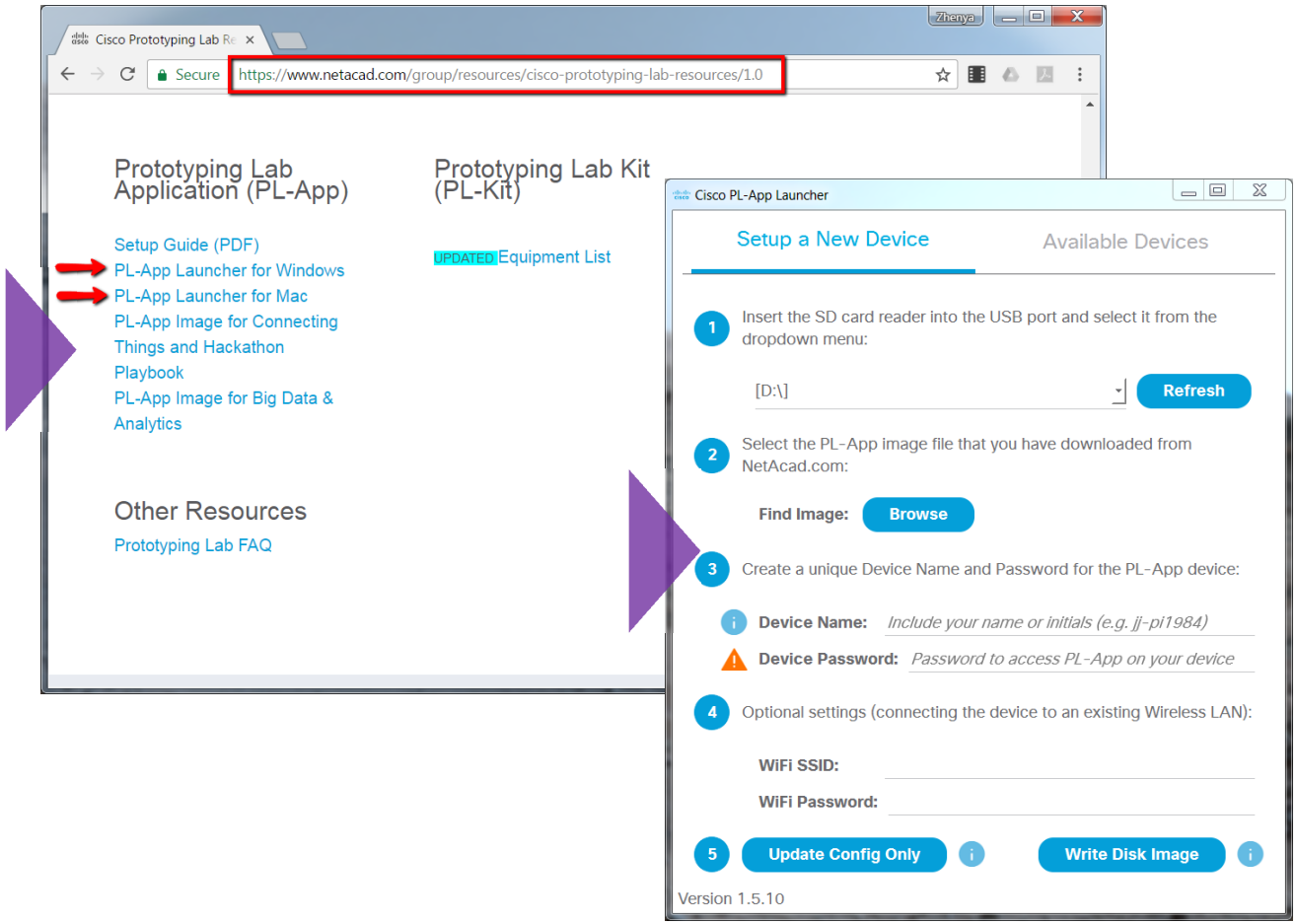
Step 1:
Preparing the Platform

Download and install PL-App Launcher

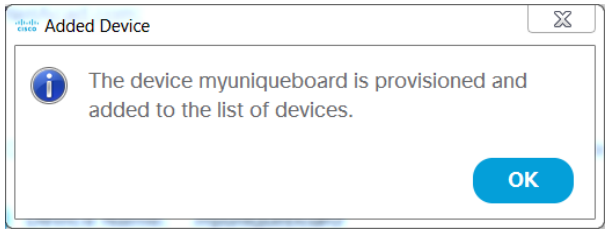
- Connect your laptop to the WiFi network
  - SSID: netacad
  - Password: workshop
