TENET TECHNETRONICS

"Simplifying Technology for Life"

2016

Interfacing LCD with

MPLAB Xpress Evaluation Board

Siva A

Tenet Technetronics

Contents

Introduction

MPLAB Xpress IDE cost free development platform. It's cloud Based IDE available from microchip supporting PIC-based microcontrollers. The platform is comprised of code editor, build automation tools, debugger, code configurator. MPLAB Xpress IDE is an end-to-end solution enabling engineers to develop their applications from initial evaluation to final production.

Component Requirement

➢ **Hardware:**

  o MPLAB Xpress evaluation tool

  o LCD

➢ **Software:**

  o MPLAB Xpress IDE

Procedure

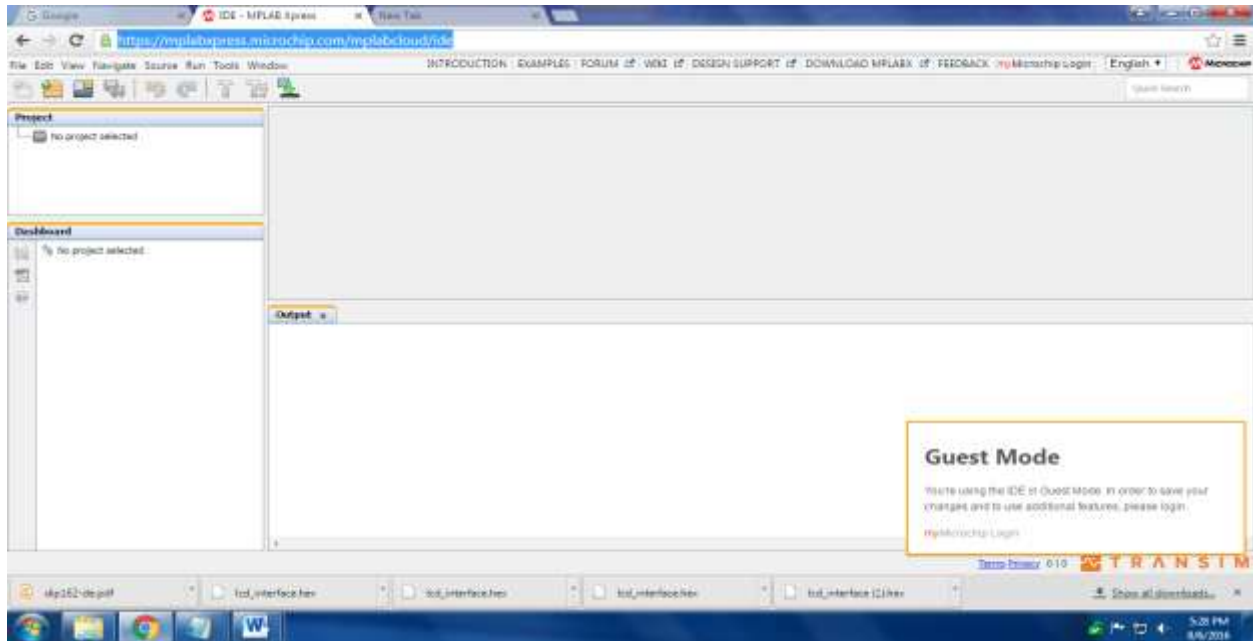**Step 1:** Open your Browser and go to following link

https://mplabxpress.microchip.com/mplabcloud/ide

Figure 1: MPLAB Xpress IDE main window

#9/3, Shree Lakshmi Complex, 2nd Floor, Opp. To Vivekananda Park, Girinagar, Bangalore - 560085.
Ph. No: 080-26722726., Website: www.tenettech.com, Email: info@tenettech.com

