How to Make Raspberry Pi Webcam Server and Stream Live Video || Motion + Webcam + Raspberry Pi

by Being Engineers

Hello and welcome to **Being Engineers**.

If you are watching this, then you might know how to work with **Raspberry Pi** and you may want to make a **Webcam server** that can stream live video over the internet.

This is what we will be doing today. The process will be very simple but the result is pretty impressing and useful. Before starting you have to know 2 things:

1. How to install OS in a Raspberry pi. (link - https://www.instructables.com/id/HOW-TO-INSTALL-RA... (https://www.instructables.com/id/HOW-TO-INSTALL-RASPBIAN-OS-IN-YOUR-RASPBERRY-PI/))
2. How to use your **Laptop Screen** a monitor for Raspberry pi. (link - https://www.instructables.com/id/How-to-Use-Window... (https://www.instructables.com/id/How-to-Use-Windows-Laptop-As-Monitor-for-Raspberry/))

So before we get started, we want to clarify that the process is not the only process to achieve this result. I am showing this to you because I found this most convenient to the user.

You can check out our YouTube channel - www.youtube.com/c/being_engineers1 (http://www.youtube.com/c/being_engineers1)

Our Website - www.being-engineers.com (http://www.being-engineers.com)

We have made a video tutorial on it.**So do have a look. :)**

//www.youtube.com/embed/3m29S2rbqBw

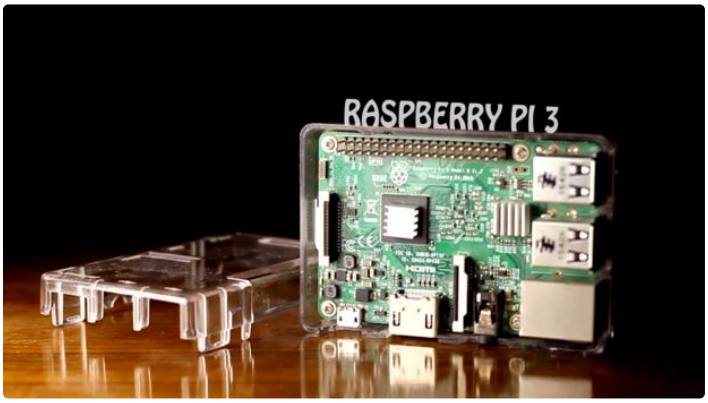
Now let's begin.

Step 1: Gather the Components

In this project, you will need the following:

- **Raspberry Pi 3 Model B** (Any version will work, but in PI 3 we have the provision for **WiFi** that can make this server wireless)
- **USB Webcam** (I will use my old **Logitech** Webcam. Use a better camera for better results.)
- **5V 2A Power Source** (I will use my **Honor** 13000mah Power Bank)
- **Lan Cable** (RJ - 45 Cable)
- **Minimum 8 GB Class 10 SD Card** (I will use **Sandisk** 32GB class 10 SD Card)

If you haven't install the **Raspbian OS** on the SD card, then you will need a memory card reader and checkout our tutorial on how to install the OS in Raspberry Pi.



Step 2: Set up Your Raspberry Pi

We assume you have the SD Card with the **raspbian** OS installed.

Then **insert the SD Card** in the Pi.

Connect the USB camera to any one of the four available USB port.

Connect the ethernet cable aka LAN cable to your Pi and connect the other end to your router.

Then **Power Up** the Raspberry Pi.

The next step is only for Raspberry Pi 3 users. Others. go to step 4.

Step 3: Connect your Pi to Internet through WiFi (only for Raspberry Pi 3 users)

Open the desktop of Raspbian and connect to WiFi by putting the correct password.

When the raspbian is connected to the network by WiFi, then shut down the system.

Now detach the LAN cable and restart. Then you must be connected to the Internet via WiFi only.

This will help to move your webcam and the pi anywhere without the RJ-45 cable.

Step 4: Know your Raspberry Pi IP Address

Do the following steps to view Pi IP address.

1. **Open your browser** on laptop or mobile.
2. Go to your **Router settings** by typing in the default IP address of your router. (written somewhere on your router.)
3. Find the **list of connected devices**.
4. Find the **corresponding IP address** of the device named **raspberry.**

In our case, it is **192.168.0.107**

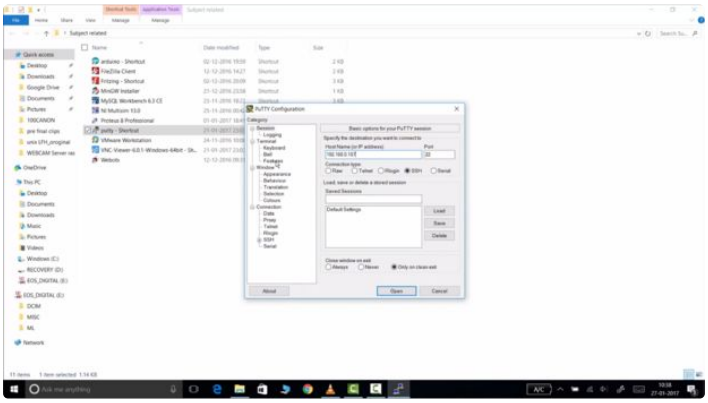
Step 5: Connect to your Pi by SSH connection (PUTTY)

