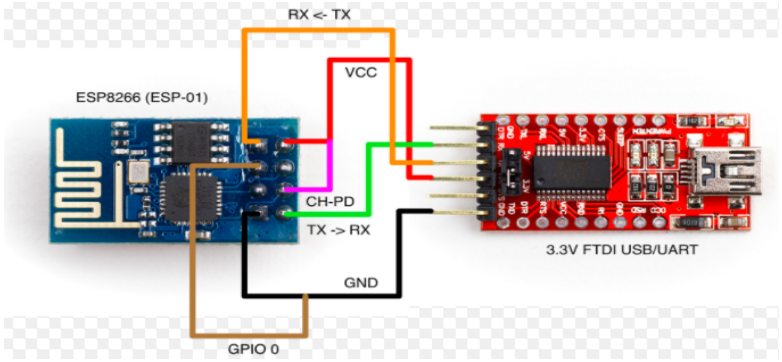
Midterm 1

The Goal

- Write, simulate, and demonstrate using AVRStudio6/7 an C code for the AVR ATMEGA328p microcontroller that performs the following functions:
  1. Program the ADC of ATmega328/p to read the LM34/35 temperature sensor. (DA3)
  2. Display the value to UART. (DA3)
  3. Make sure the AT Firmware is downloaded into the ESP8266-01 module.
  4. Register for a free Thingspeak account with MATHWORK. Setup and get the channel Key.
  5. Transmit temperature sensor value to ESP8266-01 through UART port using AT Commands.
  6. Display the temperature sensor value as a graph in Thingspeak

