Heart-shaped display experiment

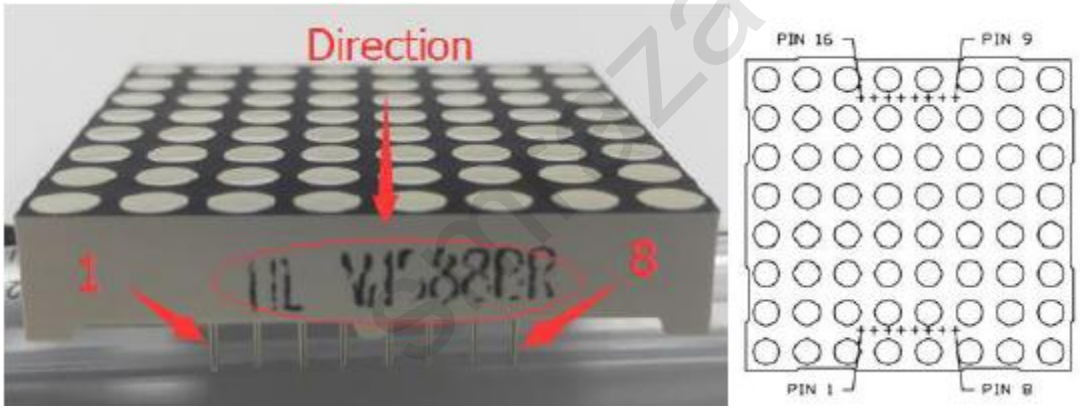
Overview

This experiment using 8*8 dot matrix display a beating heart animation.