- Go to NetAcad.com → Resources → Course Resources → IoT Fundamentals: Connecting Things → PL-App Launcher and Image →
- Download, install and launch PL-App Launcher

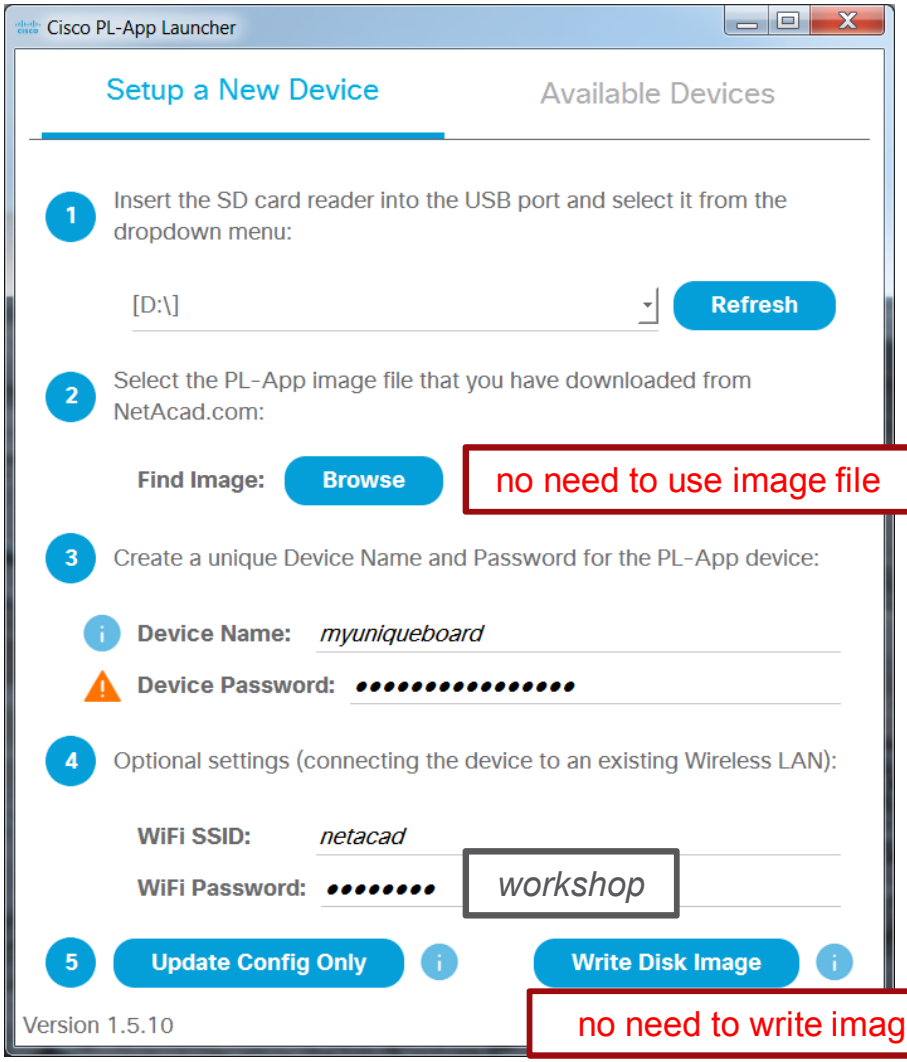


Configure PL-App

Your SD card is already flashed with PL-App image. You only need to configure it.