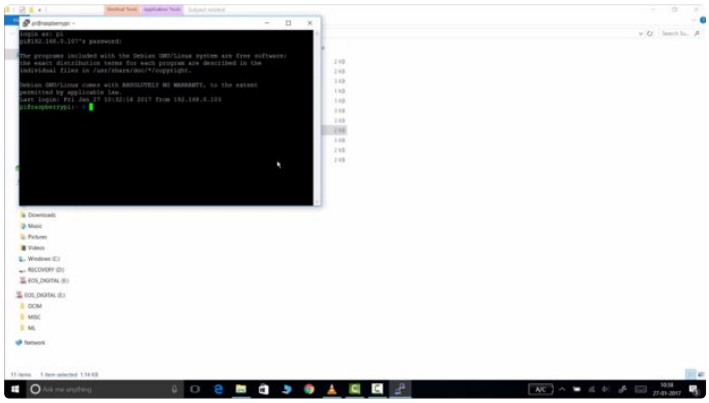
Open up **Putty** and type in the IP address of your Pi and connect.

'pi' & 'raspberry' is the default '**login as**' and '**password**' in Raspbian.

It is always a good practice to **Update** and **Upgrade** the system as soon as you log in.

To do it, type in the command '**sudo apt-get update**' and '**sudo apt-get upgrade**' one at a time.





Step 6: Install the Software and Do the Necessary Settings

Type in the command '**sudo apt-get install motion** ' to start the installation.

Now to make sure that the camera is correctly detected.

Type in the command '**lsusb**' and enter. You should see the name of your camera. If it is NOT there, then there is **some problem** in your camera or the camera is **not supported in 'motion'**.

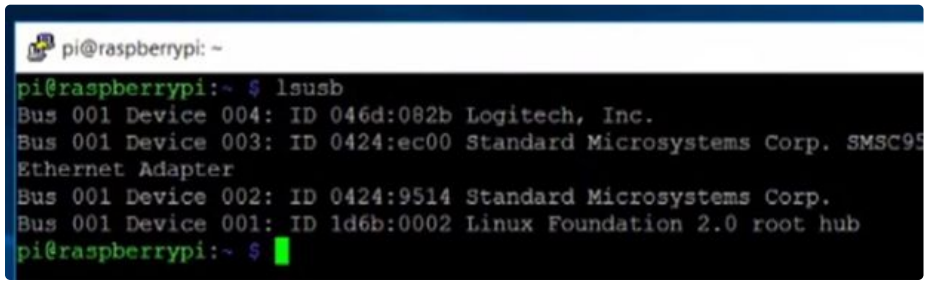
After the installation is complete, type in the command ' **sudo nano /etc/motion/motion.conf** ' and press enter.

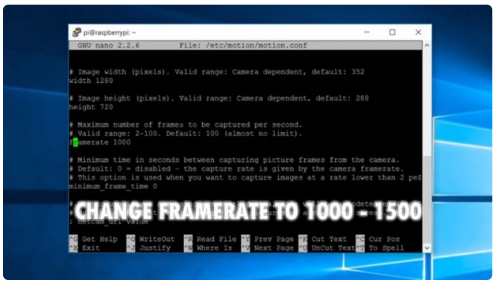
Then you have to change some settings in the .conf file. It might be difficult sometimes to find the settings but use **'ctrl + w'** to find it. So follow the steps:

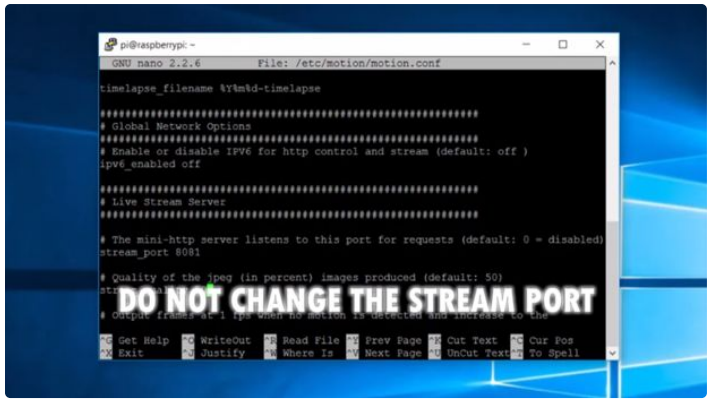
1. Make sure **'daemon' is ON**.
2. Set **'framerate'** anywhere in between **1000 to 1500**.
3. Keep '**Stream_port'** to **8081.**
4. **'Stream_quality'** should be **100.**
5. Change '**Stream_localhost'** to **OFF.**
6. Change '**webcontrol_localhost'** to **OFF.**
7. Set **'quality'** to **100.**
8. Set '**width'** & **'height'** to **640** & **480.**
9. Set **'post_capture'** to **5.**
10. Press **ctrl + x** to exit. Type **y** to save and **enter** to conform.

