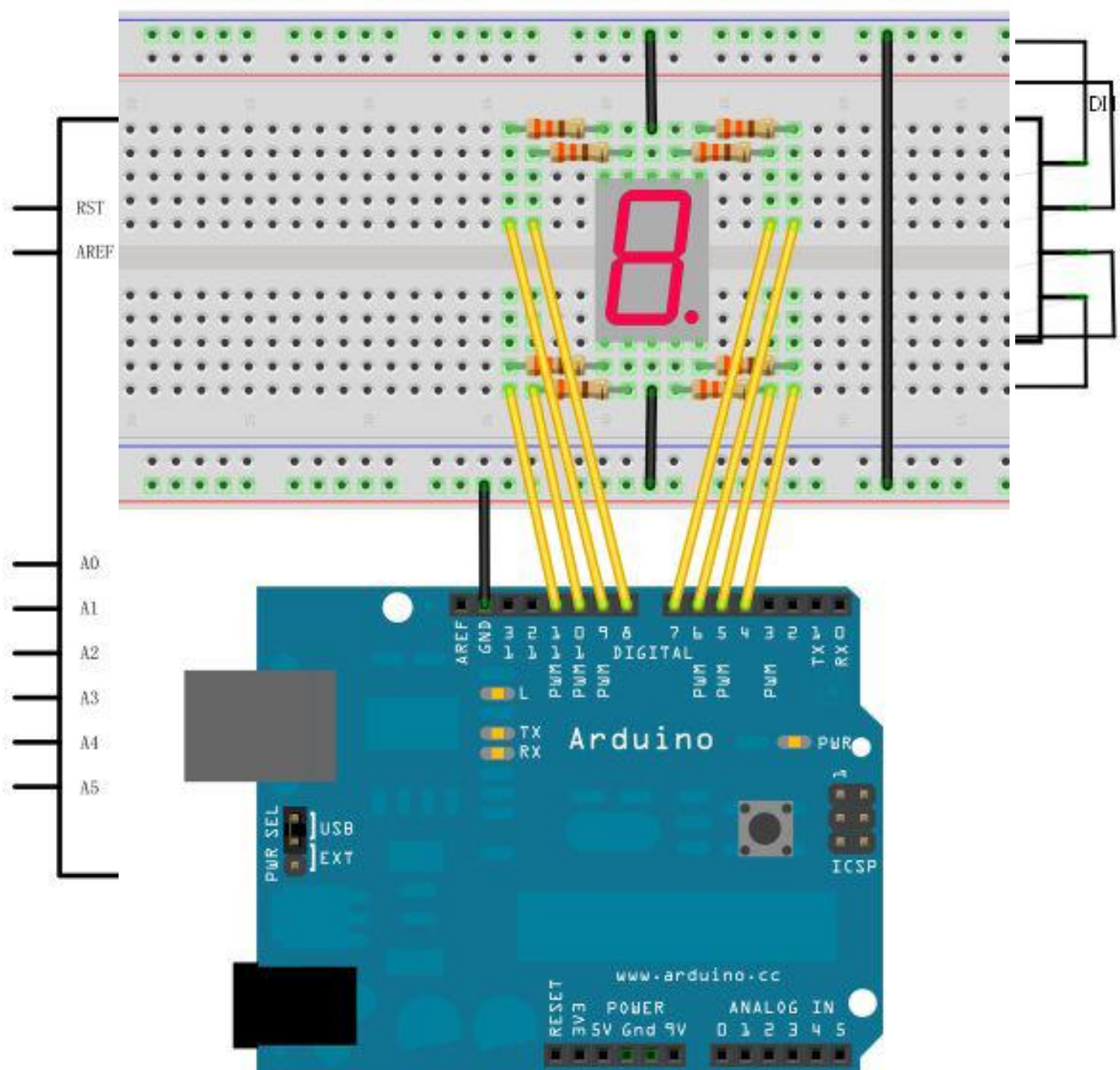
Net Weight : 38g;

Display Circuitry and Layout:



Wiring diagram :





