Control ESP8266 From Anywhere

How to communicate with an ESP8266 WiFi device using Blynk

Get This Presentation On Your Pi

- Open a Terminal window
- If you have ***not*** done git clone before:

```
$ cd

$ git clone
http://github.com/Hackerspace-Charlotte/RaspberryPiNight

$ cd ~/RaspberryPiNight/esp8266/Session3
```

- If you have done git clone before:

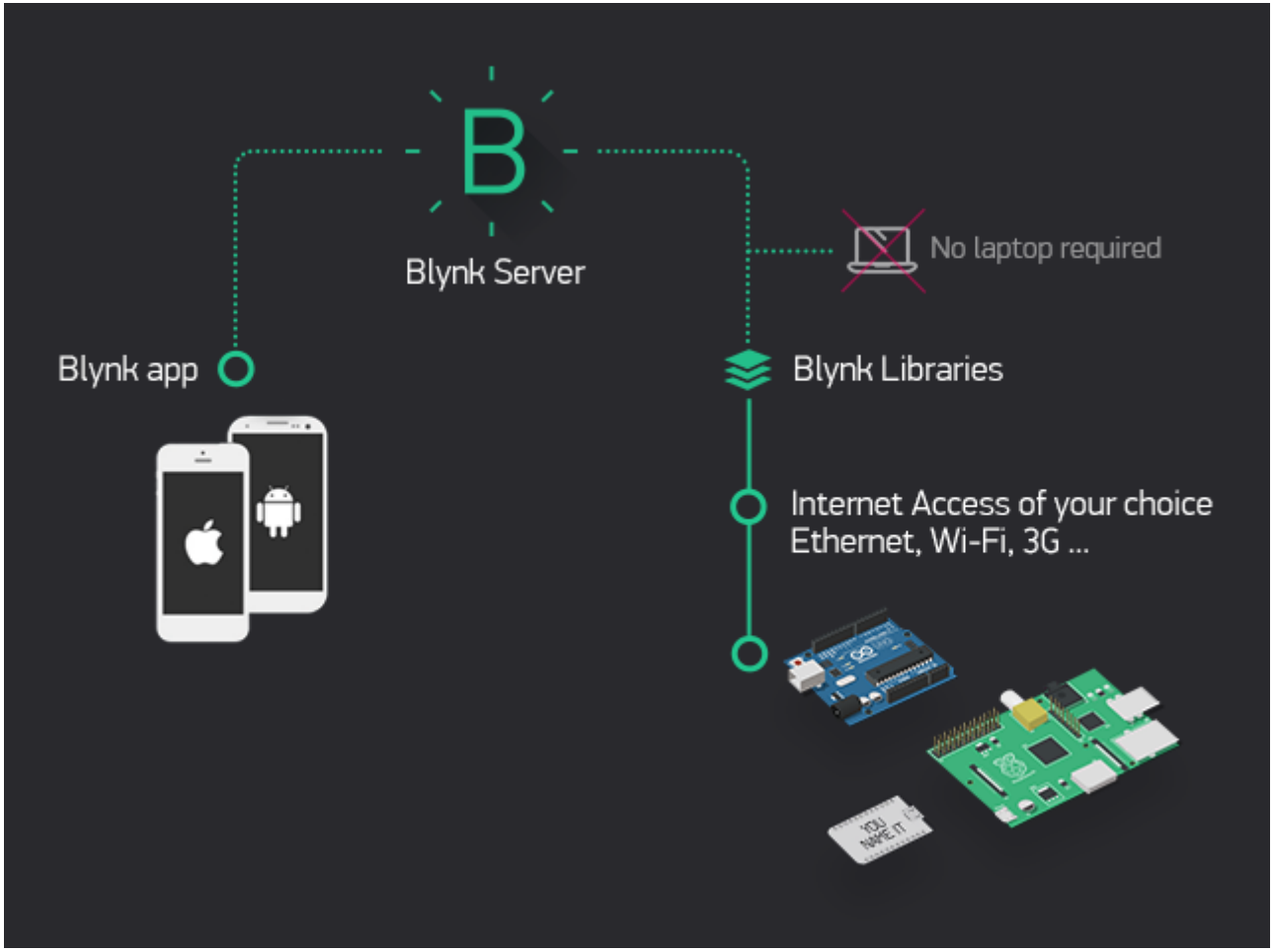
```
$ cd ~/RaspberryPiNight

$ git pull

$ cd esp8266/Session3
```

