TENET TECHNETRONICS

2016

IOT
Using
MPLAB Xpress Evaluation Board

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Version: 1.0

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:
  - MPLAB Xpress Evaluation tool
  - ESP8266
  - Jumper wires
  - Bread Board
- Software:
  - MPLAB Xpress IDE

Website:

ThingSpeak (https://thingspeak.com/)

Note:You must configure your device with your wifi

Step 1: Open your Browser and go to following link

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

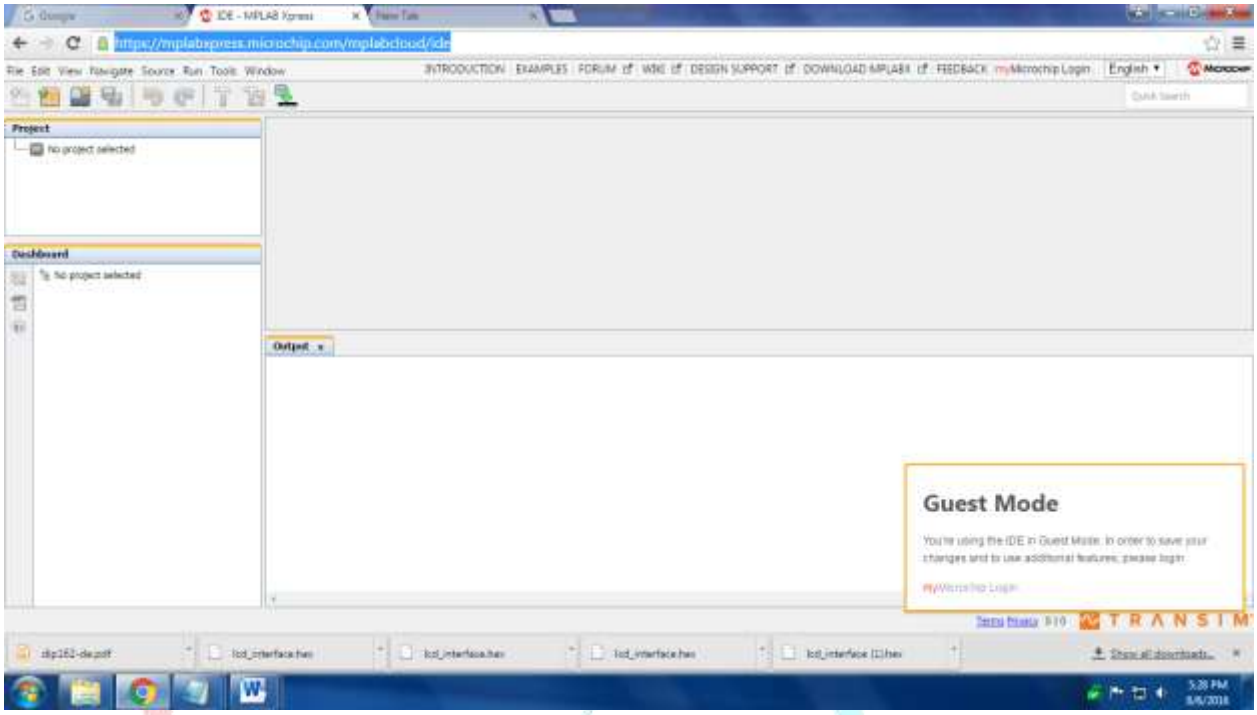


Figure 1 MPLAB Xpress IDE main window

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

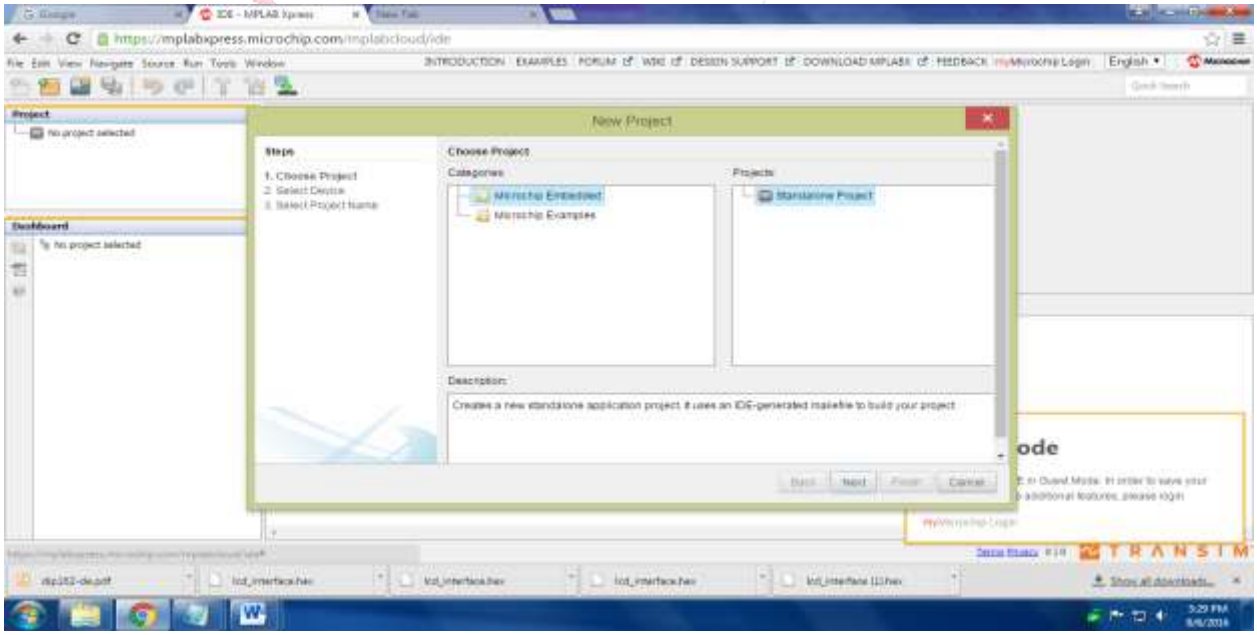


Figure 2 Open new project

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

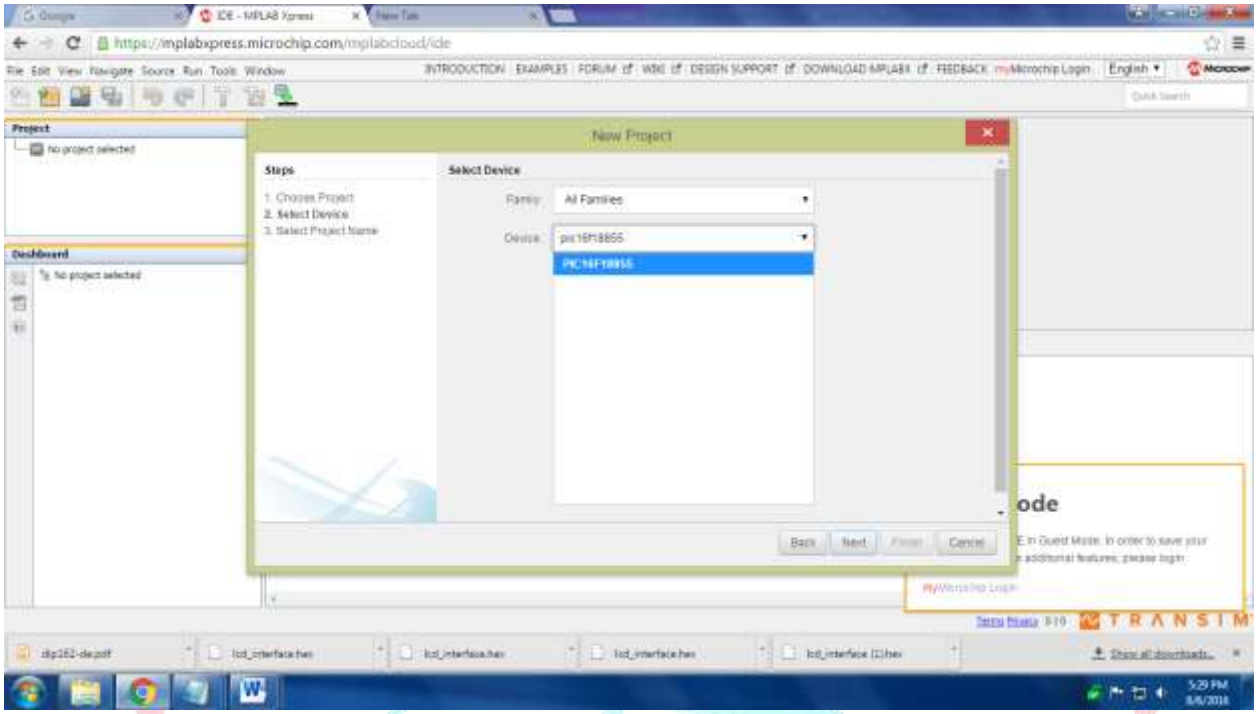


Figure 3 select Device

Step 4: then give project name and click finish**.**

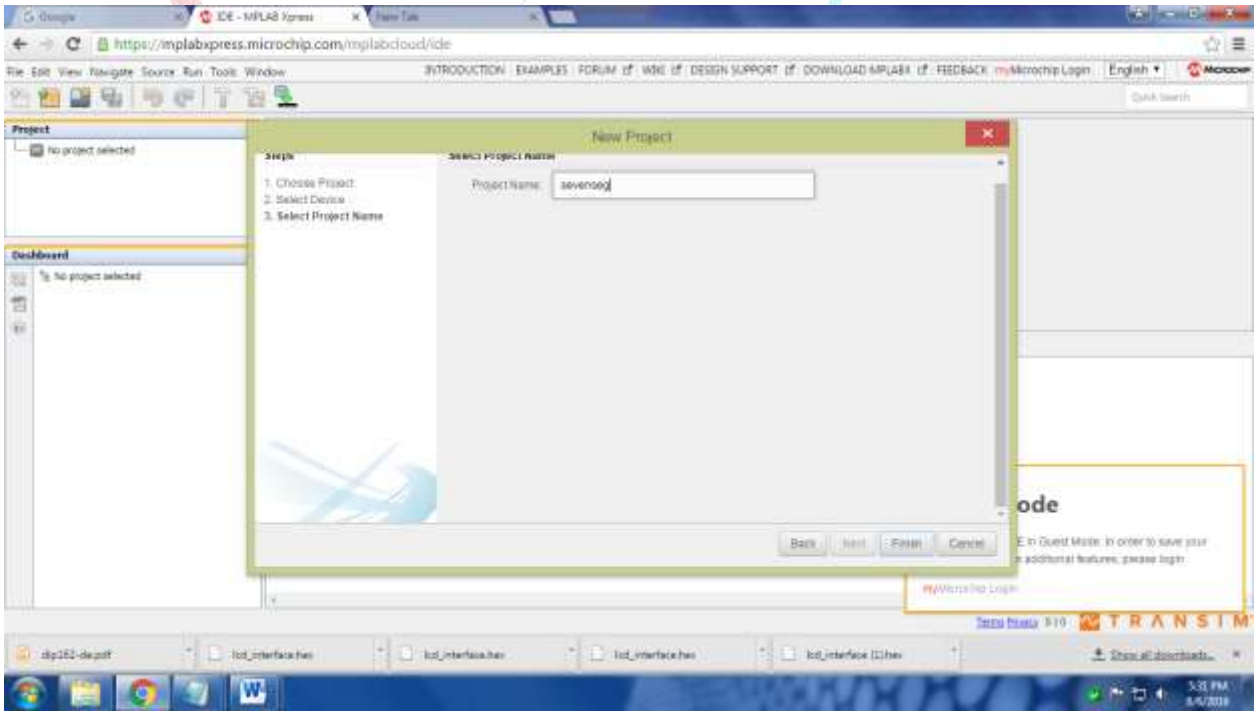