Step 2: Start creating our new project. Go to **File** >> **New Project.** Select **microchip embedded** as well as **standalone project** then click **Next.**
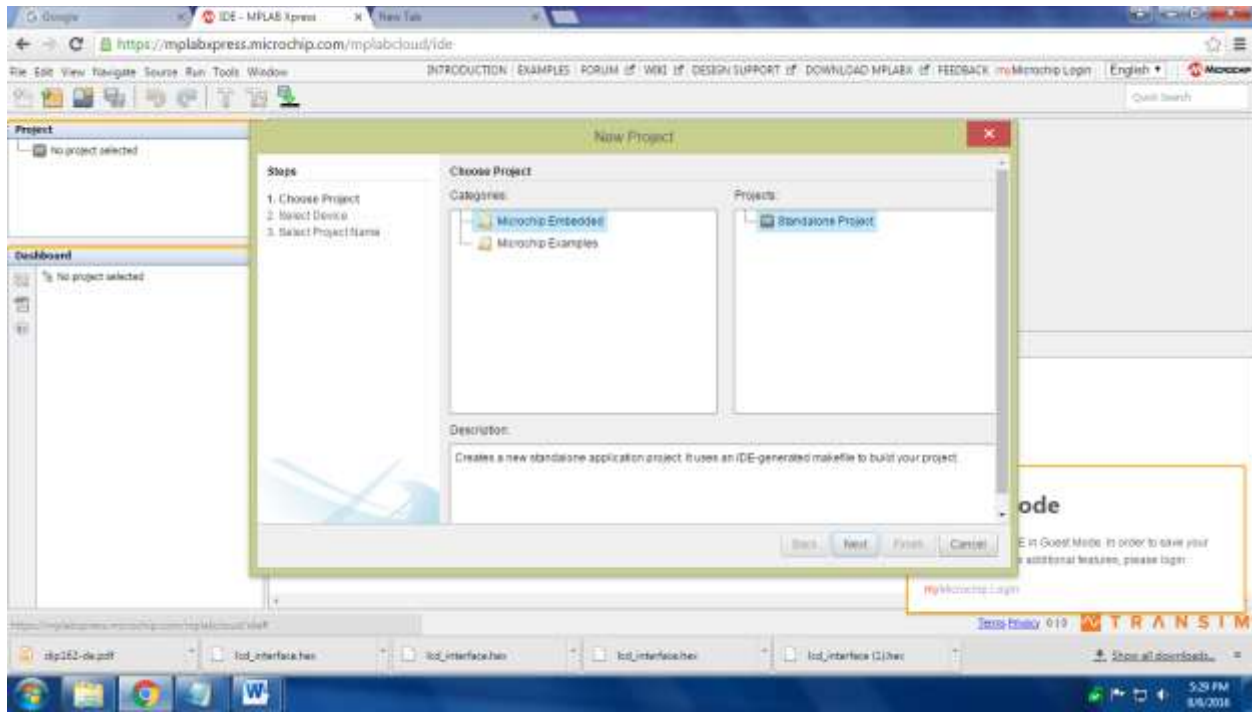

Figure 2: Open new project

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Step 3: Select device **PIC16F18855**, and click **next .**

Figure 3: Select Device

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Ph. No: 080-26722726., Website: www.tenettech.com, Email: info@tenettech.com
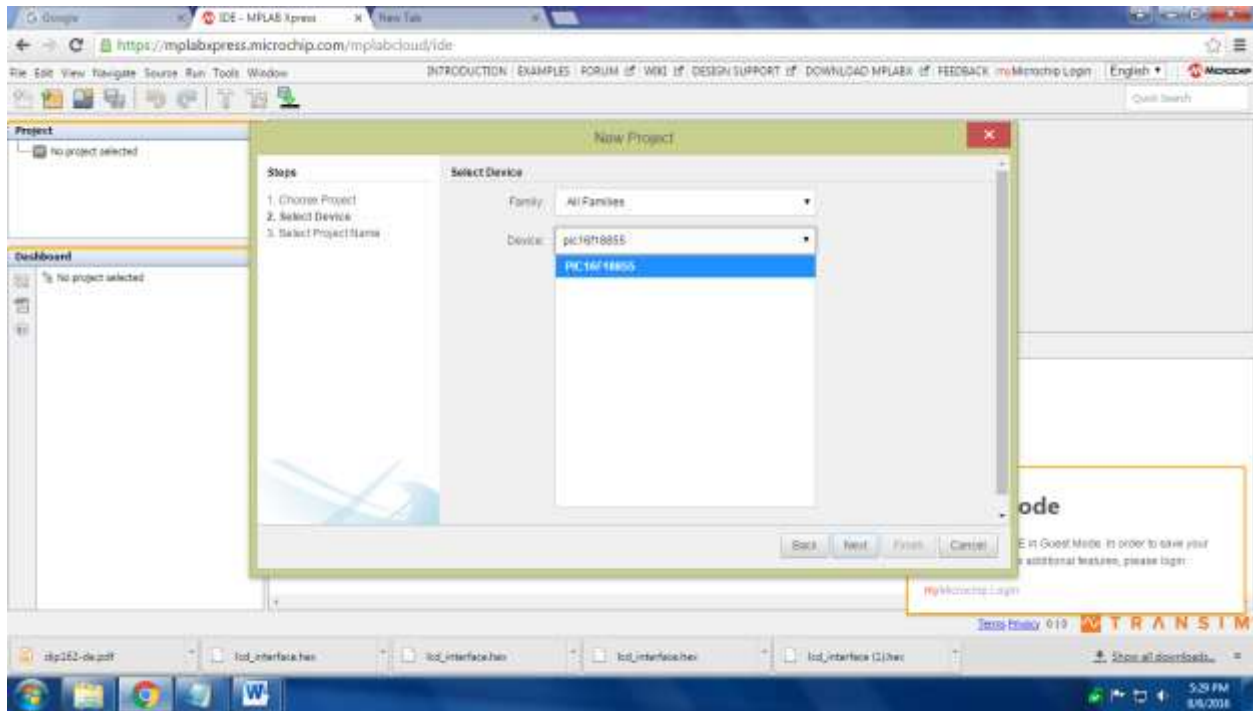
Step 4: Then give project name and click finish**.**

