

Lab 4 Hints with the ESP8266 mini Wifi Board

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1. Get the New Starter Code from valvano's website.

<http://users.ece.utexas.edu/~valvano/arm/#RTOS>

Link to download	Book	External Hardware	Ports used	Description
CC3100GetWeather_4C123.zip CC3100DataLog_4C123.zip	Volume 2, Section 11.4	CC3100 BoosterPack	UART0, UART1	Uses CC3100 to create a smart object, fetches weather data from openweathermap.org. The DataLog version writes data to a server.
ESP8266_4C123.zip ESP8266_SensorBoard.zip esp8266.c	Volume 2, Section 11.4	esp8266	Port B, E, PLL, SysTick, UART0, UART1/2	Uses esp8266 to create a smart object, fetches weather data from openweathermap.org. The SensorBoard version uses UART2 PD7/PD6 as connected in the EE445M Robot Sensor Board.

2. Explore the Starter Code
3. Register With openweathermap

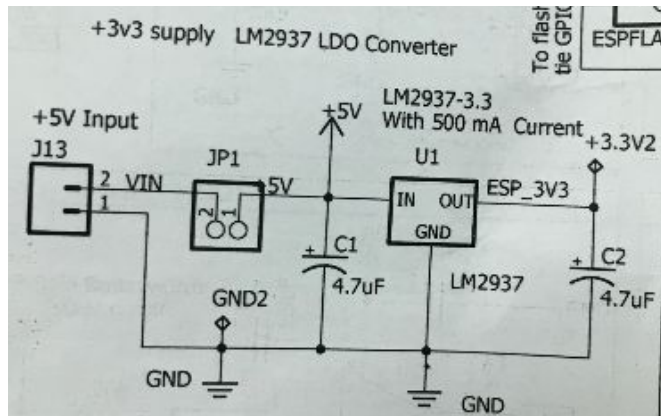
```
char Fetch[] = "GET /data/2.5/weather?q=Austin%20Texas&APPID=a146b7b267bc0483296607877d4a2857
// 1) go to http://openweathermap.org/appid#use
// 2) Register on the Sign up page
// 3) get an API key (APPID) replace the 1234567890abcdef1234567890abcdef with your APPID
```

4. Connect the ESP Module

```
/* Modified by Jonathan Valvano
Feb 3, 2016
Hardware connections
Vcc is a separate regulated 3.3V supply with at least 215mA
/-----\
|          chip      1   8 |
| Ant          2   7 |
| enna    processor  3   6 |
|          4   5 |
\-----/

ESP8266    TM4C123
1 URxD    PB1    UART out of TM4C123, 115200 baud
2 GPIO0    +3.3V for normal operation (ground to flash)
3 GPIO2    +3.3V
4 GND      Gnd    GND (70mA)
5 UTxD    PB0    UART out of ESP8266, 115200 baud
6 Ch_PD    chip select, 10k resistor to 3.3V
7 Reset    RST/PB5 TM4C123 can issue output low to cause hardware reset
8 Vcc      regulated 3.3V supply with at least 70mA
*/
```

*Note Vcc Needs a separate regulated Vcc because it draws too much current to use the regulator onboard the Launchpad.



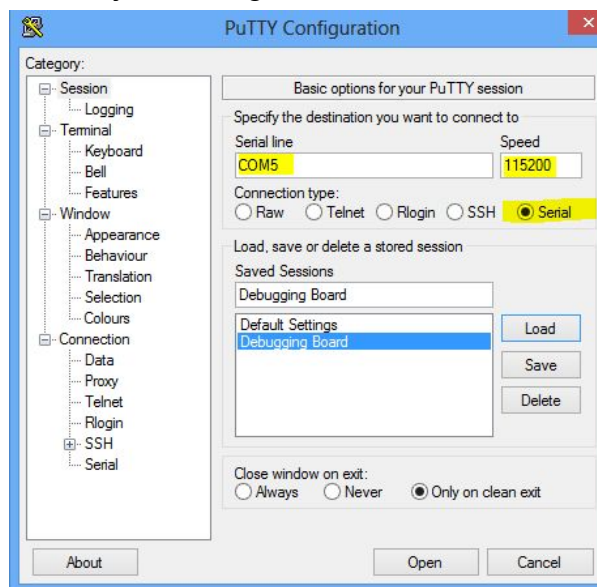
Modified Prep:

Basically for prep we are asking to see two things that you have the wifi board connected and talking to the openweathermap website. We also expect you to have code written to parse the response that comes back from the server. And lastly we would like you to have written but not tested the code to sample from the ADC just like in the lab manual. The parts are outlined below.

Part a) Same as lab manual, watch 10 short youtube videos

Part b) Get Starter Code:

Part c) Observe Output of Project through PUTTY



Part d) Physically Connect the Board with regulated Supply.

You need the regulated Supply Voltage coming from the LM2937

Part e) Configure starter code to Connect to WIFI Access Point.

Make sure there is no spaces in the SSID.

Part f) Register With openweathermap see step 3 above.

Part g) Test & Observe a Fetch Coming back with temperature data.

Part h) Write ADC Sampling Routines Same as part F of lab Manual.