Task2: -

// Prg10a: Add two 8 bit numbers and display in LCD

// RS-> RC3

// EN-> RC0

// LCD data lines-> PORTD(0 to 7)

void Init(void);

void LCD\_Command(unsigned char);

void LCD\_Data(unsigned char);

void LCDOutput(unsigned int);

void Delay(unsigned int);

unsigned char k[10],x;

unsigned char n,m;

unsigned int hivalue,lovalue,adcv;

long value;

char Lowstring[] = "Low Voltage";

char Highstring[] = "High Voltage";

char \*ptr;

void update\_lcd(unsigned int num)

{

LCD\_Command(0x80); //Initialize cursor to first Position

LCDOutput(num);

if(num > 105)

{

ptr = (char \*)Highstring;

}

else

{

ptr = (char \*)Lowstring;

}

LCD\_Command(0xC0);

while(\*ptr != '\0')

LCD\_Data(\*ptr++);

Delay(100);

}

void main()

{

Init();

ADCON0=0x00; // sampling freq=osc\_freq/2,ADC off initially

ADCON0=0x81; //configure the A/D control registers

ADCON1=0x8E;

while(1)

{

ADCON0|=0X04; //start ADC conversion

while(ADCON0&0X04); //wait for conversion to complete

lovalue=ADRESL; //read the low 8 bit value

hivalue=ADRESH; //read the upper 8 bit value

value=((unsigned int)hivalue<<8)+(unsigned int)lovalue;

adcv = (value\*150)/1023 ;

update\_lcd(adcv);

}

}

/\*end main program\*/

void Init(void)

{

TRISD = 0x00; //Initialize the PORTD as output

TRISE = 0x00; //Initialise the PORT C as output

TRISA = 0x01;

LCD\_Command(0x38); //Initialize the 2 lines and 5\*7 Matrix LCD

Delay(100);

LCD\_Command(0x38);

Delay(100);

LCD\_Command(0x38);

Delay(100);

LCD\_Command(0x38);

Delay(100);

LCD\_Command(0x06); //Increment cursor (shift cursor to right)

Delay(100);

LCD\_Command(0x0C); //Display on,cursor off

Delay(100);

LCD\_Command(0x01); //clear display screen

Delay(100);

}

/\*define the output function\*/

/\*BCD conversion\*/

void LCDOutput(unsigned int num)

{

unsigned int j;

unsigned int i;

unsigned int tdata;

tdata = num ;

if(tdata == 0)

{

LCD\_Data(0x30); //assign formal argument to other variable

}

else

{

j=0;

while (tdata != 0)

{

i = tdata - (tdata / 10) \* 10;

k[j] = i+0x30;

tdata = tdata / 10;

j++;

}

k[j] = '\0';

//LCD\_Data(k[3]);

LCD\_Data(k[2]);

LCD\_Data(k[1]);

LCD\_Data(0x2E);

LCD\_Data(k[0]);

LCD\_Data('V');

}

}

void LCD\_Command(unsigned char i)

{

PORTE&=~0x04; // RS=0

PORTD=i;

PORTE |=0x02; // RS=0,R/W=0,EN=1

PORTE&= ~0x02; // RS=0,R/W=0,EN=0

Delay(100);

}

void LCD\_Data(char i)

{

PORTE|=0x04; //RS=1

PORTD=i; //Assign the value to PORTD to display

PORTE|=0x02; // RS=1,R/W=0,EN=1

PORTE&=~0x02; // RS=1,R/W=0,EN=0

Delay(100);