Example code :

```
//Set pin control all digital IO
```

```
int a=7;//Definition of digital interface 7 connected a segment digital tube
```

```
int b=6;// Definition of digital interface 6 connected B segment digital tube
```

```
int c=5;// Definition of digital interface 5 connected C segment digital tube
int d=10;// Definition of digital interface 10 connected D segment digital tube
int e=11;// Definition of digital interface 11 connected e segment digital tube
int f=8;// Definition of digital interface 8 connected f segment digital tube
int g=9;// Definition of digital interface 9 connected g segment digital tube
int dp=4;// Definition of digital interface 4 connected DP segment digital tube
void digital_0(void) //Display number 5
{
unsigned char j;
digitalWrite(a,HIGH);
digitalWrite(b,HIGH);
digitalWrite(c,HIGH);
digitalWrite(d,HIGH);
digitalWrite(e,HIGH);
digitalWrite(f,HIGH);
digitalWrite(g,LOW);
digitalWrite(dp,LOW);
}
void digital_1(void) //Display number 1
{
unsigned char j;
digitalWrite(c,HIGH);//Digital interface to the 5 pin high, lit C segment
```

```
digitalWrite(b,HIGH);//Light B segment
for(j=7;j<=11;j++)//Extinguish the rest
digitalWrite(j,LOW);
digitalWrite(dp,LOW);//Put out the DP segment of the decimal point
}
void digital_2(void) //Display number 2
{
unsigned char j;
digitalWrite(b,HIGH);
digitalWrite(a,HIGH);
for(j=9;j<=11;j++)
digitalWrite(j,HIGH);
digitalWrite(dp,LOW);
digitalWrite(c,LOW);
digitalWrite(f,LOW);
}
void digital_3(void) //Display number3
{
digitalWrite(g,HIGH);
digitalWrite(a,HIGH);
digitalWrite(b,HIGH);
digitalWrite(c,HIGH);
```

```
digitalWrite(d,HIGH);
digitalWrite(dp,LOW);
digitalWrite(f,LOW);
digitalWrite(e,LOW);
}
void digital_4(void) //Display number 4
{
digitalWrite(c,HIGH);
digitalWrite(b,HIGH);
digitalWrite(f,HIGH);
digitalWrite(g,HIGH);
digitalWrite(dp,LOW);
digitalWrite(a,LOW);
digitalWrite(e,LOW);
digitalWrite(d,LOW);
}
void digital_5(void) //Display number 5
{
unsigned char j;
digitalWrite(a,HIGH);
digitalWrite(b, LOW);
digitalWrite(c,HIGH);
```

```
digitalWrite(d,HIGH);
digitalWrite(e, LOW);
digitalWrite(f,HIGH);
digitalWrite(g,HIGH);
digitalWrite(dp,LOW);
}
void digital_6(void) //Display number 6
{
unsigned char j;
for(j=7;j<=11;j++)
digitalWrite(j,HIGH);
digitalWrite(c,HIGH);
digitalWrite(dp,LOW);
digitalWrite(b,LOW);
}
void digital_7(void) //Display number7
{
unsigned char j;
for(j=5;j<=7;j++)
digitalWrite(j,HIGH);
digitalWrite(dp,LOW);
for(j=8;j<=11;j++)
```

```
digitalWrite(j,LOW);
}

void digital_8(void) //Display number 8
{
unsigned char j;
for(j=5;j<=11;j++)
digitalWrite(j,HIGH);
digitalWrite(dp,LOW);
}

void digital_9(void) //Display number 5
{
unsigned char j;
digitalWrite(a,HIGH);
digitalWrite(b,HIGH);
digitalWrite(c,HIGH);
digitalWrite(d,HIGH);
digitalWrite(e, LOW);
digitalWrite(f,HIGH);
digitalWrite(g,HIGH);
digitalWrite(dp,LOW);
}

void setup()
```

```
{  
int i;//defined variable  
for(i=4;i<=11;i++)  
pinMode(i,OUTPUT);//Set the 11 to 4 pin for the output mode  
}  
void loop()  
{  
while(1)  
{  
digital_0();//Display number 1  
delay(1000);//delay 1s  
digital_1();//Display number 1  
delay(1000);//delay 1s  
digital_2();//Display number2  
delay(1000); //delay 1s  
digital_3();//Display number3  
delay(1000); //delay 1s  
digital_4();//Display number 4  
delay(1000); //delay 1s  
digital_5();//Display number 5  
delay(1000); //delay 1s  
digital_6();//Display number 6
```

```
delay(1000); //delay 1s
digital_7();//Display number7
delay(1000); //delay 1s
digital_8();//Display number 8
delay(1000); //delay 1s
digital_9();//Display number 9
delay(1000); //delay 1s
}
}
```

What you should see: Display shows the numbers 0-9 in a cycle.