- Insert microSD card into your laptop using an appropriate adapter
- Select it from the dropdown menu 1
- Give your device a unique name and password 3
- Input WiFi SSID and password, if wireless network is used 4
- Click Update Config Only to update configuration without reimaging the SD card
- Configuration will be updated:

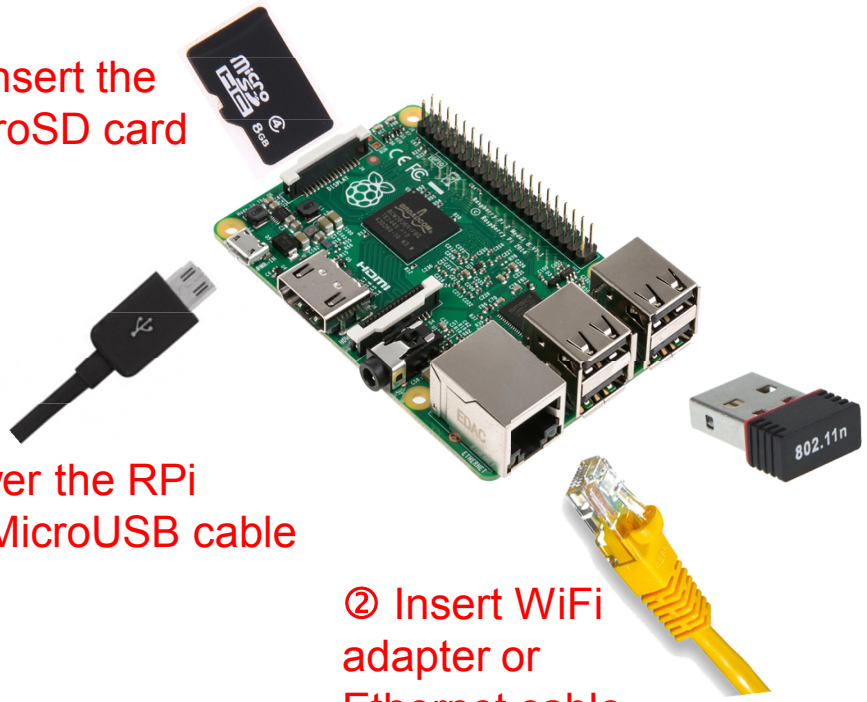




Connect and start your Raspberry Pi

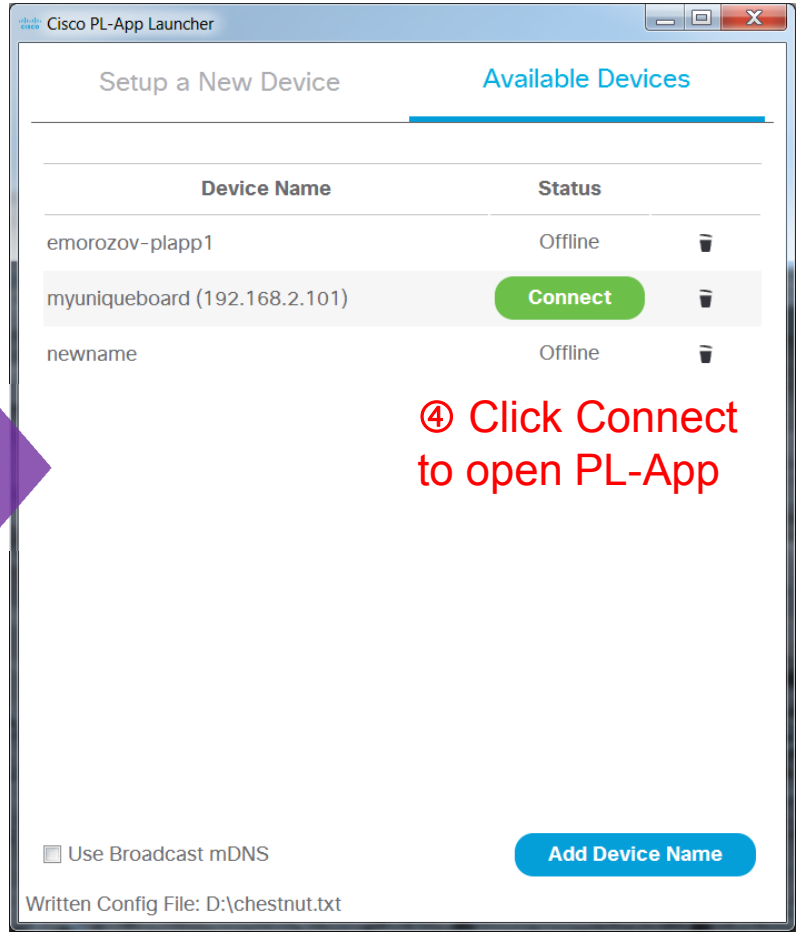
- Safely remove SD card from your laptop