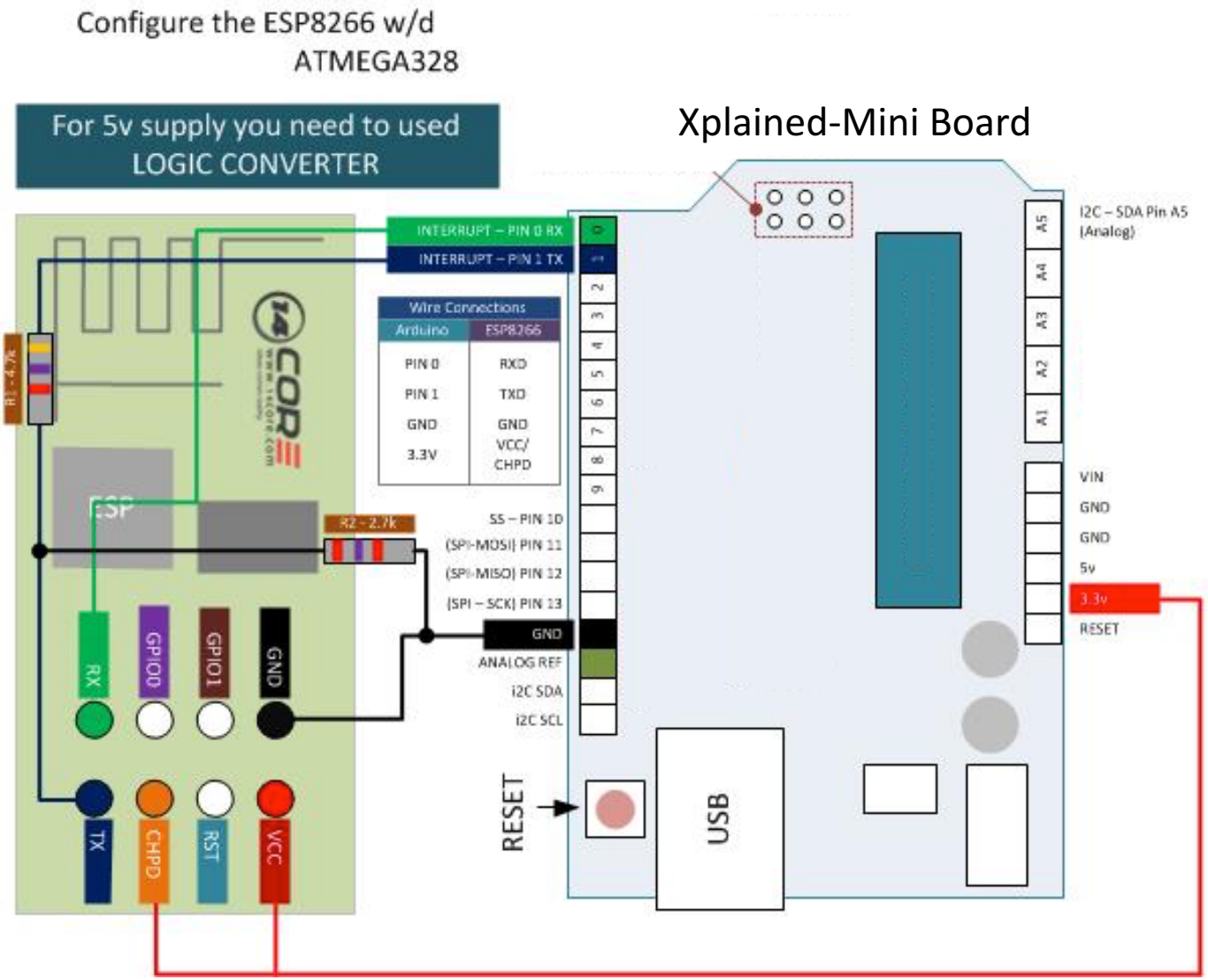
Working with ESP8266-01 Module

- Make sure the AT Firmware is downloaded into the ESP8266-01 module.
- Follow documentation @ class website
- Firmware:
  - Download Link for Latest Ai-Thinker firmware: http://www.electrodragon.com/w/ESP8266_AT_Commands
  - Alternative Download Link for older version Ai-Thinker firmware: http://wiki.aprbrother.com/wiki/Firmware_For_ESP8266
- Use Flash Software
  - ESP Flash Download Tool (Software) - http://bbs.espressif.com/viewtopic.php?f=57&t=433

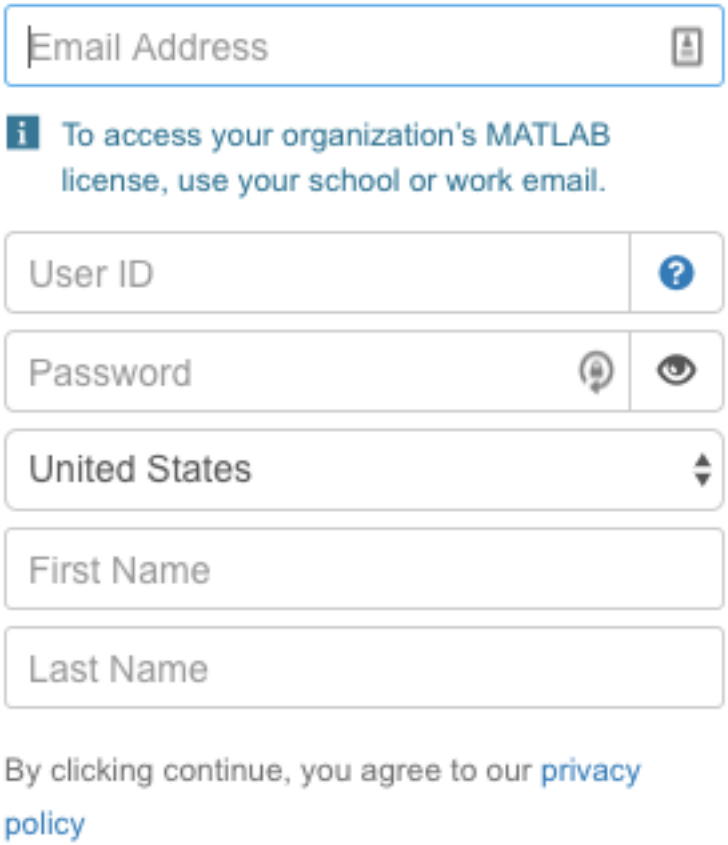


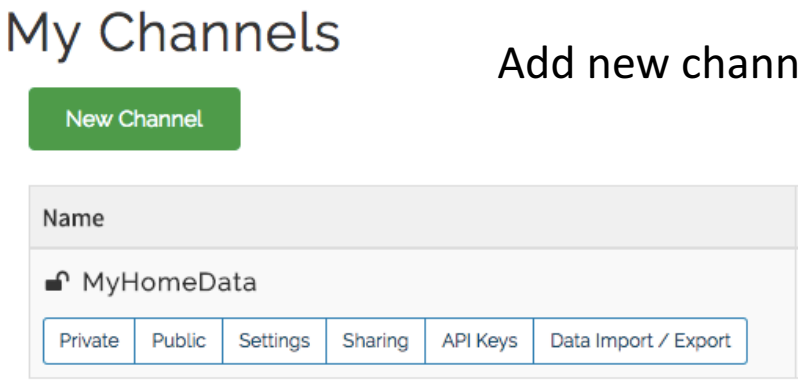
Use only 3.3V FTDI!!!