- Then double click on `Session3.pdf`

Past and Present

- In session 1, we set up ESP8266 as web server and communicated directly with it using a browser
- In session 2, we set up ESP8266 as web client and communicated directly with a NodeRED web server.
- In session 3, we will use Blynk as communication link between phone and ESP8266

How Blynk Works



Install Blynk app on phone

- Open App Store or Play Store, search for Blynk
- Install, open
- Create project RpiNightESP8266
- Set the device as ESP8266
- Add a button (drag from right to left)
- Set name to “LED”, pin to “gp5”, mode to “Switch”

Install Arduino IDE

- Go to https://www.arduino.cc
- Click “Software”
- Scroll down to “Download the Arduino IDE”
- Click “Linux ARM”
- Donate or not.
- Wait for download (can take a minute or two)

Install Arduino IDE (cont.)

- Open a Terminal window

  $ cd ~/Downloads

  $ ls
- Filename in next command is from above

  $ tar -Jxf arduino-1.8.1-linuxarm.tar.xz
- Wait for it, takes a while, too.

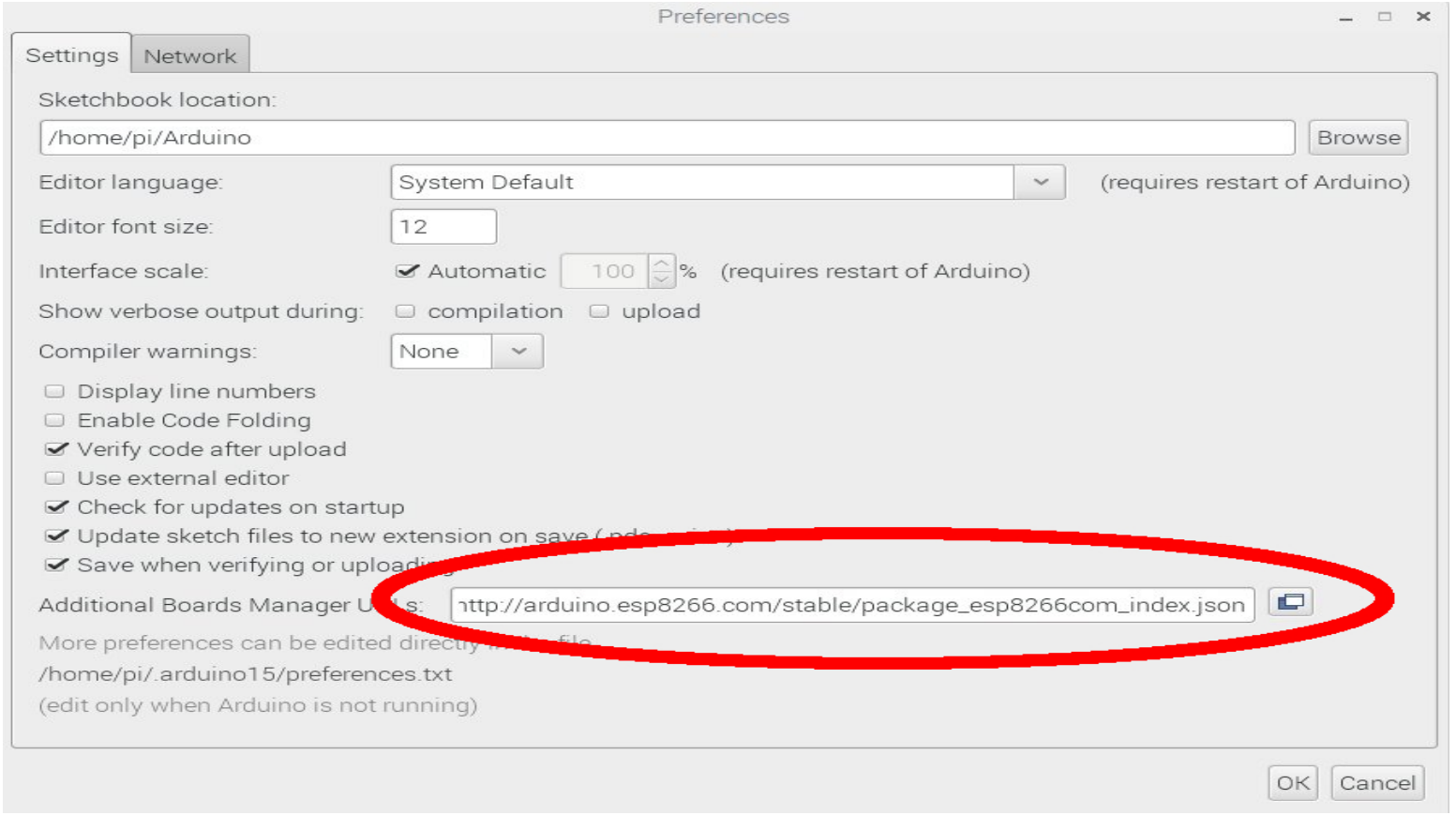
  $ cd arduino-1.8.1

  $ ./install.sh
- May be errors, not fatal (can run again). Should get Arduino IDE icon on desktop.