① Insert the MicroSD card



③ Power the RPi using MicroUSB cable

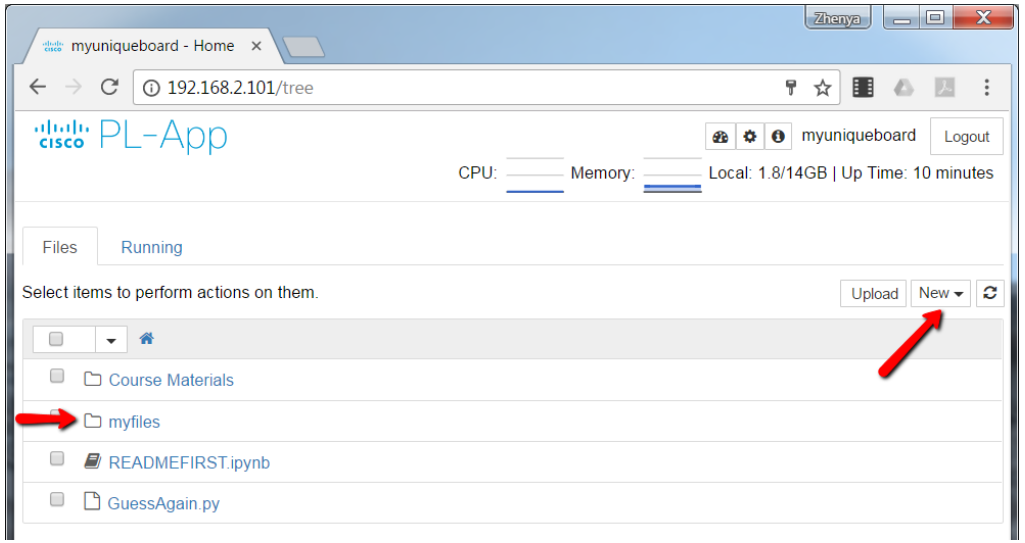
② Insert WiFi adapter or Ethernet cable

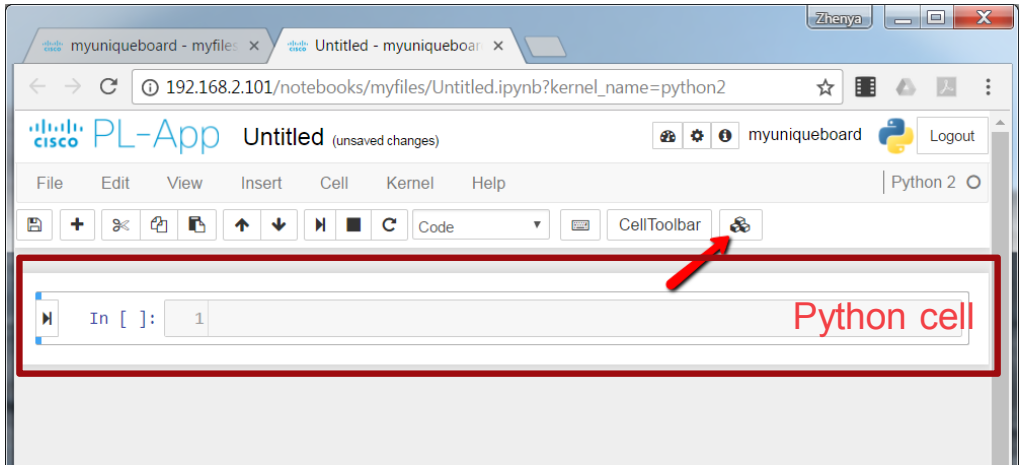


④ Click Connect to open PL-App

Create a project file

- Google Chrome is the best supported browser for PL-App at the moment
- Log into your board with the password you created
- Go to ‘myfiles’ folder
- Create a new notebook with Python 2
- A new notebook will open with a Python cell in it
- Click the small Blockly  icon to convert the cell into Blockly visual code
- We will use this cell to flash Firmata firmware into Arduino





Prepare your Arduino

