The dot matrix that we’re going to use in this guide is a 8×8 matrix which means that it has 8 columns and 8 rows, so it contains a total of 64 LEDs

Parts required

For this guide you’ll need:

* 1x 8×8 Dot Matrix
* [Arduino UNO](https://makeradvisor.com/tools/compatible-arduino-uno-r3-board/)
* [Jumper wires](https://makeradvisor.com/tools/jumper-wires-kit-120-pieces/)

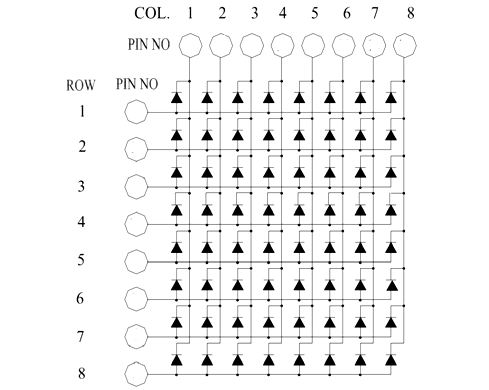
|  |  |
| --- | --- |
| **Pin Number** | **Description** |
| **NEGATIVE TERMINALS** | |
| 1 | PIN1 is taken out from 4th COLUMN |
| 2 | PIN2 is taken out from 2nd  COLUMN |
| 5 | PIN5 is taken out from 1st  COLUMN |
| 7 | PIN7 is taken out from 3rd COLUMN |
| 8 | PIN8 is taken out from 6th COLUMN |
| 9 | PIN9 is taken out from 8th COLUMN |
| 12 | PIN12 is taken out from 5th COLUMN |
| 14 | PIN14 is taken out from 7th COLUMN |
| **POSITIVE TERMINALS** | |
| 3 | PIN3 is taken out from 2nd ROW |
| 4 | PIN4 is taken out from 3rd  ROW |
| 6 | PIN6 is taken out from 5th  ROW |
| 10 | PIN10 is taken out from 4th  ROW |
| 11 | PIN11 is taken out from 6th  ROW |
| 13 | PIN13 is taken out from 1st  ROW |
| 15 | PIN15 is taken out from 7th ROW |
| 16 | PIN16 is taken out from 8th  ROW |

As given in above table any 8x8 LED matrixwill have eight positive terminals and eight negative terminals.

* Eight negative terminals are eight columns.
* Eight positive terminals are eight rows.

These 16 PINS are driven out from 64 LED segments present in the module. Those 64 segments on the module surface are the 64 LEDS arranged in matrix formation.

The internal structure of any LED matrix module will be same and is shown below.



**CODE**

// 2-dimensional array of row pin numbers:

int R[] = {2,7,A5,5,13,A4,12,A2};

// 2-dimensional array of column pin numbers:

int C[] = {6,11,10,3,A3,4,8,9};

unsigned char biglove[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 R1[8][8] =

{

1,1,1,1,1,0,0,0,

1,0,0,0,0,1,0,0,

1,0,0,0,1,0,0,0,

1,0,0,1,0,0,0,0,

1,0,1,0,0,0,0,0,

1,0,0,1,0,0,0,0,

1,0,0,0,1,0,0,0,

1,0,0,0,0,1,0,0,

};

unsigned char O[8][8] =

{

0,0,0,0,0,0,0,0,

0,1,1,1,1,1,1,0,

0,1,0,0,0,0,1,0,

0,1,0,0,0,0,1,0,

0,1,0,0,0,0,1,0,

0,1,0,0,0,0,1,0,

0,1,1,1,1,1,1,0,

0,0,0,0,0,0,0,0,

};

unsigned char Z[8][8] =

{

0,0,0,0,0,0,0,0,

0,1,1,1,1,1,1,0,

0,0,0,0,0,1,0,0,

0,0,0,0,1,0,0,0,

0,0,0,1,0,0,0,0,

0,0,1,0,0,0,0,0,

0,1,1,1,1,1,1,0,

0,0,0,0,0,0,0,0,

};

unsigned char E[8][8] =

{

0,0,0,0,0,0,0,0,

0,1,1,1,1,1,1,0,

0,1,0,0,0,0,0,0,

0,1,1,1,1,1,1,0,

0,1,0,0,0,0,0,0,

0,1,1,1,1,1,1,0,

0,0,0,0,0,0,0,0,

0,0,0,0,0,0,0,0,

};

unsigned char smalllove[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 B[8][8] =