Figure 4: Give project name

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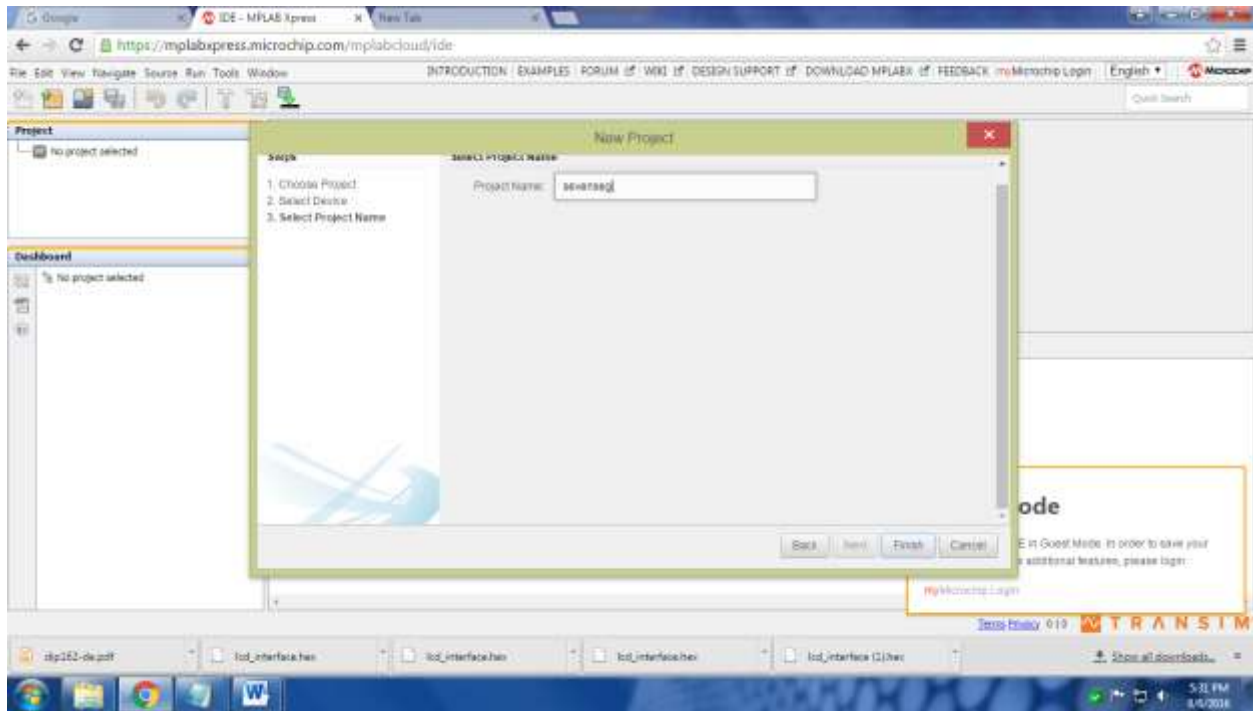**Ph. No: 080-26722726., Website: www.tenettech.com, Email: info@tenettech.com**

Step 5: Now choose MPLAB Xpress code configurator if it's not present in your Device please
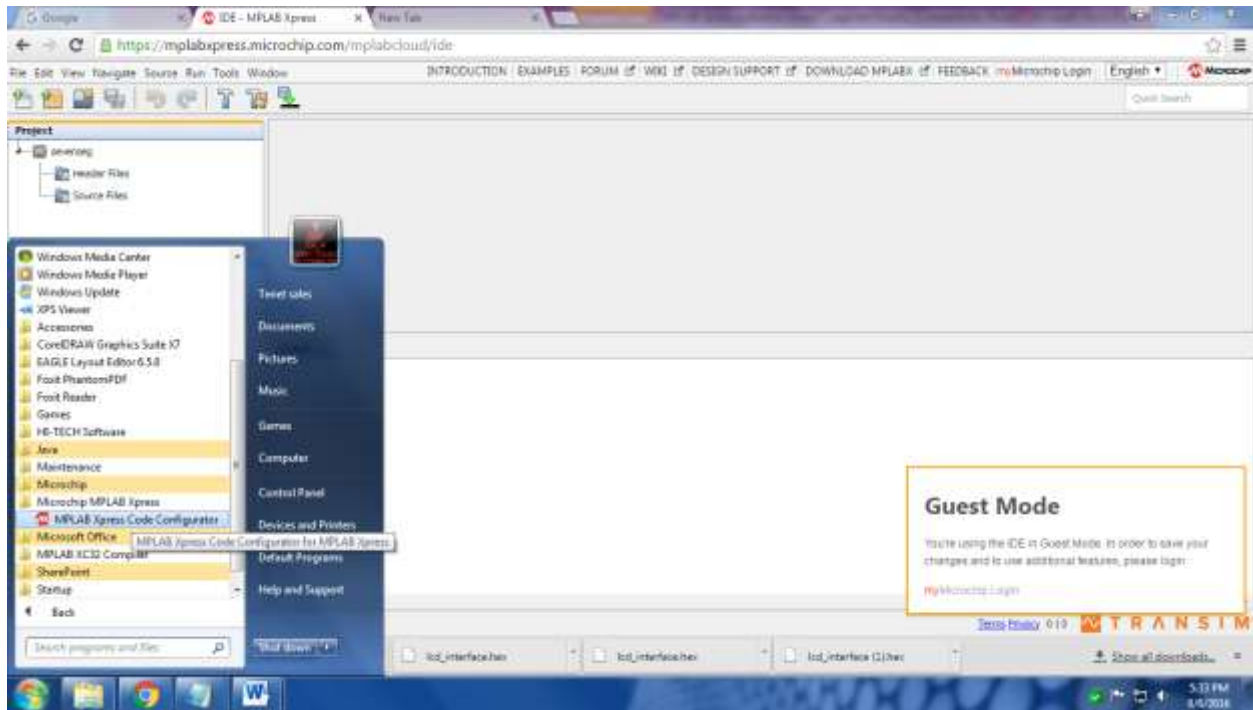
Download and install