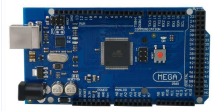
Specification

Please view 1588 ABxx.pdf.
Path: \Public_materials\Datasheet\1588 ABxx.pdf

Pin definition

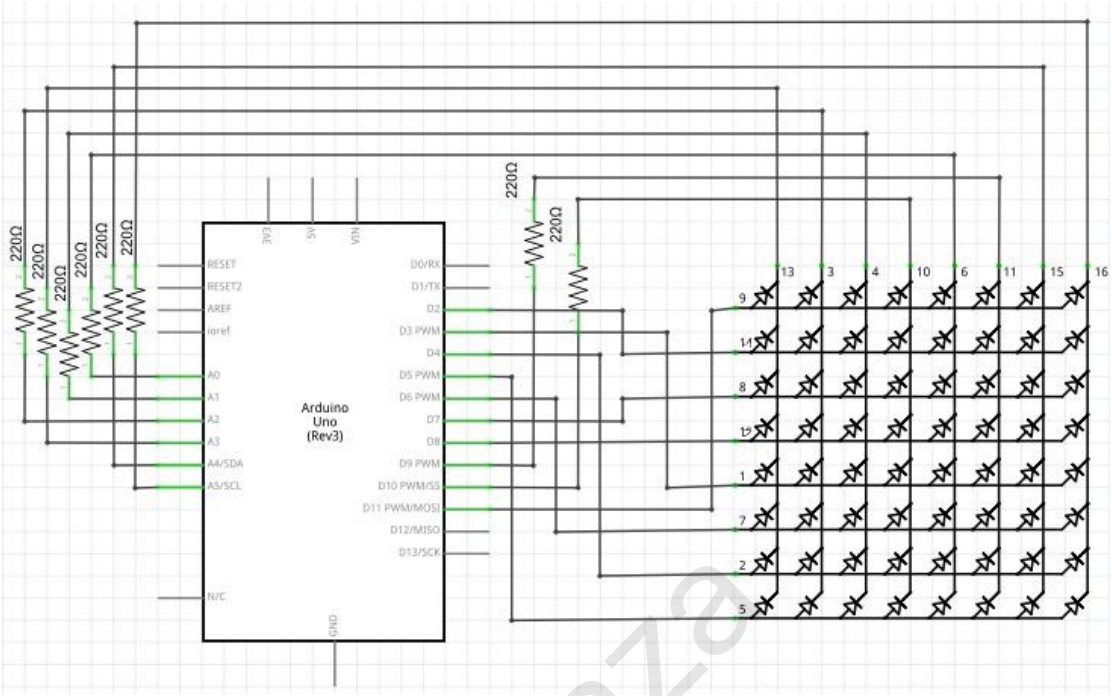


Hardware required

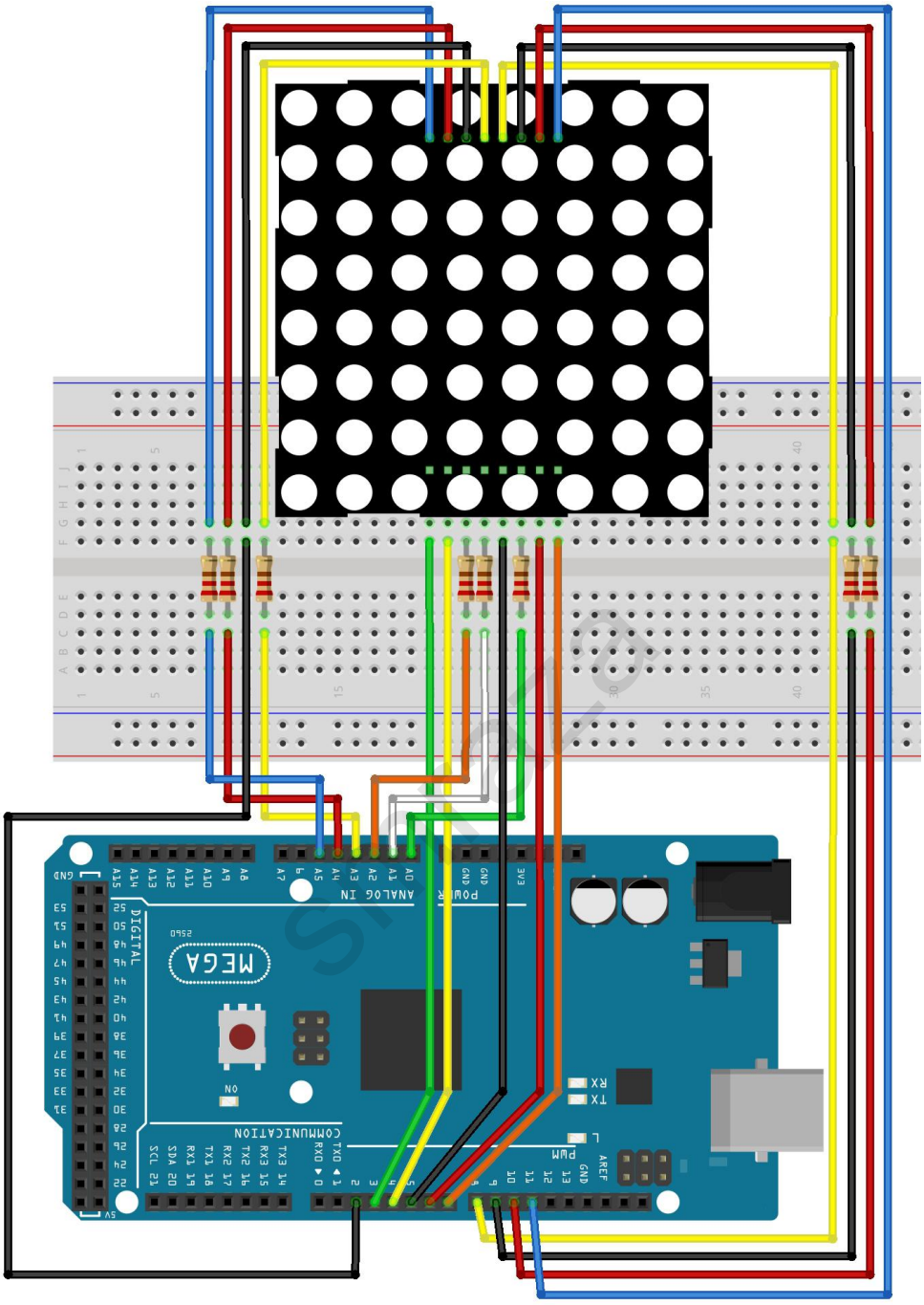
Material diagram	Material name	Number
	8*8 Dot-matrix Display	1
	220/330Ω resistor	8
	USB Cable	1
	MEGA 2560	1
	Breadboard	1
	Jumper wires	Several