Figure 4 give project name

Step 5: Now choose mplab xpress code configurator if its not present in your Device please Download and install from following link. http://www.microchip.com/mplab/mplab-code-configurator

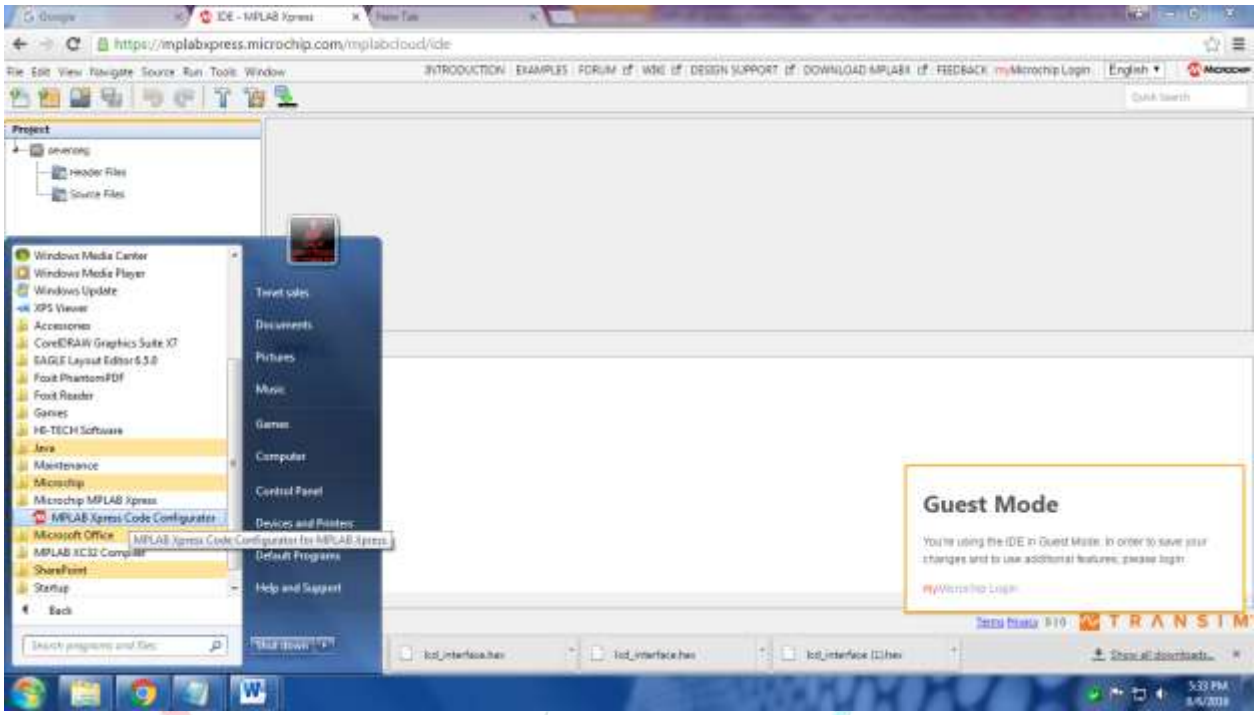


Figure 5 Select mplab xpress code configurator

Step 6: Now we can see our mplab xpress configuration window and select system module in mplab xpress configuration window **.**