Figure 5: Select MPLAB Xpress code configurator

Step 6: Now we can see our MPLAB Xpress configuration window and select system module in MPLAB Xpress configuration window.
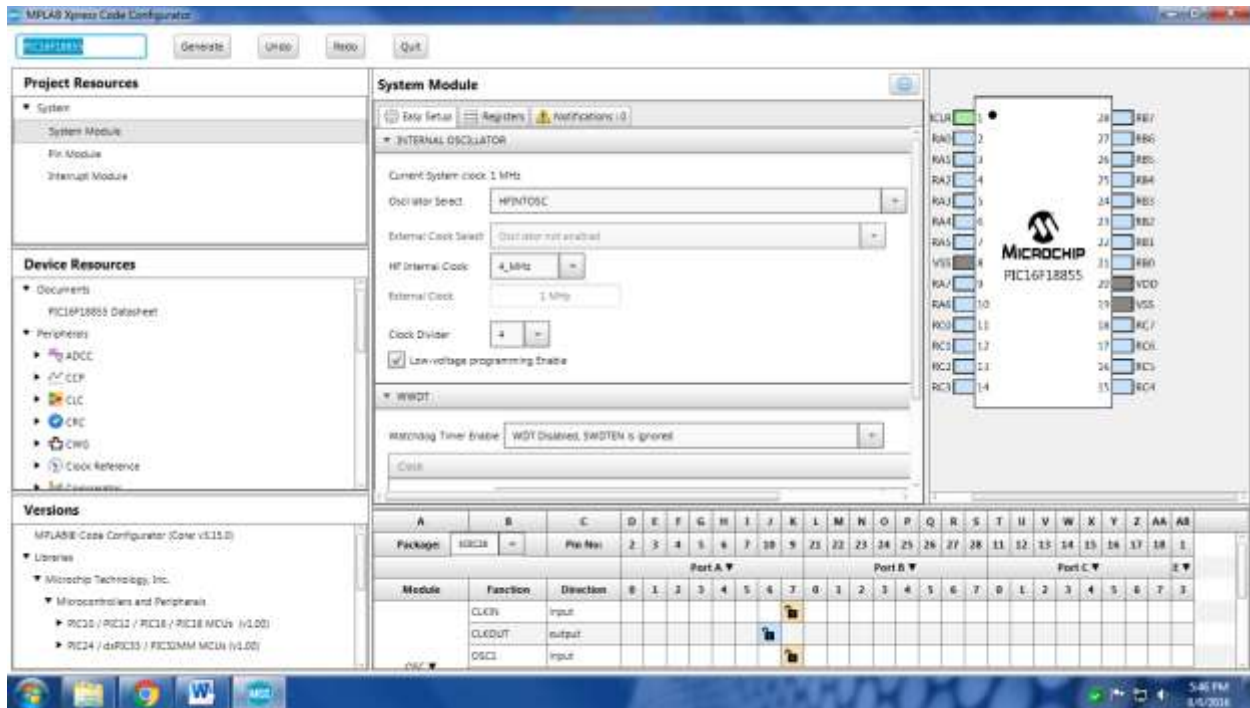

Figure 6: Assign project name

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Step 7: Make **oscillator configuration** and select PORT A all pins and select RB0,RB1,RB2.

