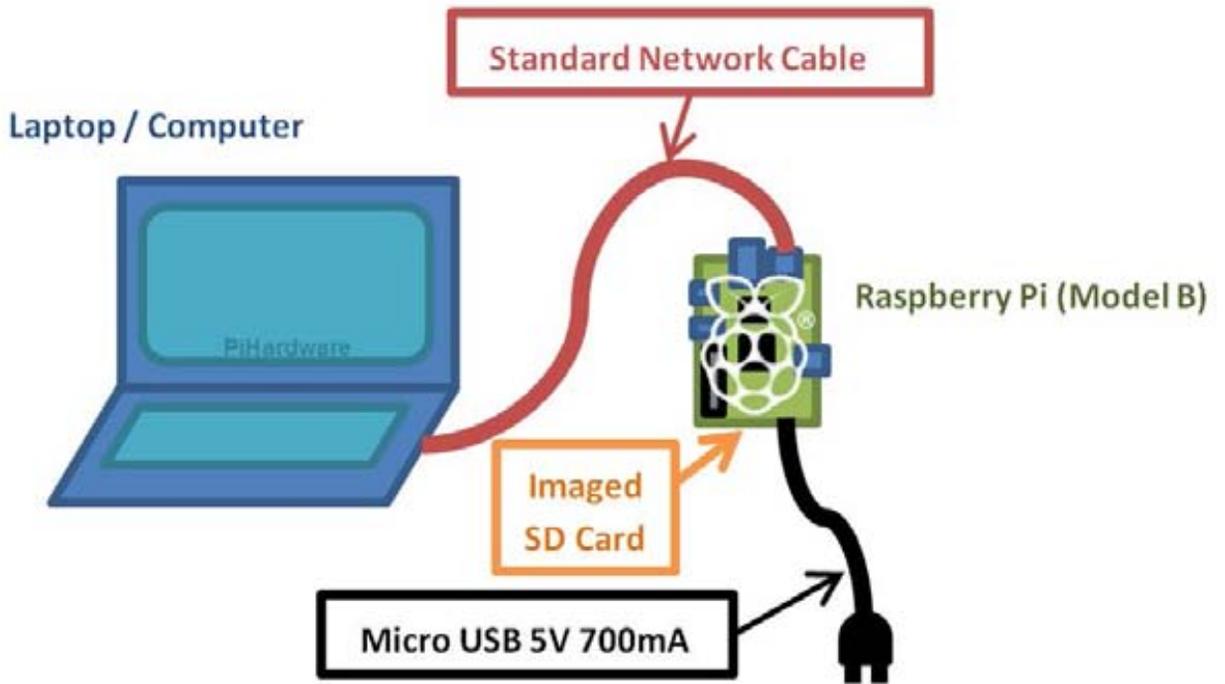
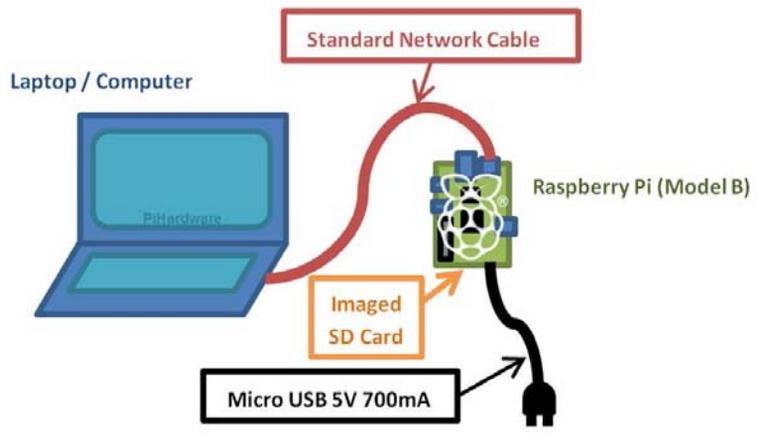


# MODIFY CAMERA CODE

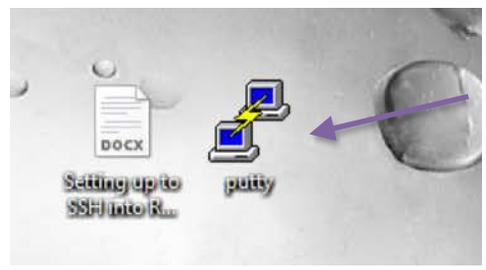


# CAMERA CODE

Congrats! You've assembled your pi and you've turned it on. Plug it into your computer with the ethernet cable.