Connection

Schematic



Connection diagram



Connection:

Aatrix Display	**Arduino**
pin1	->D3
pin2	->D4
pin3	->A2
pin4	->A1
pin5	->D5
pin6	->A0
pin7	->D6
pin8	->D7
pin9	->D11
pin10	->D10
pin11	->D9
pin12	->D8
pin13	->A3
pin14	->D2
pin15	->A4
pin16	->A5

Note： Some pin ports need connection resistance.

Sample code

Note: sample code under the **Sample code** folder.

```
#define H1 11
#define H2 2
#define H3 7
#define H4 8
#define H5 3
#define H6 6
#define H7 4
#define H8 5


#define L1 A3
#define L2 A2
#define L3 A1
#define L4 10
#define L5 A0
#define L6 9
#define L7 A4
#define L8 A5

unsigned char table1[8][8] =
{
    0,0,0,0,0,0,0,0,
    0,1,1,0,0,1,1,0,
    1,1,1,1,1,1,1,1,
    1,1,1,1,1,1,1,1,
    1,1,1,1,1,1,1,1,
    0,1,1,1,1,1,1,0,
    0,0,1,1,1,1,0,0,
    0,0,0,1,1,0,0,0,
};

unsigned char table2[8][8] =
{
    0,0,0,0,0,0,0,0,
    0,0,0,0,0,0,0,0,
    0,0,1,0,0,1,0,0,
    0,1,1,1,1,1,1,0,
    0,1,1,1,1,1,1,0,
    0,0,1,1,1,1,0,0,
    0,0,0,1,1,0,0,0,
```

```
    0,0,0,0,0,0,0,0,
};
unsigned char table3[8][8] =
{
    0,0,0,0,0,0,0,0,
    0,0,0,0,1,1,1,0,
    0,0,0,0,0,1,1,0,
    0,0,1,0,1,0,1,0,
    0,0,0,0,0,0,0,0,
    0,1,0,0,0,1,0,0,
    0,0,1,1,1,0,0,0,
    0,0,0,0,0,0,0,0,
};
unsigned char table4[8][8] =
{
    0,0,1,1,1,1,0,0,
    0,1,0,0,0,0,1,0,
    1,0,1,0,0,1,0,1,
    1,0,0,0,0,0,0,1,
    1,0,1,0,0,1,0,1,
    1,0,0,1,1,0,0,1,
    0,1,0,0,0,0,1,0,
    0,0,1,1,1,1,0,0,
};


void setup()
{
    pinMode(H1,OUTPUT);
    pinMode(H2,OUTPUT);
    pinMode(H3,OUTPUT);
    pinMode(H4,OUTPUT);
    pinMode(H5,OUTPUT);
    pinMode(H6,OUTPUT);
    pinMode(H7,OUTPUT);
    pinMode(H8,OUTPUT);


    pinMode(L1,OUTPUT);
    pinMode(L2,OUTPUT);
    pinMode(L3,OUTPUT);
    pinMode(L4,OUTPUT);
    pinMode(L5,OUTPUT);
    pinMode(L6,OUTPUT);
```