Figure 7: Select pin

Step 8: Select pin module in MPLAB Xpress configuration window and make deselect Analog in pin module window and set as output.
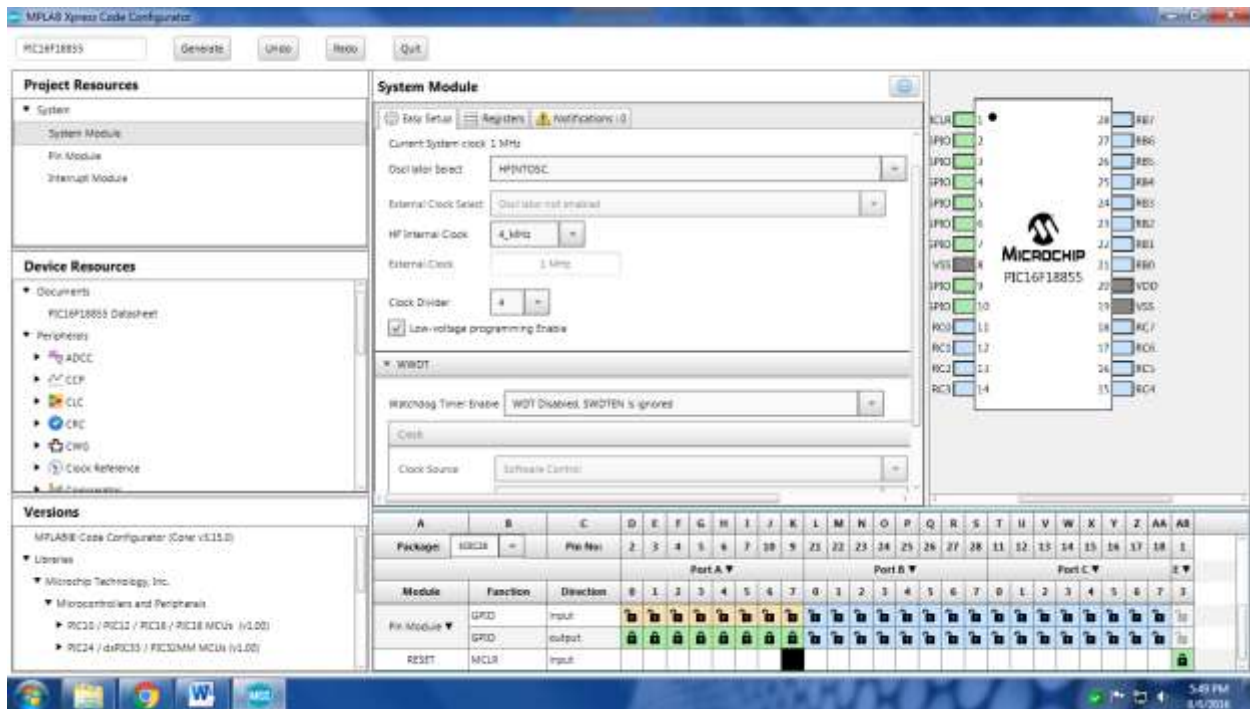