Install ESP8266 support in IDE

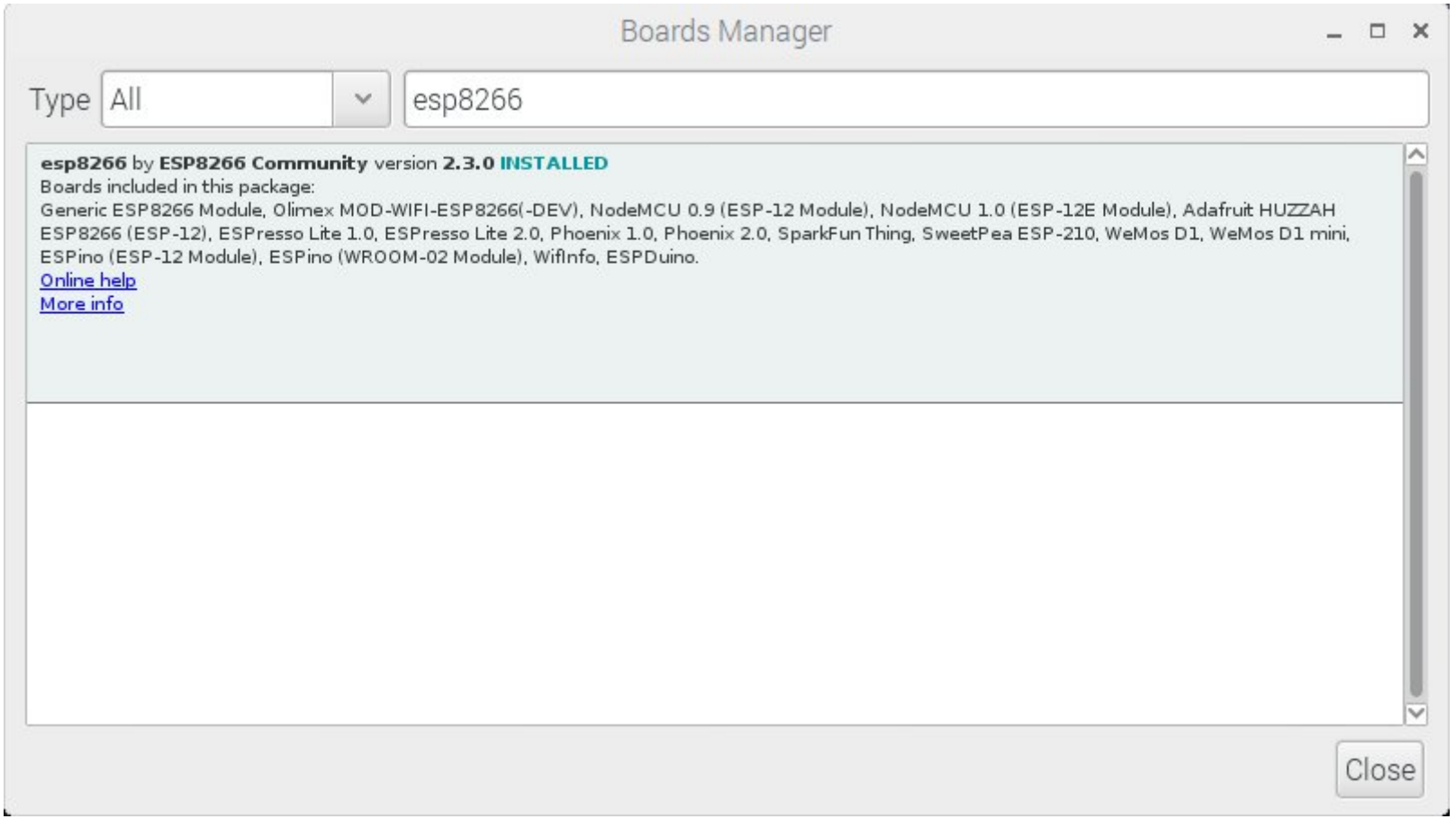
- Open Arduino IDE
- Choose File => Preferences
- Click icon next to “Additional Boards Manager URLs”
- Enter
  http://arduino.esp8266.com/stable/package_esp8266com_index.json
- Click OK (should look like figure on next page)