{

0,0,0,0,0,0,0,0,

0,1,1,1,1,1,1,0,

0,1,0,0,0,0,1,0,

0,1,0,1,1,1,1,0,

0,1,0,1,1,1,1,0,

0,1,0,0,0,0,1,0,

0,1,1,1,1,1,1,0,

0,0,0,0,0,0,0,0,

};

unsigned char U[8][8] =

{

0,0,0,0,0,0,0,0,

0,0,1,0,0,1,0,0,

0,0,1,0,0,1,0,0,

0,0,1,0,0,1,0,0,

0,0,1,0,0,1,0,0,

0,0,1,1,1,1,0,0,

0,0,0,0,0,0,0,0,

0,0,0,0,0,0,0,0,

};

unsigned char G[8][8] =

{

0,0,0,0,0,0,0,0,

0,1,1,1,1,1,1,0,

0,1,0,0,0,0,0,0,

0,1,0,0,0,0,0,0,

0,1,0,1,1,1,1,0,

0,1,0,0,0,0,1,0,

0,1,1,1,1,1,1,0,

0,0,0,0,0,0,0,0,

};

unsigned char S[8][8] =

{

0,0,0,0,0,0,0,0,

0,1,1,1,1,1,1,0,

0,1,0,0,0,0,0,0,

0,1,1,1,1,1,1,0,

0,0,0,0,0,0,1,0,

0,1,1,1,1,1,1,0,

0,0,0,0,0,0,0,0,

0,0,0,0,0,0,0,0,

};

void setup()

{

// iterate over the pins:

for(int i = 0;i<8;i++)

// initialize the output pins:

{

pinMode(R[i],OUTPUT);

pinMode(C[i],OUTPUT);

}

}

void loop()

{

for(int i = 0 ; i < 100 ; i++) //Loop0 di000000000000000000splay 100 times

{

Display(Z); //Display "Z"

}

for(int i = 0 ; i < 100 ; i++) //Loop display 100 times

{

Display(E); //Display "E"

}

for(int i = 0 ; i < 100 ; i++) //Loop display 100 times

{

Display(R1); //Display "R"

}

for(int i = 0 ; i < 100 ; i++) //Loop display 100 times

{

Display(O); //Display "O"

}

for(int i = 0 ; i < 100 ; i++) //Loop display 100 times

{

Display(B); //Display "B"

}

for(int i = 0 ; i < 100 ; i++) //Loop display 100 times

{

Display(U); //Display "U"

}

for(int i = 0 ; i < 100 ; i++) //Loop display 100 times

{

Display(G); //Display "G"

}

for(int i = 0 ; i < 100 ; i++) //Loop display 100 times

{

Display(S); //Display "S"

}

for(int i = 0 ; i < 50 ; i++) //Loop display 50 times

{

Display(biglove); //Display the "Big Heart"

}

for(int i = 0 ; i < 100 ; i++) //Loop display 100 times

{

Display(smalllove); //Display the "Small Heart"

}

}

void Display(unsigned char dat[8][8])

{

for(int c = 0; c<8;c++)

{

digitalWrite(C[c],LOW);//use thr column

//loop

for(int r = 0;r<8;r++)

{

digitalWrite(R[r],dat[r][c]);

}

delay(1);

Clear(); //Remove empty display light

}

}

void Clear()

{

for(int i = 0;i<8;i++)

{

digitalWrite(R[i],LOW);

digitalWrite(C[i],HIGH);

}

}