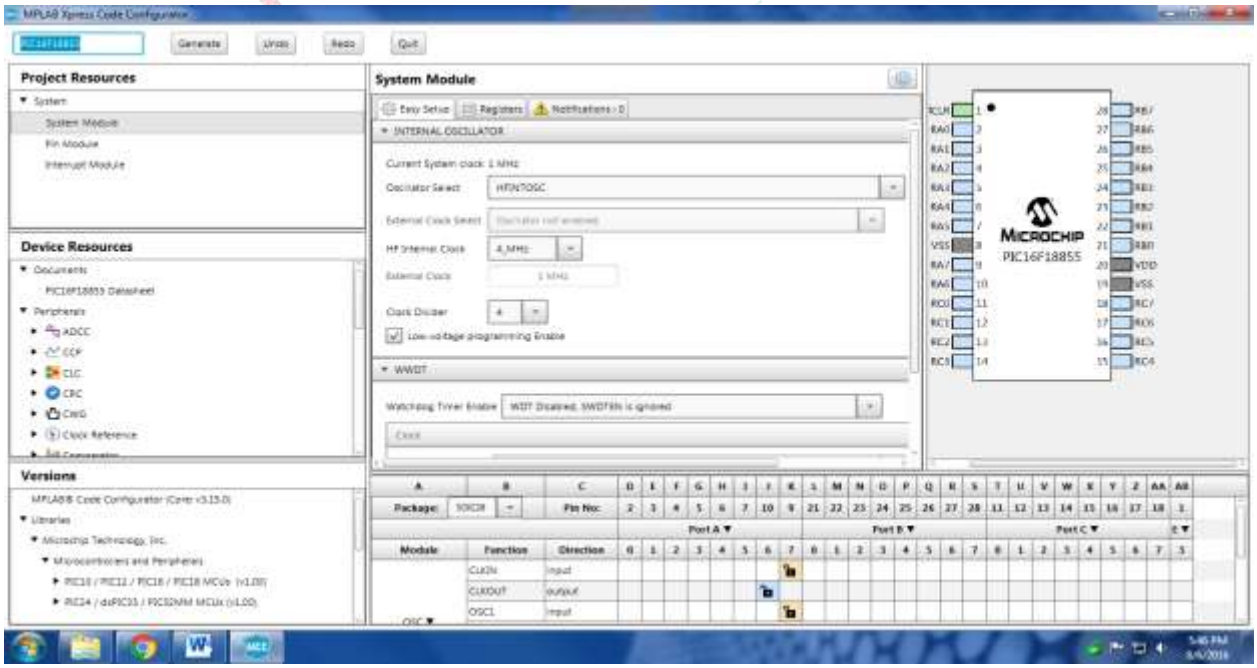


Figure 6 Assign project name

Step 7: Make **oscillator configuration and select required pin** .