In order to communicate with Raspberry Pi, Arduino should be flashed with a special firmware called Firmata

- Build the code to flash Arduino in the cell you have created
- Drag and snap Blockly instructions
- flash Firmata to Ardui instruction located under “Arduino” category
- The port should be **/dev/ttyACM0** or **/dev/ttyUSB0** depending on your hardware
- Connect Arduino to Raspberry Pi with USB cable
- Run the cell with ⏭ button

④ Run the cell

② Build the code to flash Arduino

① Grab instructions from here

③ Note a Python code is generated on the go

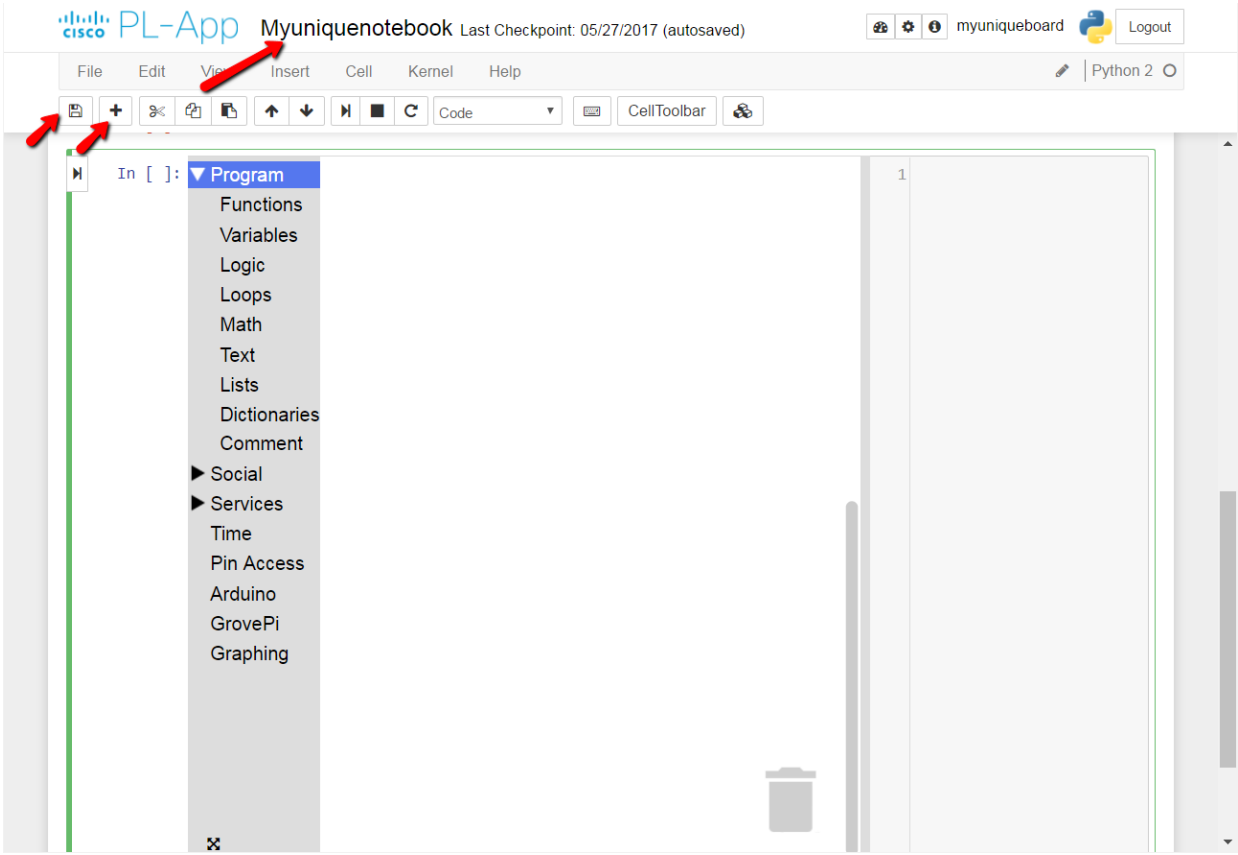
```
Welcome to PL-App
will flash Firmata now...
Flashing Standard Firmata to a USB-connected Arduino. Please wait...
Done flashing.
Out[2]: 0
```