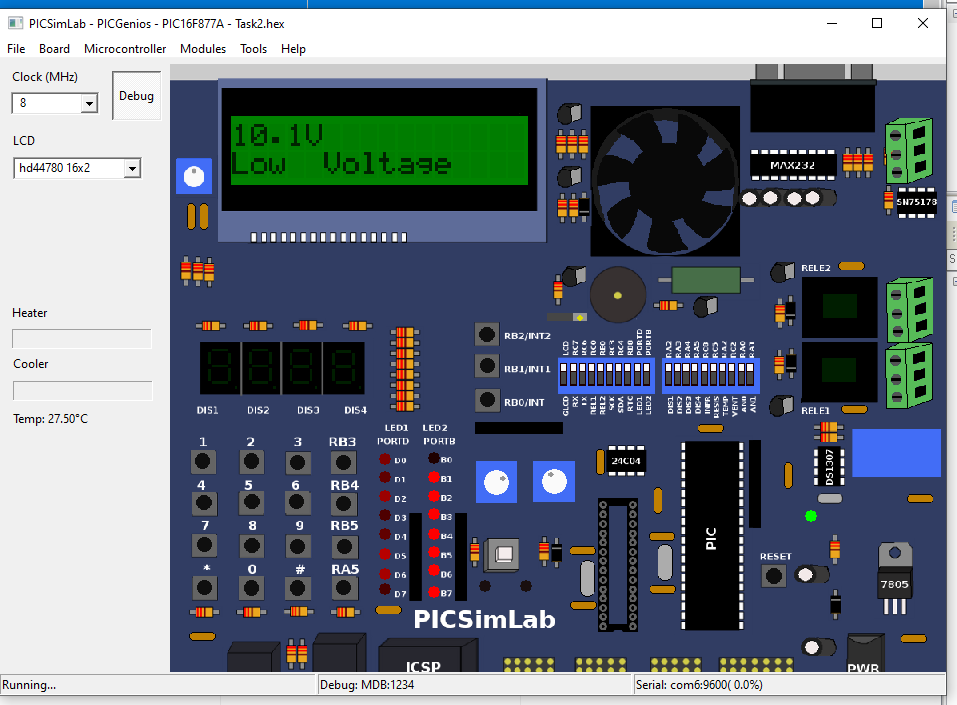
}

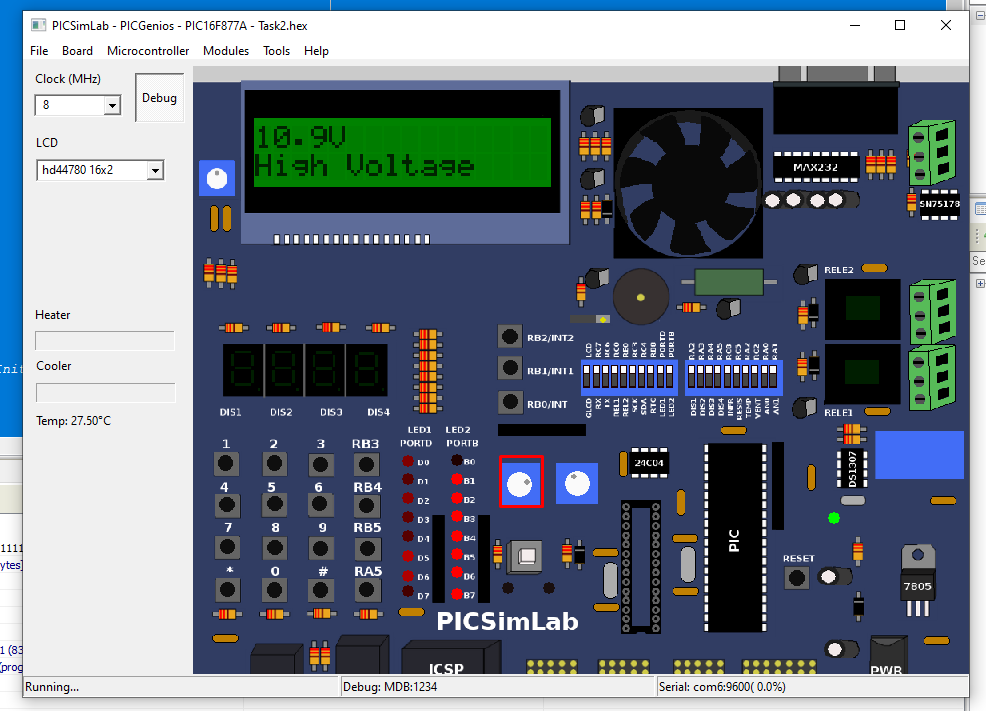
void Delay(unsigned int DelayCount)

{

while(--DelayCount);

}

PICSIMLAB - Output



Task 3

void main()

{

unsigned int i,j;

TRISD = 0x00; //7 Segment Display output

TRISA = 0x00; //Transistor Multiplexer output

while(1)

{

for(i =0; i < 10; i++)

{

PORTD = digits[i];

for(j= 0; j <4 ; j++)

{

PORTA = 0x20 >> j;

Delay\_ms(30);

}

Delay\_ms(50);

}

}

}