Install ESP8266 support in IDE (cont)



- Click OK again.
- Choose Tools => Board => Boards Manager…
- Type *esp8266* in search box

Install ESP8266 support in IDE (cont)

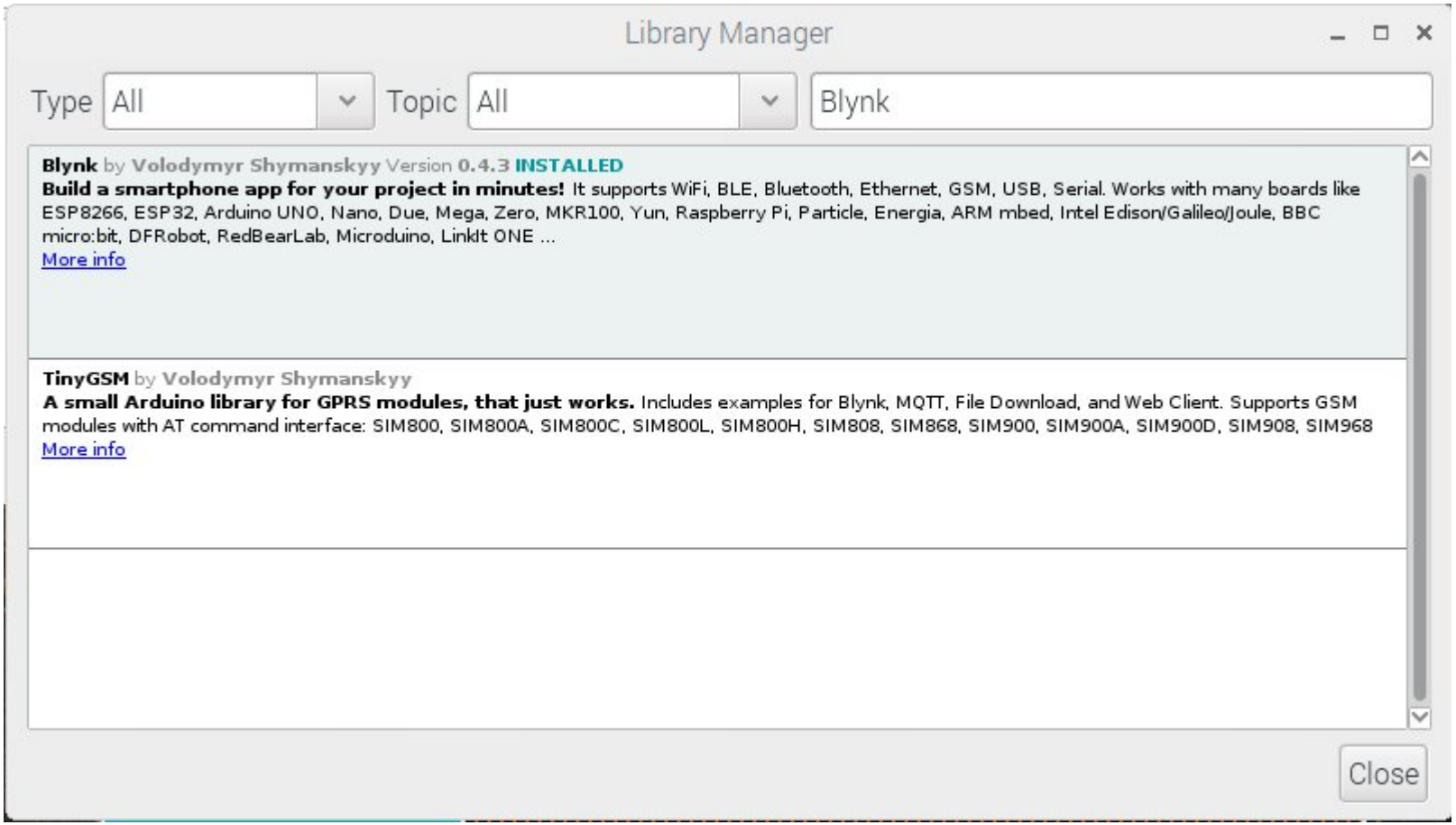


- Choose *esp8266 by ESP8266 Community*
- Click Install, (should look like above), then Close

Install Blynk support in IDE

- Choose Sketch => Include Library => Manage Libraries…
- After it is done loading, type *`Blynk`* in search box.