Arduino is flashed

Get ready to build your project

Arduino has to be flashed only once. There is no need to flash it each time you run your project. We will use another cell to build your project.

- Click the + button to add new cell and make it Blockly cell
- Rename your notebook to give it a unique name
- Save your notebook



Step 2:
Creating a project

Project – Door monitoring

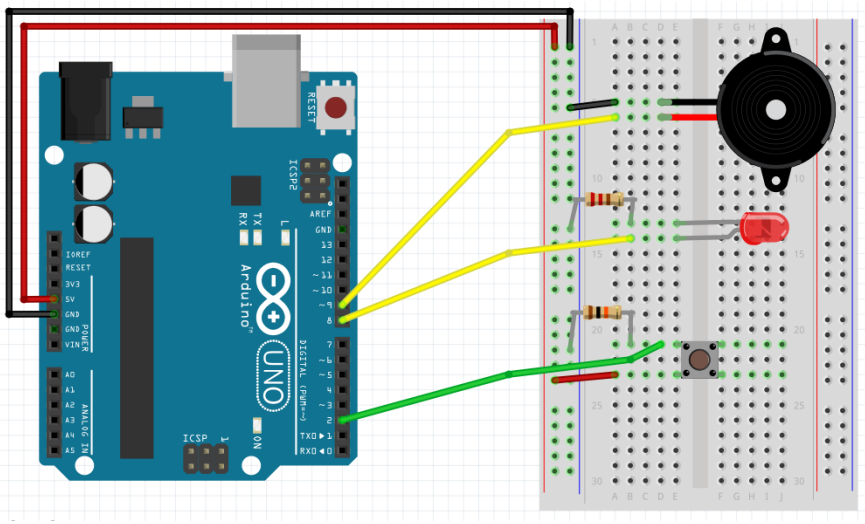
Monitor door using a simulation push-button

While door is closed:

- nothing happens

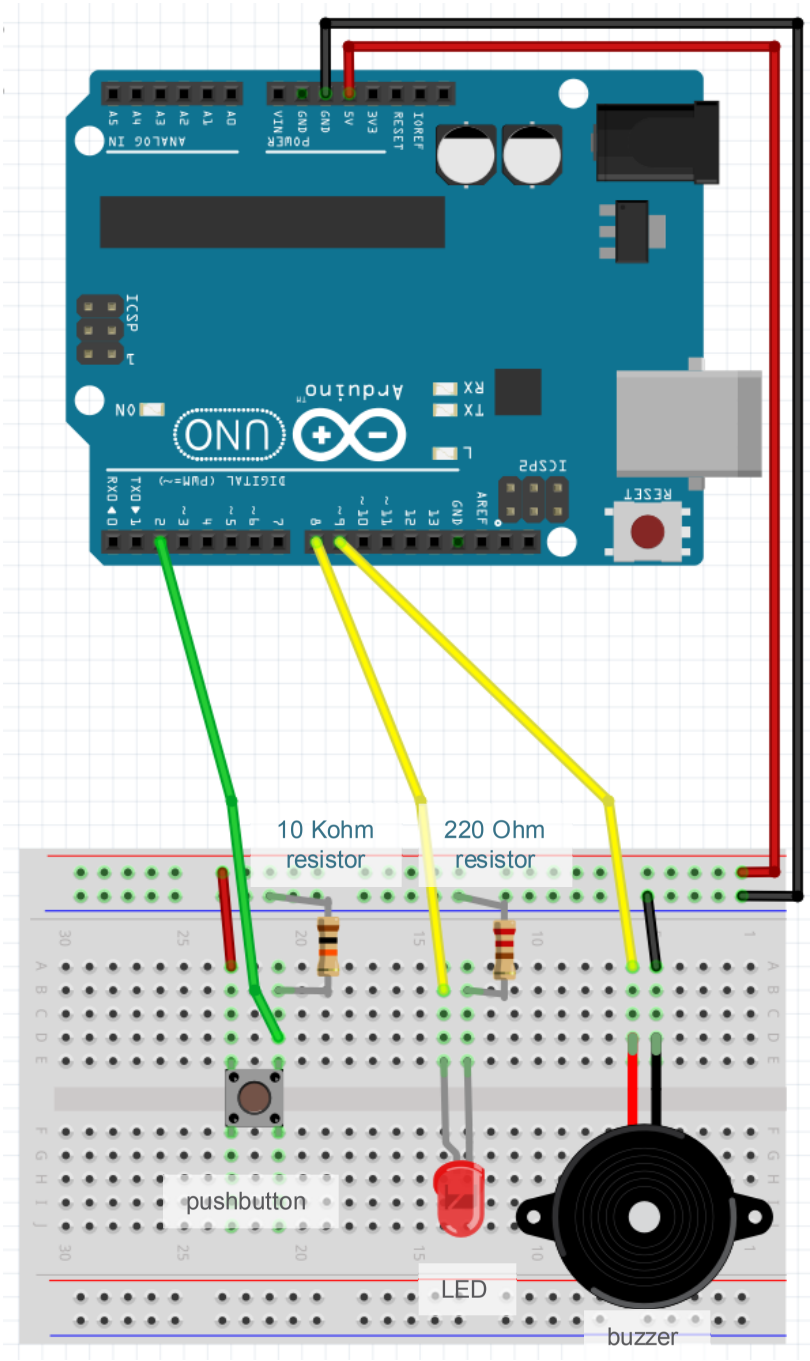
When door is opened:

- Turn alarm light on
- Sound annoying buzzer alarm
- Send twitter notification



Project - Wiring

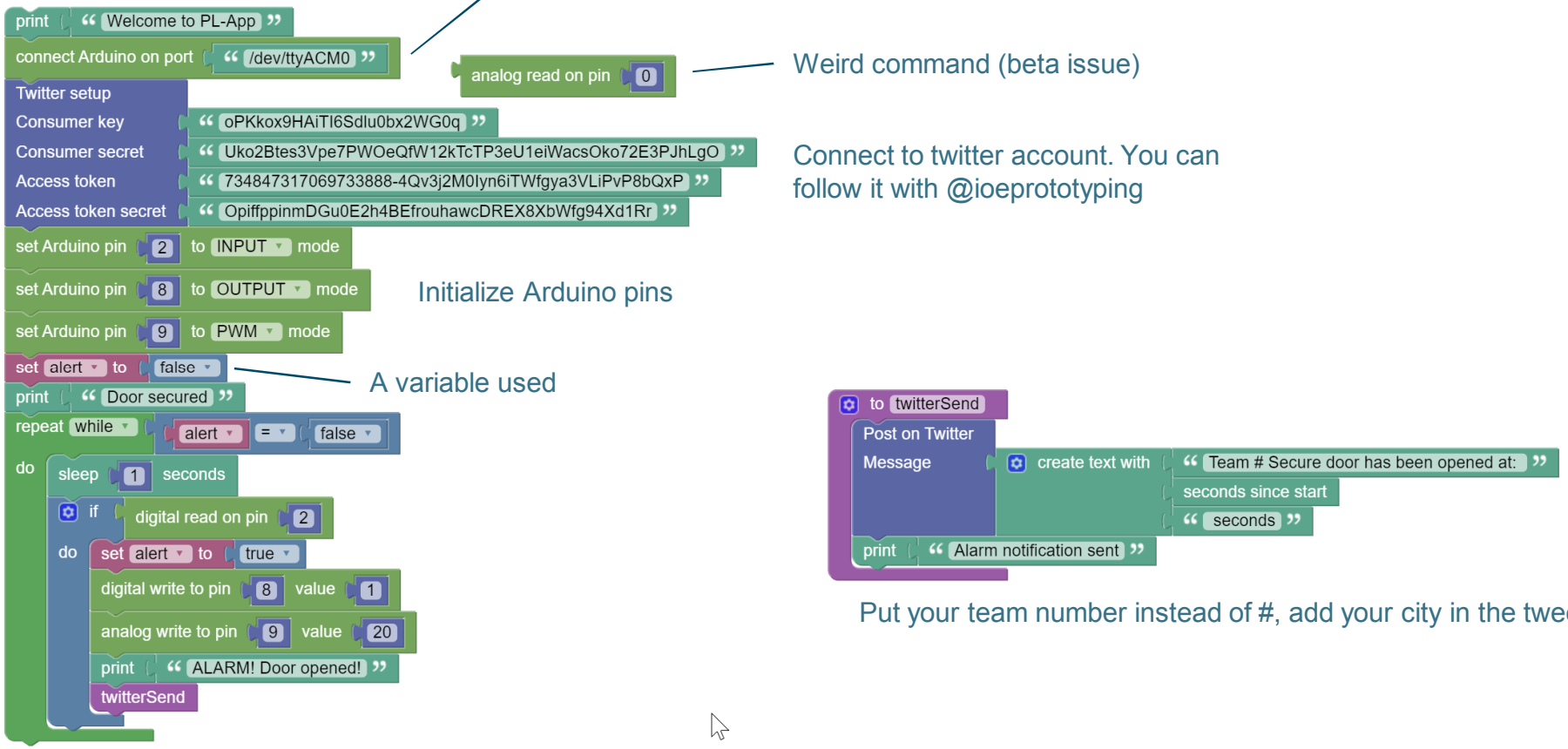
Wire color code:
RED – power 5V
BLACK – ground
GREEN – input
YELLOW - output



For resistor color coding, refer to page 41 of Arduino Projects Book

LED: short leg is ground

Project – Code



Try to build your project without twitter notifications and verify it is working. You can add twitter feature then.

Clean up

Please follow these clean up steps after the workshop:

- Disassemble your device completely
- Carefully pack all equipment back to the box
- You can keep the paper instructions