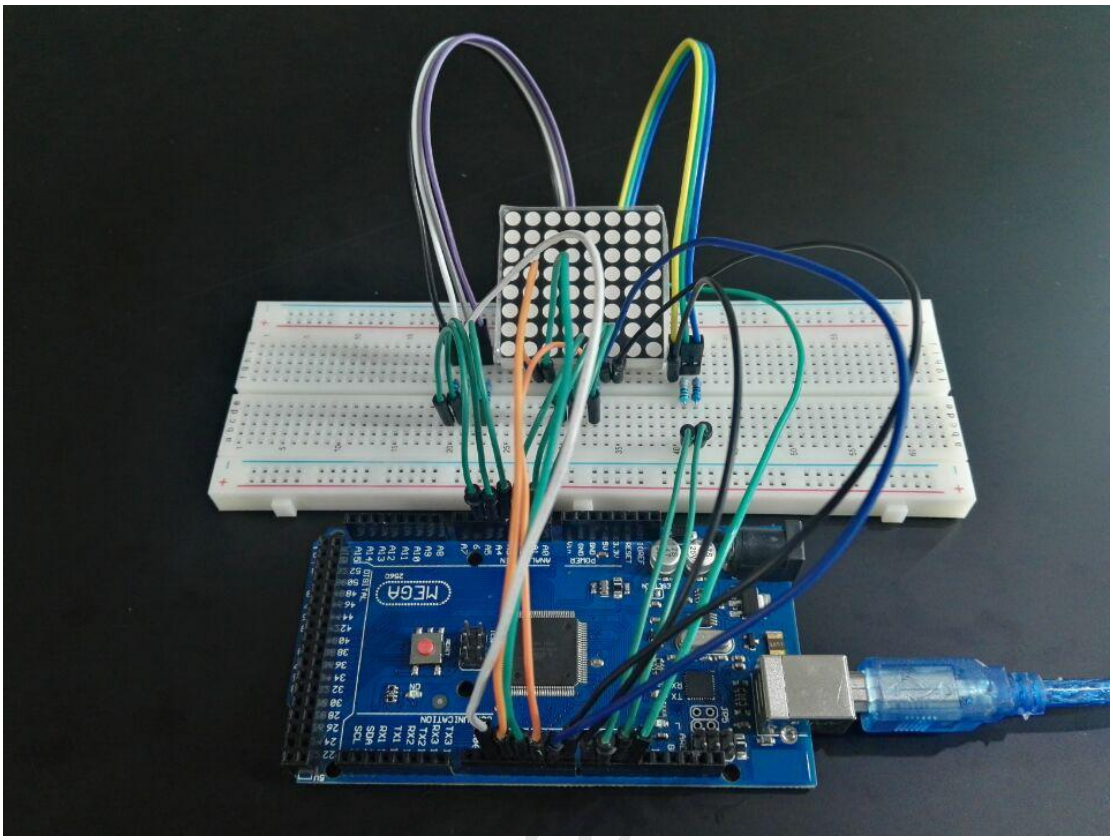
```
    pinMode(L7,OUTPUT);
    pinMode(L8,OUTPUT);
}
void flash() //Refresh
{
    digitalWrite(L1,LOW);
    digitalWrite(L8,LOW);
    for (int a=255;a>=0;a--)
    {
        analogWrite(H1,a);
        analogWrite(H8,a);
        delay(20);
    }
    for (int a=0;a<=255;a++)
    {
        analogWrite(H1,a);
        analogWrite(H8,a);
        delay(20);
    }
}


void loop()
{
    for(int i = 0 ; i < 100 ; i++)                    //Cycle 100 times
    {
        Display(table1); //Animation 1: Heart-shaped display(big)
    }
    for(int i = 0 ; i < 50 ; i++)                     //Cycle 50 times
    {
        Display(table2); //Animation 2: Heart-shaped display(small)
    }
    flash();
}

void Display(unsigned char dat[8][8])
{
    digitalWrite(L1,LOW);
    digitalWrite(H1,dat[0][0]);
    digitalWrite(H2,dat[1][0]);
    digitalWrite(H3,dat[2][0]);
    digitalWrite(H4,dat[3][0]);
    digitalWrite(H5,dat[4][0]);
    digitalWrite(H6,dat[5][0]);
```

```
digitalWrite(H7,dat[6][0]);
digitalWrite(H8,dat[7][0]);
delay(1);          //Wait LED is lit.
Clear();           //Clear shadow


digitalWrite(L2,LOW);      //select 2th row
digitalWrite(H1,dat[0][1]);
digitalWrite(H2,dat[1][1]);
digitalWrite(H3,dat[2][1]);
digitalWrite(H4,dat[3][1]);
digitalWrite(H5,dat[4][1]);
digitalWrite(H6,dat[5][1]);
digitalWrite(H7,dat[6][1]);
digitalWrite(H8,dat[7][1]);
delay(1);
Clear();

digitalWrite(L3,LOW);
digitalWrite(H1,dat[0][2]);
digitalWrite(H2,dat[1][2]);
digitalWrite(H3,dat[2][2]);
digitalWrite(H4,dat[3][2]);
digitalWrite(H5,dat[4][2]);
digitalWrite(H6,dat[5][2]);
digitalWrite(H7,dat[6][2]);
digitalWrite(H8,dat[7][2]);
delay(1);
Clear();

digitalWrite(L4,LOW);      //select 4th row
digitalWrite(H1,dat[0][3]);
digitalWrite(H2,dat[1][3]);
digitalWrite(H3,dat[2][3]);
digitalWrite(H4,dat[3][3]);
digitalWrite(H5,dat[4][3]);
digitalWrite(H6,dat[5][3]);
digitalWrite(H7,dat[6][3]);
digitalWrite(H8,dat[7][3]);
delay(1);
Clear();

digitalWrite(L5,LOW);
digitalWrite(H1,dat[0][4]);
```

```
