Experiment no: 06

Name of the experiment: ~~Dot~~ Write a program for dot matrix display interfacing with PIC microcontroller.

Objective(s):

(i) To leern matrix display interfacing with PIC16F877A

(ii) To design and understanding circuit diagram.

Theory: A dot matrix display is a display device which contain light emitting diode aligned matrix Dot matrix displays are used in application where symbol graphic, characteristics, alphabet number are needed to be displayed in static as well as scrolling motion.

A typical dot matrix display is show below

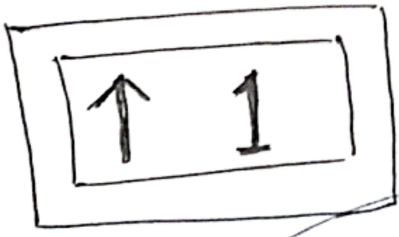

fig: A typical dot matrix display is using in Lift.

Types of dot matrix: Dot matrix displays is manufactured in various dimensions like 5×7, 8×8, 16×8, 32×8, 64×64 and 188×64 where the number represent LED's is rows and columns:

Construction of Matrix displays: In dot matrix display. Multiple LED's are ~~weired~~ wired together in rows and columns, The matrix pattern is made either in row and column. anode pattern. In two anode column pattern the entire row is anode which all column serve cathod.

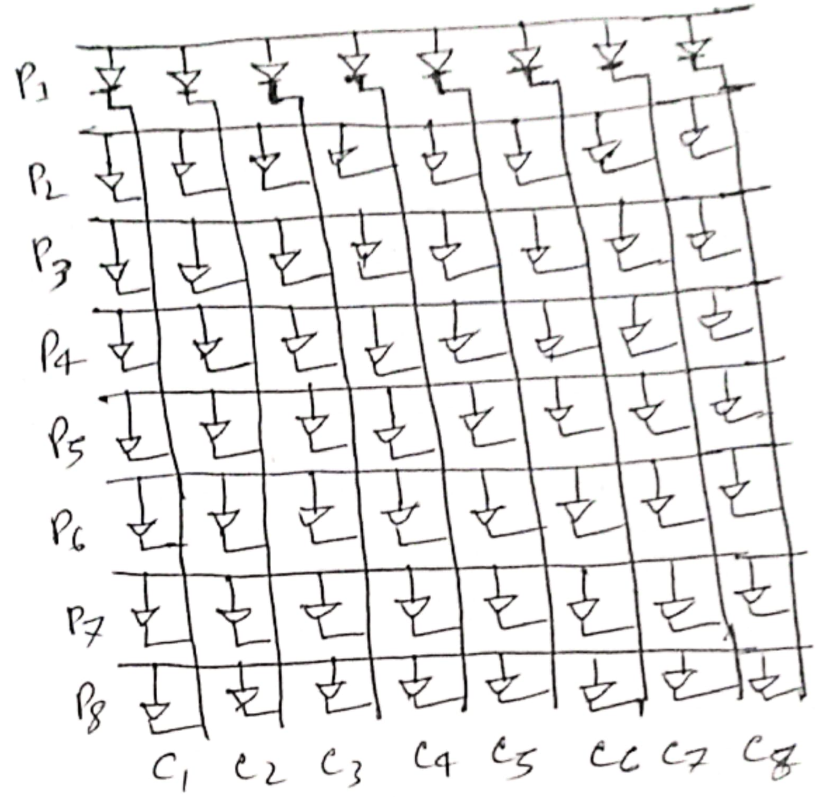

Fig: construction of Dot matrix display.

In Dot Matrix Display each LED can be construct individually by controlling the current through each pair of column and row.

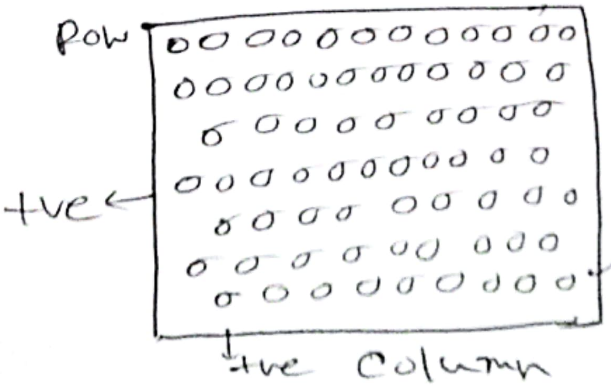

fig: working mechanism of dot matrix display.

How to generate code for Dot matrix Display:

	1	2	3	4	5	6	7	8		HEX
1	0	1	1	0	0	1	1	0	0b000000000	0x00
2	0	1	1	0	0	1	1	0	0b11111111	0xff
3	0	1	1	0	0	1	1	0	0b111111111	0xff
4	0	1	1	1	1	1	1	0	0b001100	0x18
5	0	1	1	1	1	1	1	0	0b001100	0x18
6	0	1	1	0	0	1	1	0	0b111111111	0xff
7	0	1	1	0	0	1	1	0	0b111111111	0xff
8	0	1	1	0	0	1	1	0	0b0000000000	0x00

Apparatus required: PIC16F877A, crystal, capacitor, resistor, 8X8 dot matrix display, Darlington transistor array.