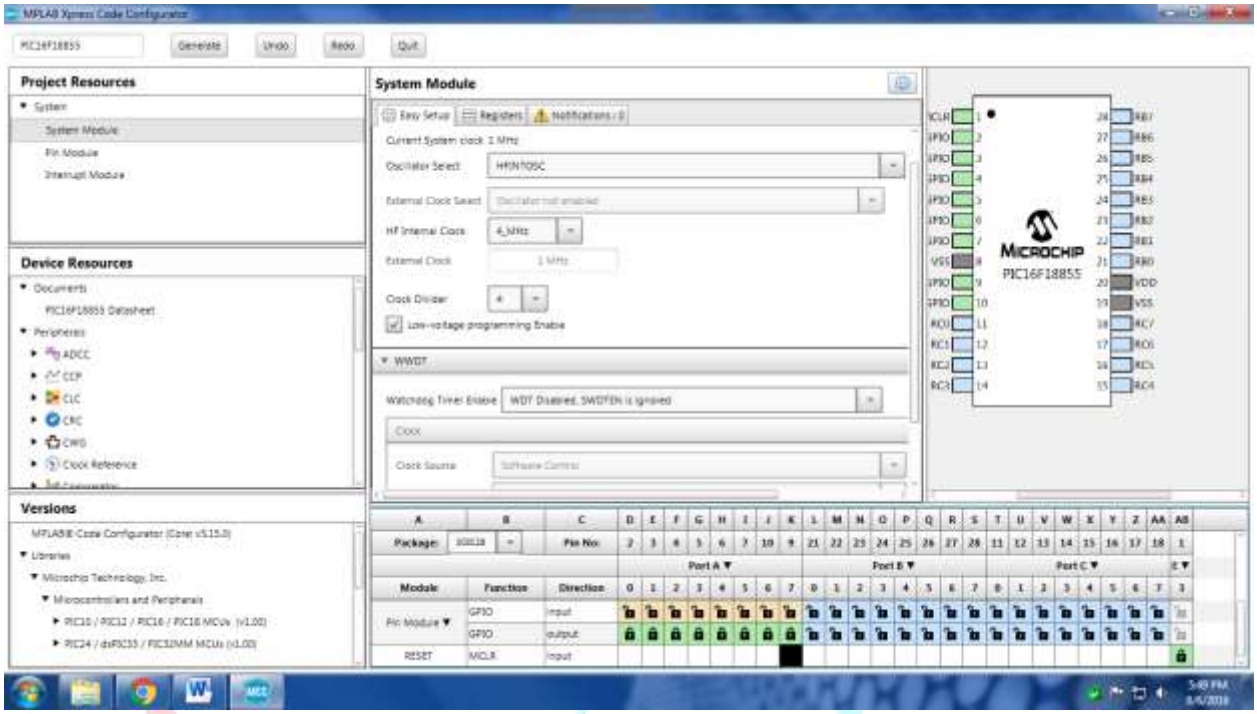


Figure 7 select pin

Step 8: select pin RC0,RC1 from pin selection window And select peripherals UART

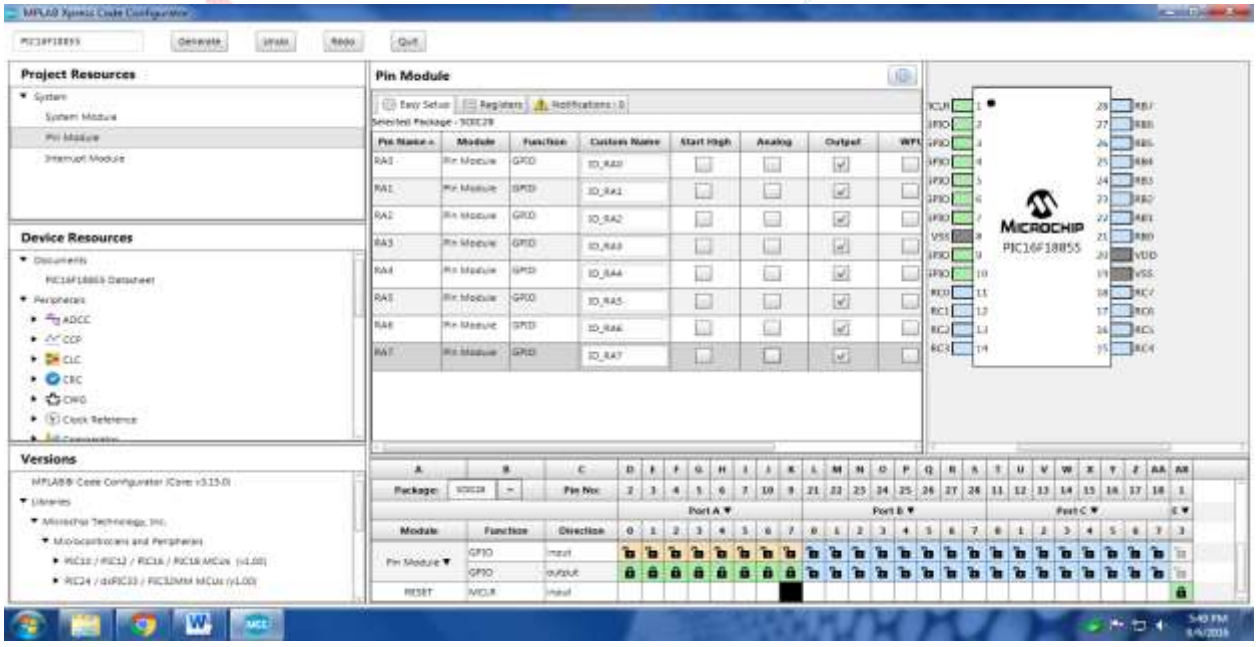


Figure 8 pin configuration set

Step 9: Now click Generate option.

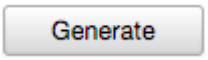


Figure 9 click Generate

SOURCE CODE:

```
#include "mcc_generated_files/mcc.h"
void main(void)
{
   // initialize the device
   SYSTEM_Initialize();
// Enable the Global Interrupts
   INTERRUPT_GlobalInterruptEnable();

   // Enable the Peripheral Interrupts
   INTERRUPT_PeripheralInterruptEnable();
while (1)
   {

    printf("AT\r\n");
    //for(i=0;i<=500000;i++);
     __delay_ms(3000);

     printf("AT+CIPSTART=\"TCP\",\"api.thingspeak.com\",80\r\n");
      __delay_ms(3000);
```

```
      printf("AT+CIPSEND=%d\r\n",80);  // our length to sent


      __delay_ms(3000);
                          //apk key past here
       printf("GET /update?api_key=C61KN6L8SHTJFLVC&field1=%d",0); // given our value for
plot the graph (0,1,2,3,4,5,6 etc..)
       printf("HTTP/1.1 \nHOST: api.thingspeak.com \r\n\r\n");
       __delay_ms(3000);

       printf("AT+RST\r\n");
      __delay_ms(3000);



        }
}
/**
 End of File
*/
```

Note: you must be configured your Device with your wifi or else it not possible.