Figure 8: Pin configuration set

Step 9: Now click Generate option.
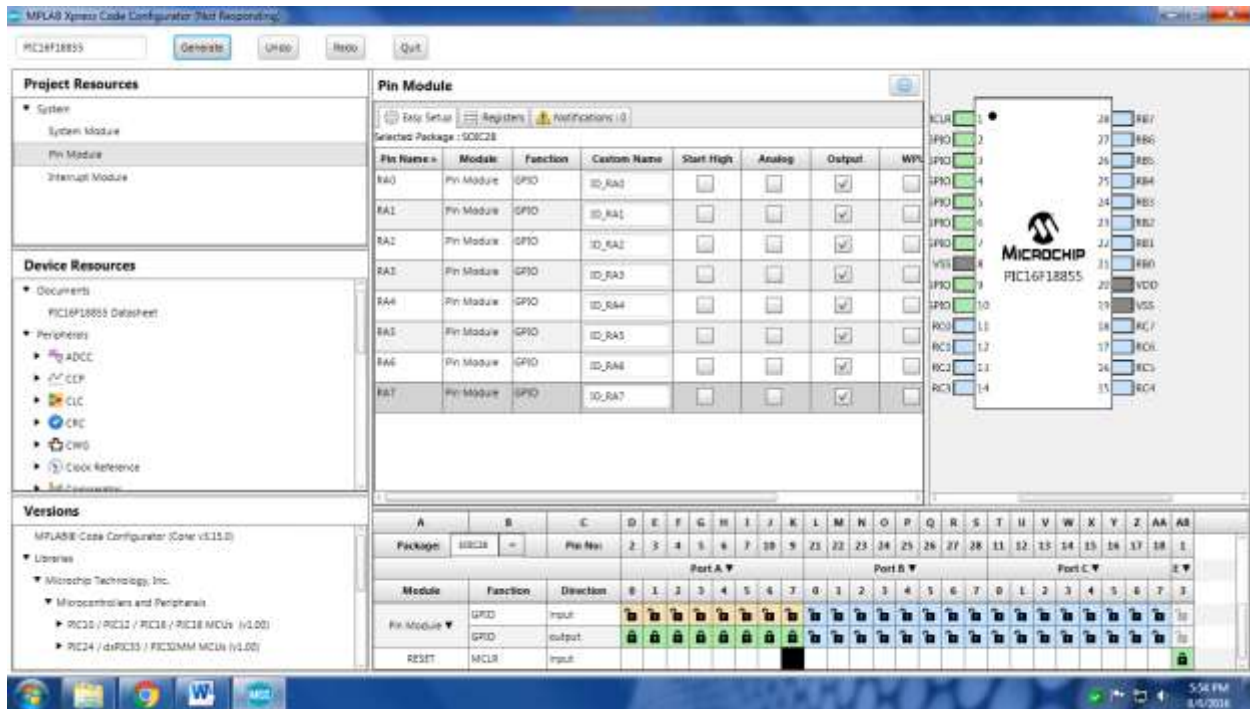

Figure 9: CLICK Generate

SOURCE CODE:

```c
#include "mcc_generated_files/mcc.h"

int i;

 void cmd_fn(unsigned char cmd) //command function

 {

     RB0=0;

     RB1=0;

     RB2=1;

     PORTA=cmd;

     for(i=0;i<=20000;i++);

     RB2=0;


 }

  void data_fn(unsigned char data) //data function

 {

     RB0=1;

     RB1=0;

     RB2=1;

     PORTA=data;

     for(i=0;i<=20000;i++);
```

```
    RB2=0;


}

string_lcd(unsigned char* t)     //string function

{

    while(*t != '\0')

    {

        data_fn(*t);

        t++;

    }

    }


void lcd_ini()      //LCD  initialization

{

    cmd_fn(0x38);

    cmd_fn(0x01);

    cmd_fn(0x0E);

    cmd_fn(0x06);

    cmd_fn(0x80);

}
```

```
void main(void)

{

    SYSTEM_Initialize();  // initialize the device

    lcd_ini();

    while (1)

    {

        cmd_fn(0x80);

        string_lcd("TENET");    //print on LCD

        for(i=0;i<=20000;i++);

        cmd_fn(0x01);

    }

}
```

Step 10: Go to your MPLAP Xpress IDE Erase all existing code and copy above code past there then make clean and build for Export. If you done this go to download you can see hex file for your project.
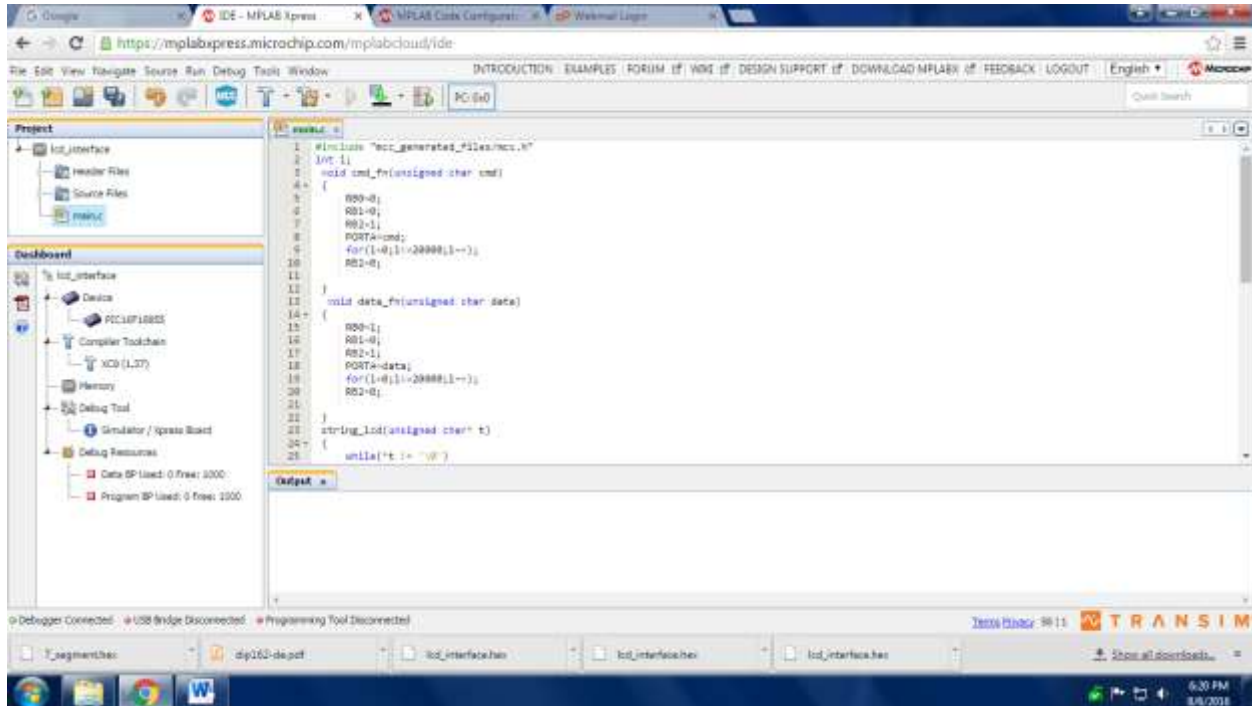