Connecting to ATMega328p



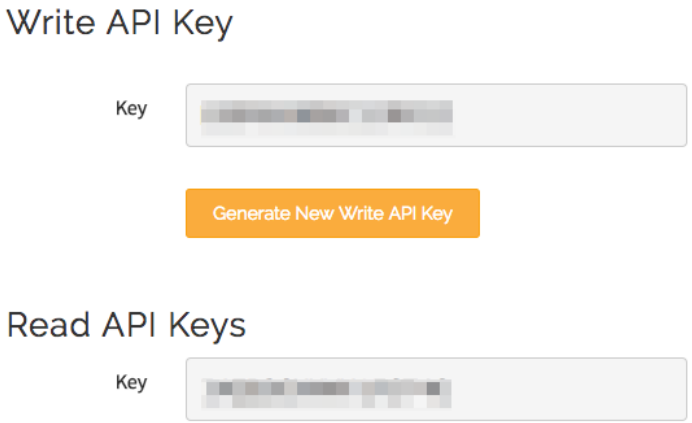
Sign up for ThingSpeak





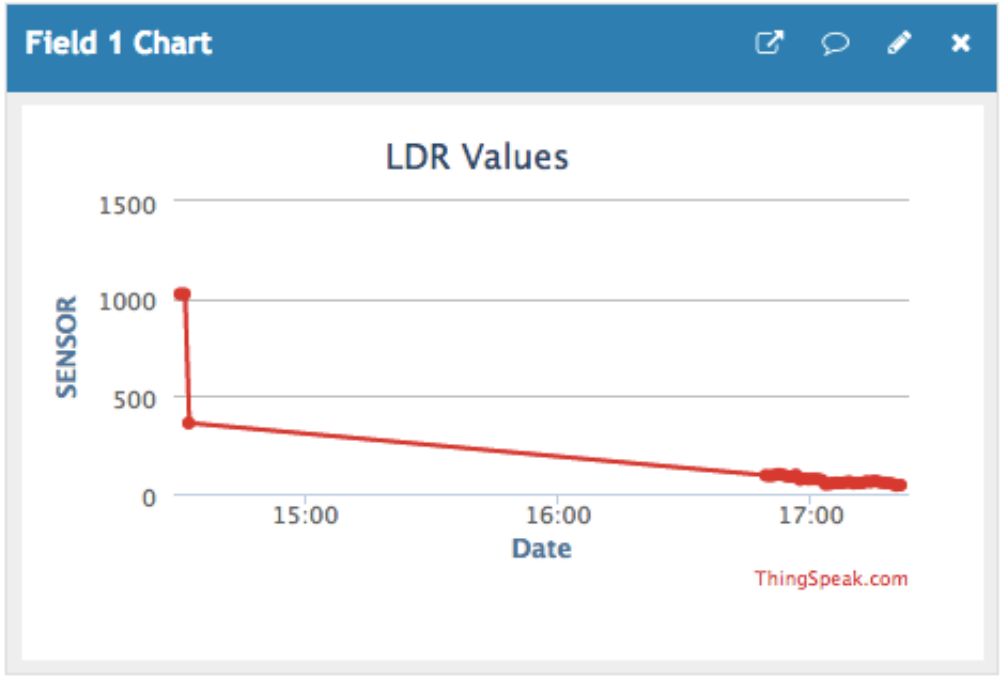
Add new channel

Get API keys



Upload Data

5. Connect to your WiFi router & transmit temperature sensor value to ESP8266-01 through UART port using AT Commands.
6. Display the temperature sensor value as a graph in Thingspeak



PS: Do not upload assignment with personal WiFi SSID & password