Install Blynk support in IDE (cont)



- Select *`Blynk by Vladimir Shymanskyy`*, then Install, then Close.

Open Blynk example, configure WiFi

- Choose File => Examples => Blynk => Boards_Wifi => ESP8266_Standalone
- That loads a file into the IDE which you can edit.
- Choose File => Save As, then click Save (default location is fine)

Open Blynk example, configure WiFi (cont)

- Change this:

```
char ssid[] = "YourNetworkName";
char pass[] = "YourPassword";
```

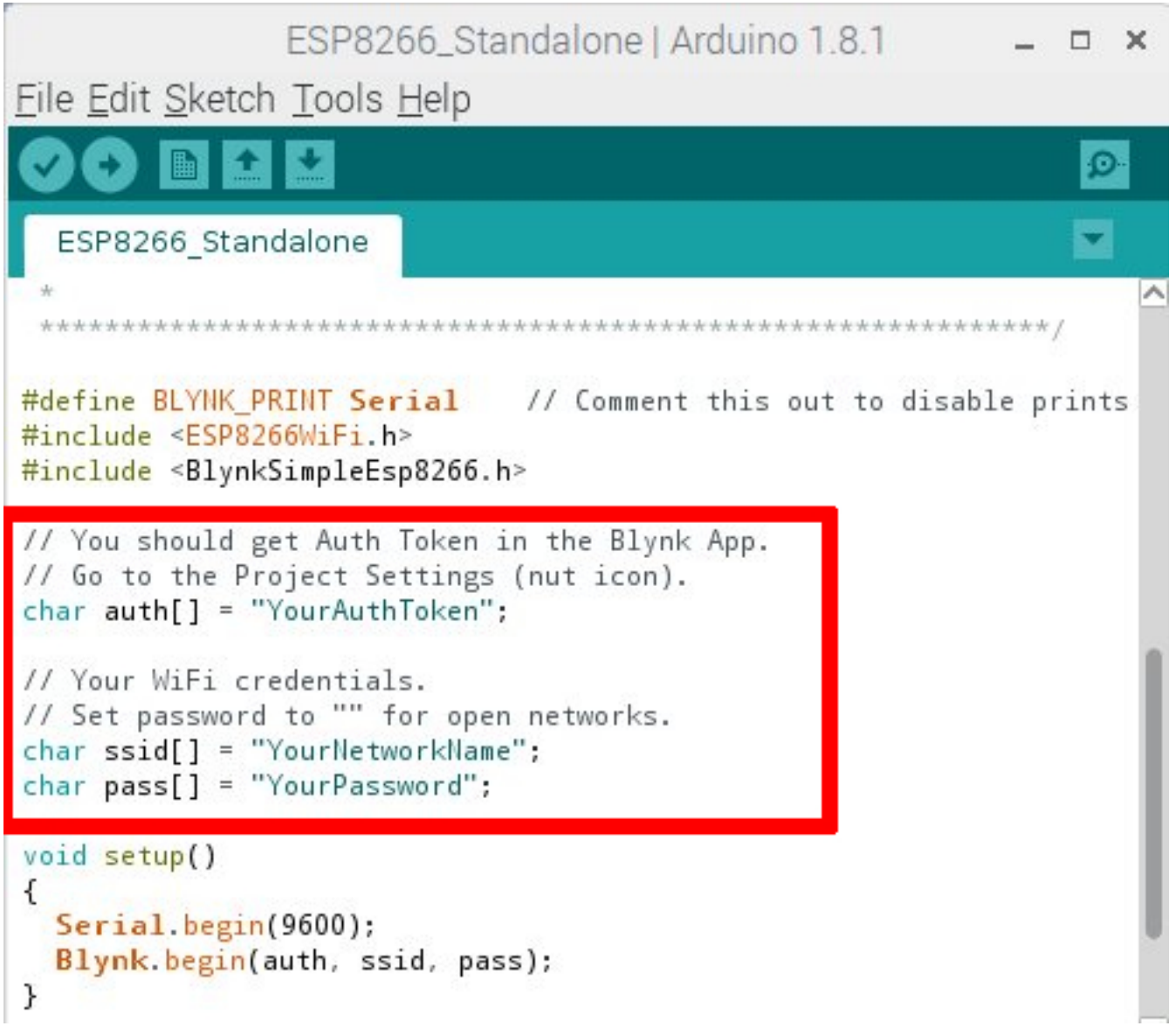
- To this:

```
char ssid[] = "HSC";
char pass[] = "youdidittoyourself";
```