Figure 10: Build the project

Step 11: Now, if all goes well connect the Micro B cable to PIC16F18855 (mplab xpress demonstration board) and connect it to your computer. If you done you can see your devise. And copy that Hex file to your device. And make hardware connection.
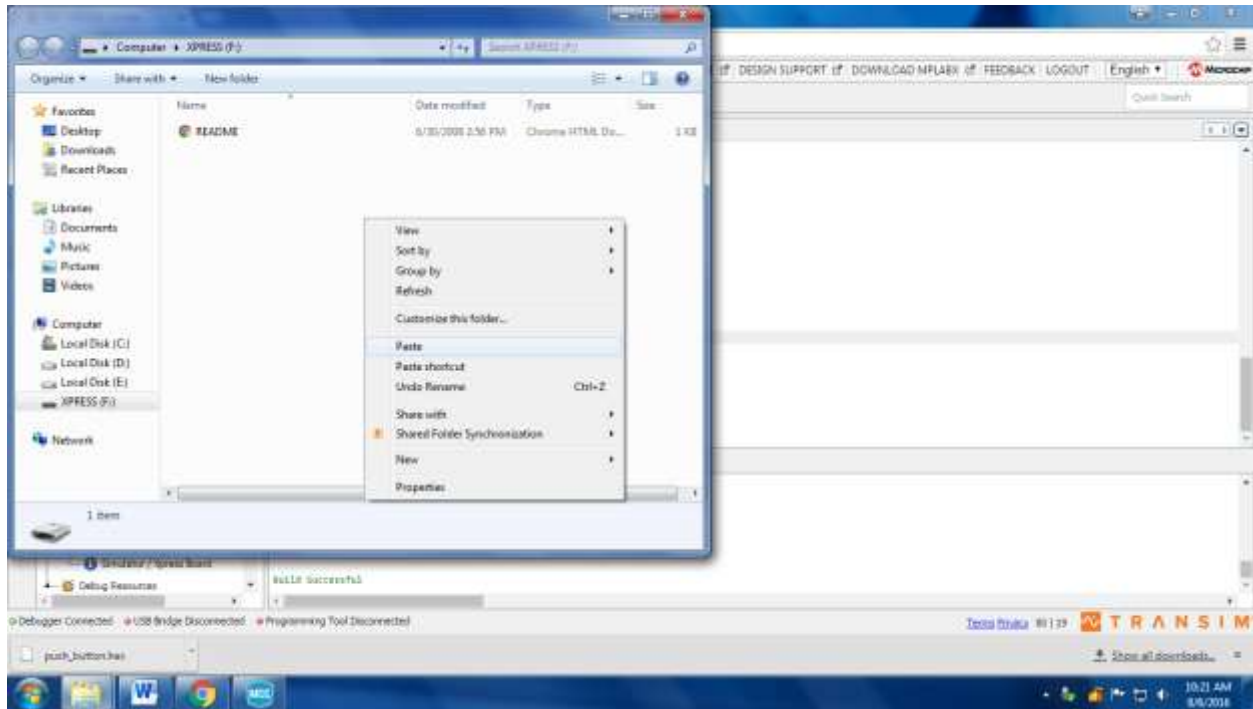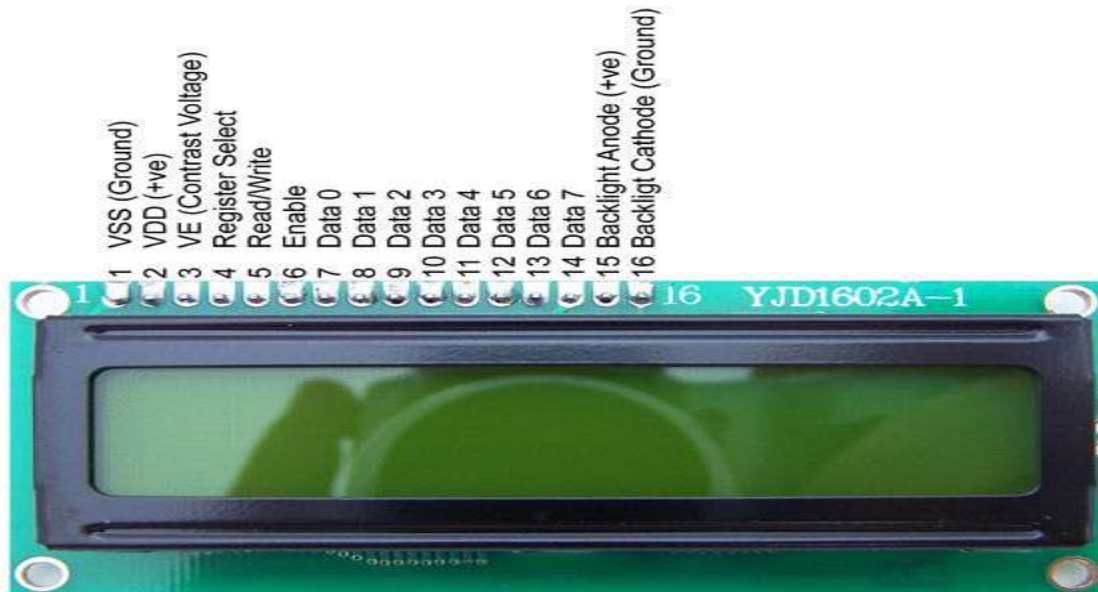