digitalWrite(H2,dat[1][4]);
digitalWrite(H3,dat[2][4]);
digitalWrite(H4,dat[3][4]);
digitalWrite(H5,dat[4][4]);
digitalWrite(H6,dat[5][4]);
digitalWrite(H7,dat[6][4]);
digitalWrite(H8,dat[7][4]);
delay(1);
Clear();


digitalWrite(L6,LOW);
digitalWrite(H1,dat[0][5]);
digitalWrite(H2,dat[1][5]);
digitalWrite(H3,dat[2][5]);
digitalWrite(H4,dat[3][5]);
digitalWrite(H5,dat[4][5]);
digitalWrite(H6,dat[5][5]);
digitalWrite(H7,dat[6][5]);
digitalWrite(H8,dat[7][5]);
delay(1);
Clear();


digitalWrite(L7,LOW);      //select 7th row
digitalWrite(H1,dat[0][6]);
digitalWrite(H2,dat[1][6]);
digitalWrite(H3,dat[2][6]);
digitalWrite(H4,dat[3][6]);
digitalWrite(H5,dat[4][6]);
digitalWrite(H6,dat[5][6]);
digitalWrite(H7,dat[6][6]);
digitalWrite(H8,dat[7][6]);
delay(1);
Clear();

digitalWrite(L8,LOW);
digitalWrite(H1,dat[0][7]);
digitalWrite(H2,dat[1][7]);
digitalWrite(H3,dat[2][7]);
digitalWrite(H4,dat[3][7]);
digitalWrite(H5,dat[4][7]);
digitalWrite(H6,dat[5][7]);
digitalWrite(H7,dat[6][7]);
```

```
    digitalWrite(H8,dat[7][7]);
    delay(1);
    Clear();
}


void Clear() //clear display
{
    digitalWrite(H1,LOW);
    digitalWrite(H2,LOW);
    digitalWrite(H3,LOW);
    digitalWrite(H4,LOW);
    digitalWrite(H5,LOW);
    digitalWrite(H6,LOW);
    digitalWrite(H7,LOW);
    digitalWrite(H8,LOW);

    digitalWrite(L1,HIGH);
    digitalWrite(L2,HIGH);
    digitalWrite(L3,HIGH);
    digitalWrite(L4,HIGH);
    digitalWrite(L5,HIGH);
    digitalWrite(L6,HIGH);
    digitalWrite(L7,HIGH);
    digitalWrite(L8,HIGH);
}
/* By modifying the “unsigned char table1[8][8] = {}” or “unsigned char table2[8][8] = {}”
function, you can display different animation.
*/
```

Example picture



Language reference

#define
Unsigned char

Application effect

Please ensure that the connection correct, then upload the code, you will see the heart beating animation.

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* We are a leading manufacturer of electronic components for Arduino and Raspberry Pi.
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