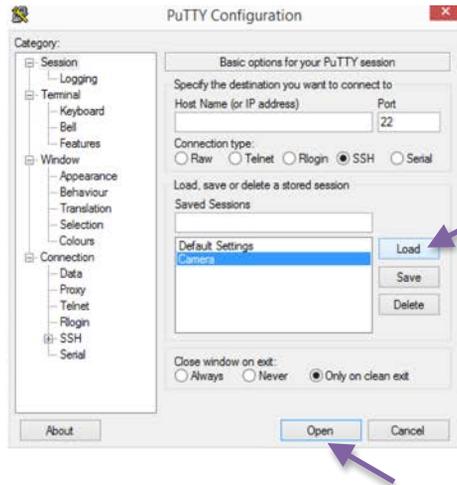


Open Putty on your desktop



# CAMERA CODE

On the Putty menu, select camera settings and click load.

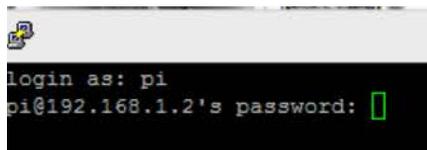


Press open and this window will appear.



Login as: **pi**

pi@192.168.1.2's password: **raspberry**



# CAMERA CODE

Yay! You are in the Pi

```
pi@alpha: ~  
login as: pi  
pi@192.168.1.2's password:  
  
The programs included with the Debian GNU/Linux system are free software;  
the exact distribution terms for each program are described in the  
individual files in /usr/share/doc/*/copyright.  
  
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent  
permitted by applicable law.  
Last login: Thu Jun  2 00:17:07 2016  
pi@alpha:~ $
```

Type **ls** and enter to see all the pi files.

```
pi@alpha:~ $ ls  
99-99turbo.conf      Downloads      image500.jpg   Pictures  
adafruit-pi-cam-master  Dropbox-Uploader  image.jpg      Public  
adapiluv320x240.jpg  gwb           master.zip     python_games  
Desktop              image1.jpg     Music          Templates  
Documents            image2.jpg     Photos         Videos  
pi@alpha:~ $
```



# CAMERA CODE

Type **cd gwb** to enter the Girls Who Build folder

Type **ls** to view all the files in the GWB folder

```
pi@alpha:~$ cd gwb
pi@alpha:~/gwb$ ls
GWB_take_picture2.py  image2.jpg  Old  show_ip
image1.jpg           image.jpg   README.md
pi@alpha:~/gwb$
```

type **nano GWB\_take\_picture2.py**

```
GWB_take_picture2.py  image2.jpg  Old  show
image1.jpg           image.jpg   README.md
pi@alpha:~/gwb$ nano GWB_take_picture2.py
pi@alpha:~/gwb$
```

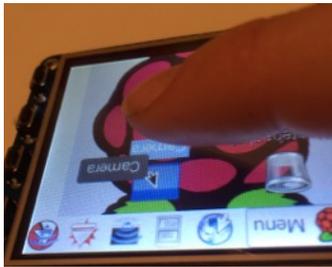
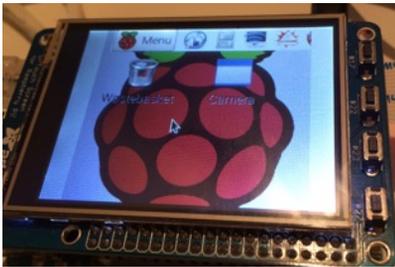
You are now inside the GWB take a picture script!

```
GNU nano 2.2.6 File: GWB_take_picture2.py
#Girls Who Build
#Raspberry Pi Camera
#by Kristen Bailey 04/17/16

picamera python resource: https://www.raspberrypi.org/documentation/usage/camera5
import picamera #import picamera library
import RPi.GPIO as GPIO #import general input/output on Raspberry pi
import time
from time import sleep
import pygame
import os
#set up buttons
GPIO.setmode(GPIO.BCM)
GPIO.setup(17,GPIO.IN,pull_up_down=GPIO.PUD_UP) #Set up button input on pin 17
#button is a pull-up resistor https://learn.sparkfun.com/tutorials/pull-up-resistors
GPIO.setup(22,GPIO.IN,pull_up_down=GPIO.PUD_UP) #Set up button input on pin 17

#LCD Screen setup
WIDTH=256 #160-320
Read 65 lines
Get Help WriteOut Read File Prev Page Cut Text Cur Pos
Exit Justify Where is Next Page UnCut Text To Spell
```

This script is connected to the desktop icon for your camera code. When you double click the icon, it runs the `GWB_take_picture2.py`. So any changes you make to this file `GWB_take_picture2.py` you will see in the icon-started file.