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

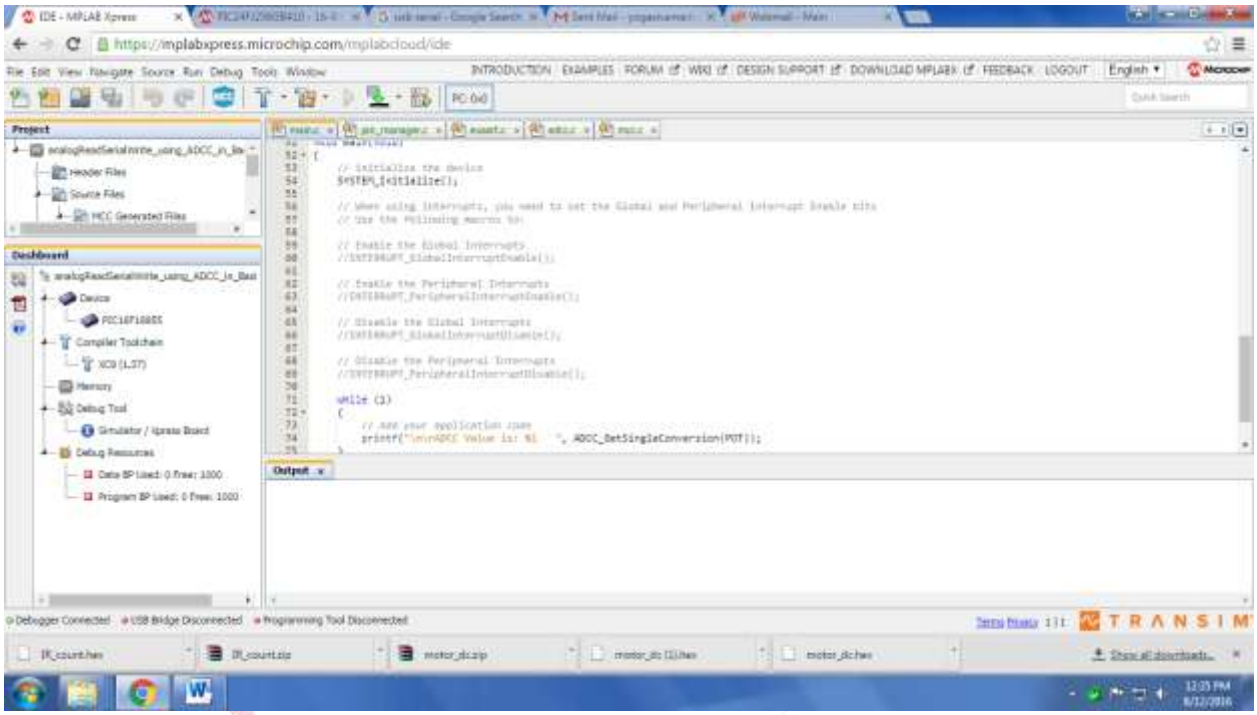