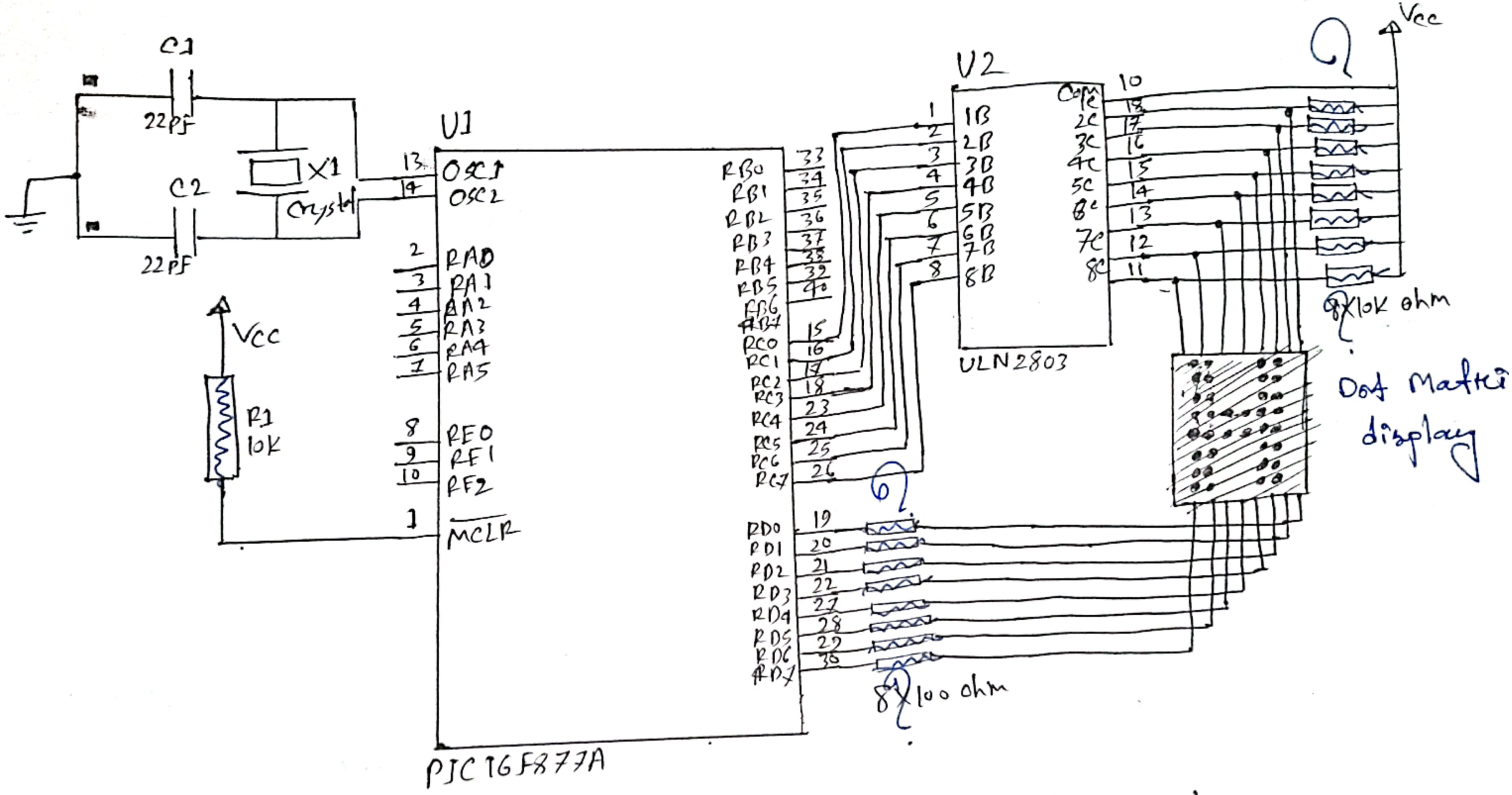

figure: proteus simulation of dot matrix LED Display.

source code:

```
void MSDelay (unsigned char time)
{
unsigned char y, z;
for (y=0; y<time; y++)
  {
   for
    (x=0; x<20; x+i);
  }
 void main ()
  {
   TRISC = 0X00;
   TRISC = 0X00;
   while(0)
    {
     PORTD = 0X80;
     PORTC = 0X00;
     MSDelay (10);
     PORTD = 0X40;
     PORTC = 0Xff;
     MSDelay (10);
     PORTD = 0X20;
     MSDelay ~~= 0Xff~~(10);
     PORTD = 0X18;
     MSDelay (10);
     PORTC = 0Xff;
     PORTD = 0X22;
     MSDelay (-10);
     PORTD= 0X01.
     PMSDelay (10);
    }
  }
```