# CAMERA CODE

Let's change a variable: camera.image\_effect='cartoon'

Also try 'none' 'sketch' 'oilpaint' 'cartoon'

To see the this effect in your view finder, this variable has to be applied here.

```
GNU nano 2.2.6      File: GWB take picture2.py
while True: #Checking if button has been pressed
    button_unpressed=GPIO.input(17) #Normally the button is unpressed
    button_unpressed_camera=GPIO.input(22) #Normally the button is unpressed

    #For displaying the image on the lcd screen
    camera.capture('image.jpg')
    img=pygame.image.load('image.jpg')
    img=pygame.transform.scale(img, (WIDTH,HEIGHT))
    screen.blit(img, (0,0))
    pygame.display.flip()
    camera.image_effect='cartoon'
#If button is pressed, take a picture
if button_unpressed==False:
    print ('Button Pressed')

#Camera settings http://picamera.readthedocs.io/en/release-1.10/api_cam$
camera.sharpness = 0
camera.contrast = 0
camera.brightness = 50

^G Get Help  ^O WriteOut  ^R Read File  ^Y Prev Page  ^K Cut Text   ^C Cur Pos
^X Exit      ^J Justify   ^W Where Is  ^V Next Page  ^U UnCut Text ^I To Spell
```

Not inside the "Button is pressed" block (these changes will affect the picture you save, not the one you are viewing).

```
#If button is pressed, take a picture
if button_unpressed==False:
    print ('Button Pressed')

#Camera settings http://picamera.readthedocs.io/en/release-1.10/api_cam$
camera.sharpness = 0
camera.contrast = 0
camera.brightness = 50
```

To save the changes: **Ctrl+x** to exit

**Y** for yes to save. Click **enter**

On the LCD screen, double click the camera icon to run the new camera code.



Girls Who Build Cameras

# CAMERA CODE

Results of different color effects: watercolor and sketch



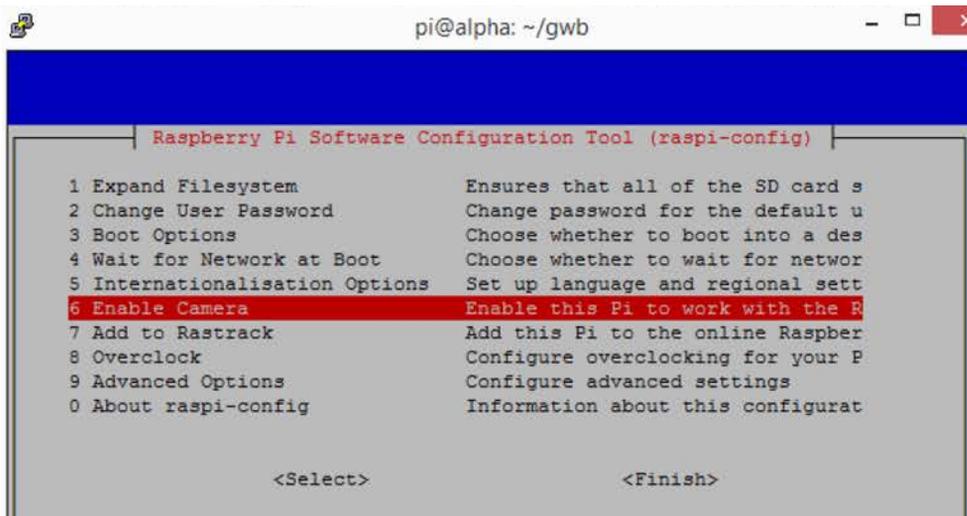
# CAMERA CODE

## Troubleshooting

### Issue: Picamera not lighting up

type `sudo raspi-config` in the command line

Use your arrow keys to select 6. Enable camera (Up/Down arrows), select enable (Right/Left arrows). Click enter and choose reboot now.



```
pi@alpha: ~/gwb
Raspberry Pi Software Configuration Tool (raspi-config)
1 Expand Filesystem          Ensures that all of the SD card s
2 Change User Password       Change password for the default u
3 Boot Options               Choose whether to boot into a des
4 Wait for Network at Boot   Choose whether to wait for networ
5 Internationalisation Options Set up language and regional sett
6 Enable Camera              Enable this Pi to work with the R
7 Add to Rastrack            Add this Pi to the online Raspber
8 Overclock                  Configure overclocking for your P
9 Advanced Options           Configure advanced settings
0 About raspi-config         Information about this configurat

<Select>                      <Finish>
```

# CAMERA CODE

## References

### Setting up Static IP

<https://pihw.wordpress.com/guides/direct-network-connection/>

### cmdline.txt file

<https://github.com/kristenrailey/GWB/blob/master/cameras/raspberrypi/cmdline.txt>

### Detailed instructions for downloading Putty and setting up static IP

<https://github.com/kristenrailey/GWB/blob/master/cameras/raspberrypi/Setting%20up%20to%20SSH%20into%20Raspberry%20Pi%20from%20laptop%20for%20GWB.pdf>

### Python Camera Library

<https://www.raspberrypi.org/documentation/usage/camera/python/README.md>



## Resource: Girls Who Build Cameras

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