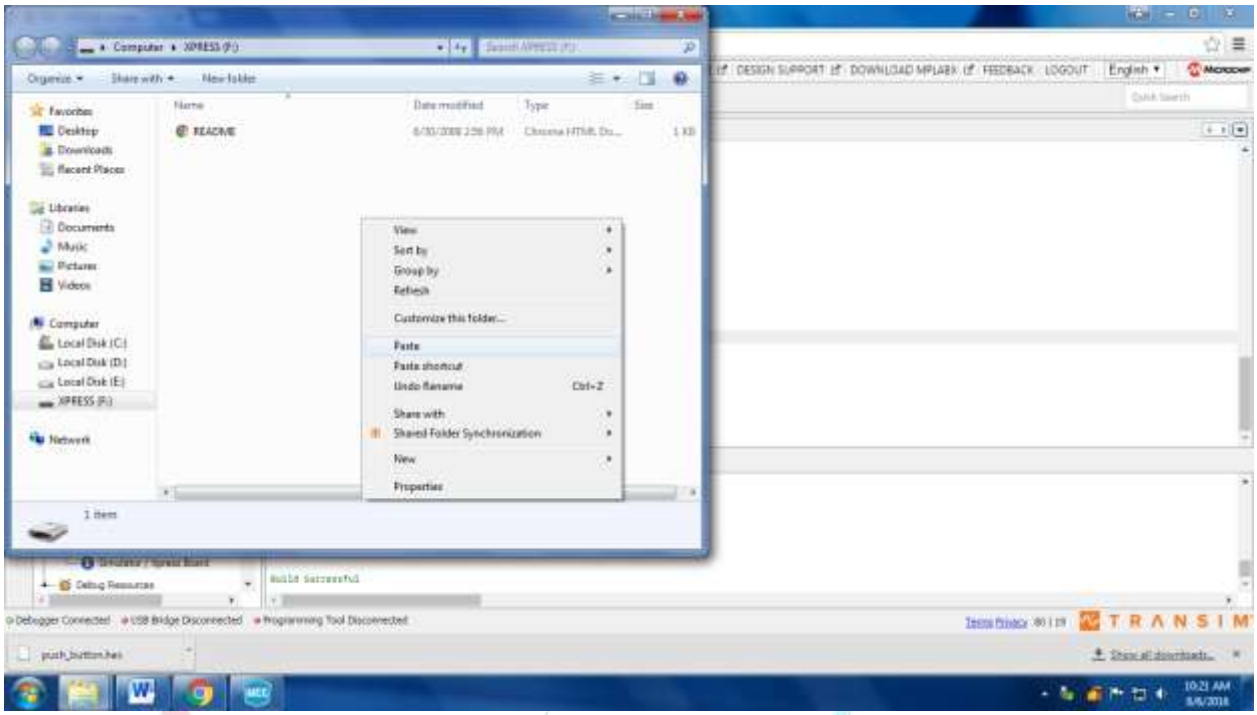
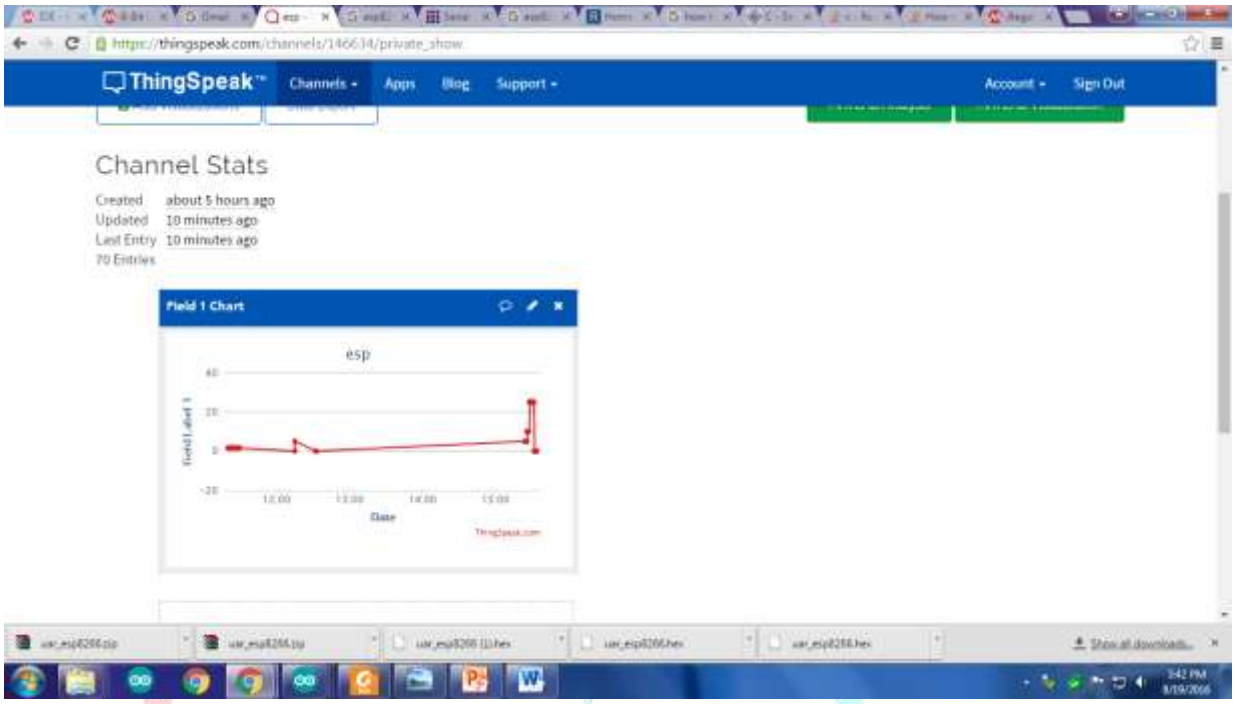