Configure Auth Token

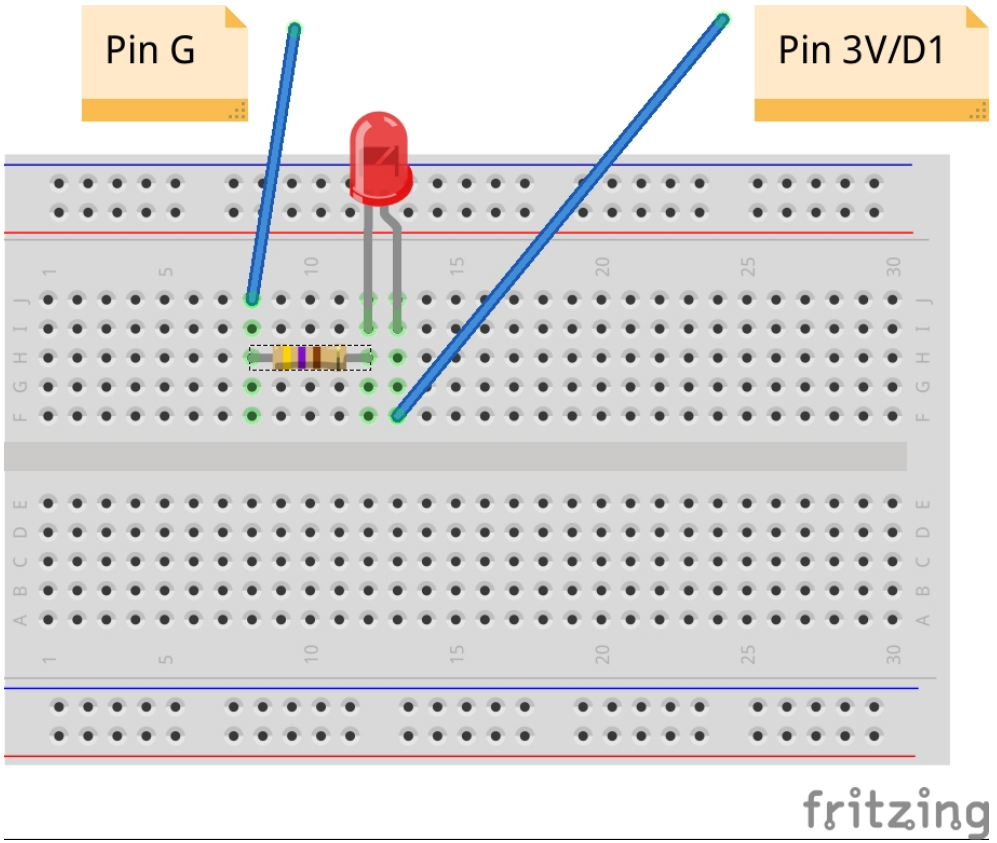
- We need to use the same Auth Token on the phone and on the ESP8266 so they can communicate.
- Open Blynk app on phone, press Settings icon (hex nut).
- Scroll down to Auth Tokens.
- Use Copy to copy to clipboard, paste into a note. (No “View” option - ?)
- Hand enter in Arduino IDE where it says “YourAuthToken”.
- Ctrl-S to save modified code.

Code To Change



Create LED circuit

- Use two jumper wires, LED and resistor
- Connect jumper to 3V on ESP8266, then LED, then resistor, then G on ESP8266
- Plug USB from ESP8266 to Raspberry Pi, LED should light.



Create LED circuit (cont)

- Now change jumper from 3V to D1.
- Choose Tools => Port => /dev/ttyUSB0 in Arduino IDE (only shows when ESP8266 is plugged in)
- Choose Tools => Serial Monitor in IDE
- Press Reset on ESP8266, see it connect to WiFi in Serial Monitor.
- Go to Blynk app on your phone, press little triangle at upper right to run the app.
- Press the button to turn LED on and off.

Pi no longer needed

- Unplug USB from Raspbery Pi
- Plug into a USB charger
- Press Reset on ESP8266
- Wait a bit, then control with Blynk app
- It should work even if IP address changes because of Auth Token.