Figure 11: Run the project
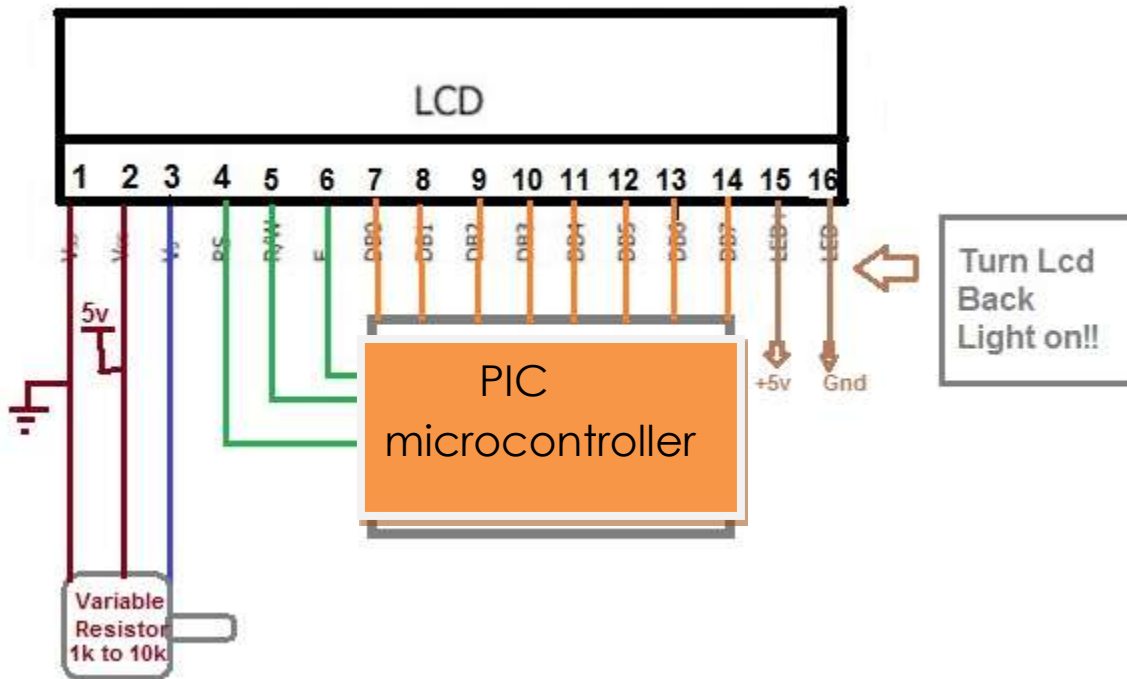
Pin description

Evaluation board   LCD

RA0   **D0**

RA1   **D1**

RA2   **D2**

RA3   **D3**

RA4   **D4**

RA5 > D5

RA6 > D6

RA7 > D7

LCD pin description:

VSS (Ground) 1
VDD (+ve) 2
VE (Contrast Voltage) 3
Register Select 4
Read/Write 5
Enable 6
Data 0 7
Data 1 8
Data 2 9
Data 3 10
Data 4 11
Data 5 12
Data 6 13
Data 7 14
Backlight Anode (+ve) 15
Backligt Cathode (Ground) 16

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Initial connection:

Output:

Figure 12 output

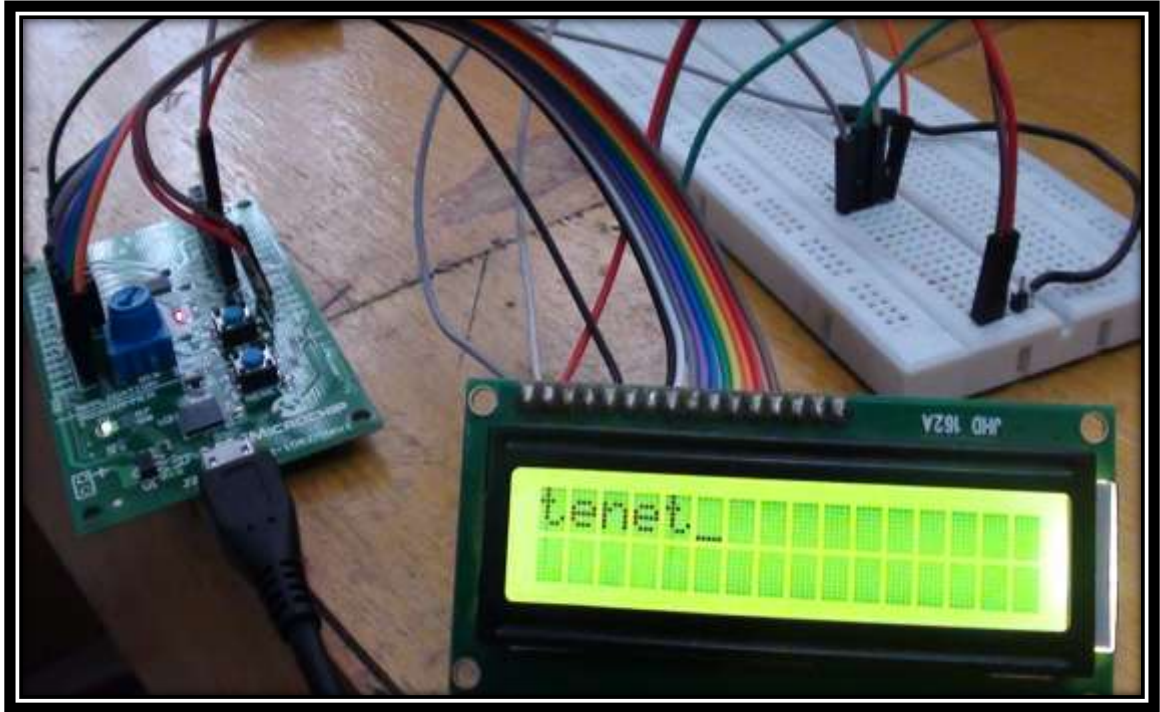**For product link:**

http://www.tenettech.com/product/8828/mplab-xpress-development-board

For more information please visit: www.tenettech.com

For technical query please send an e-mail: info@tenettech.com