Figure 10 Build the project

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.



OUTPUT:



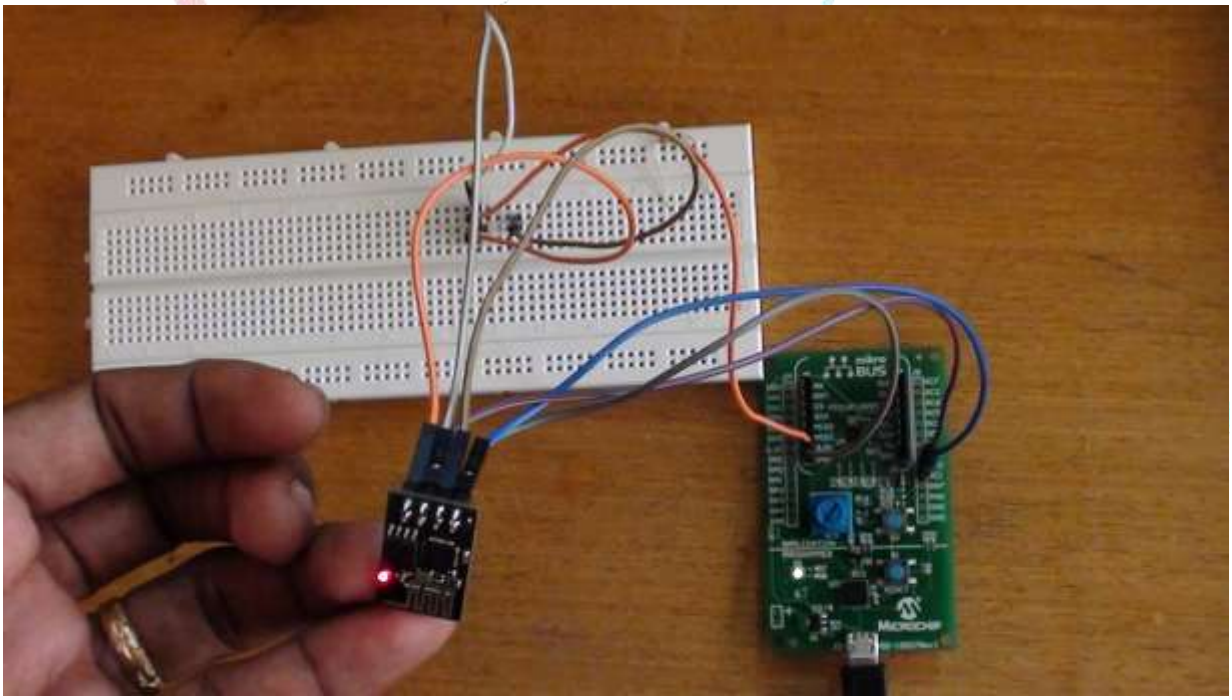
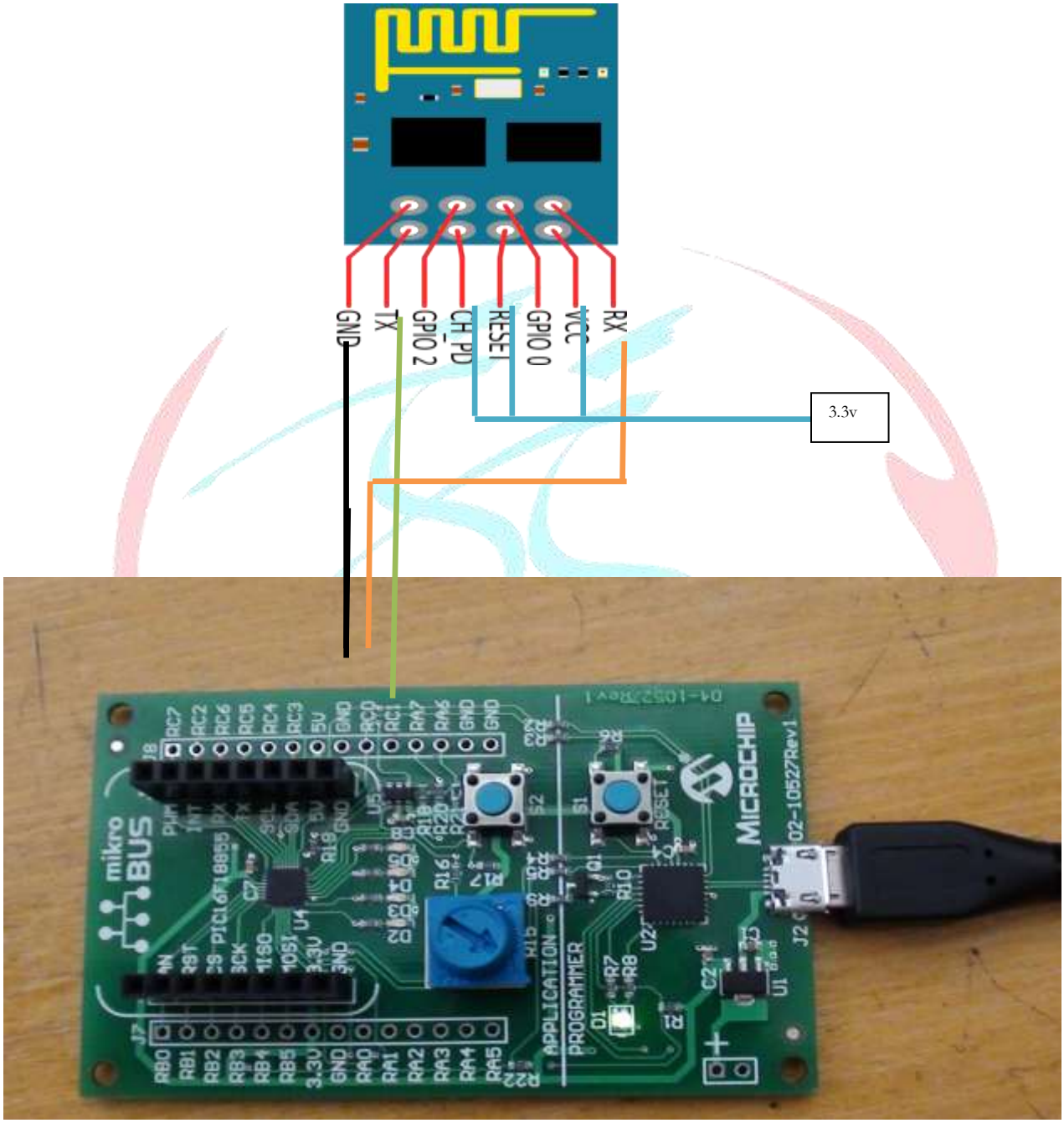


Figure 12 output

Circuit connection:



For more information please visit: www.tenettech.com

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

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