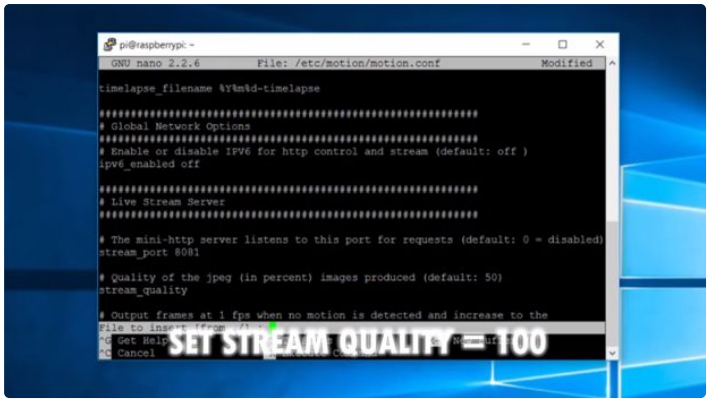
Again type in the command '**sudo nano /etc/default/motion '** and press **enter**.

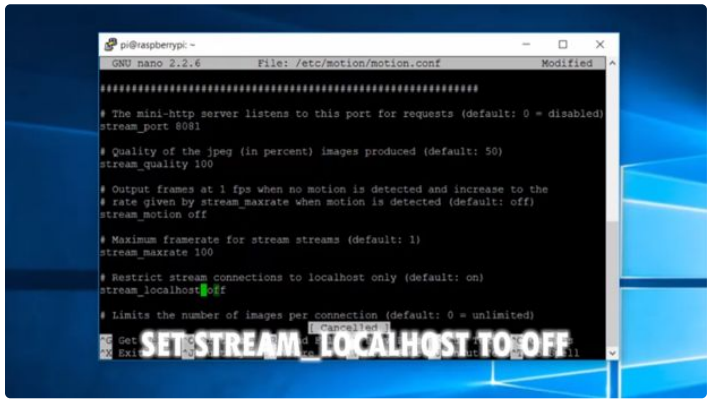
Set **' start_motion_daemon '** to **yes.** Save and exit.

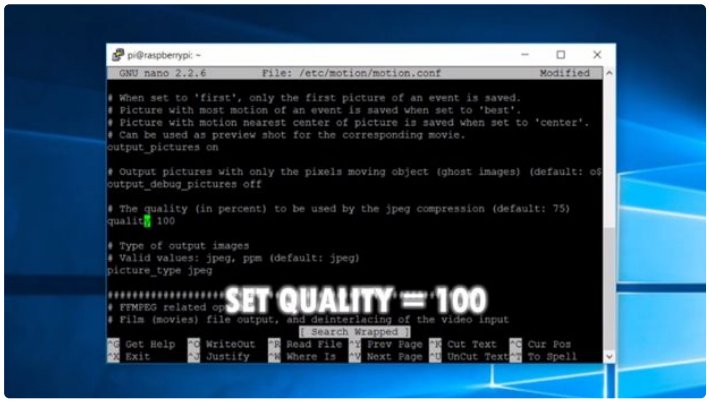


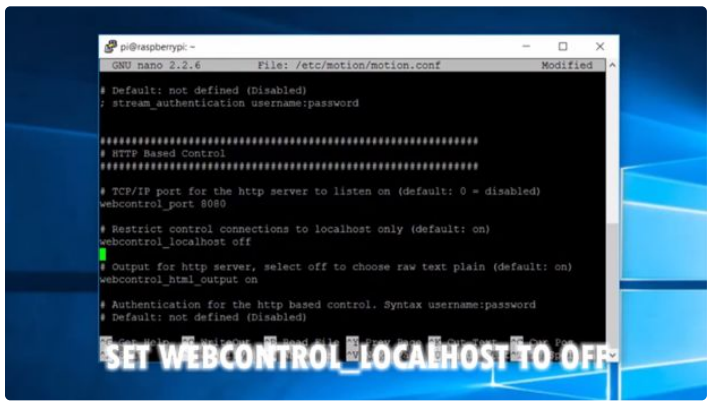


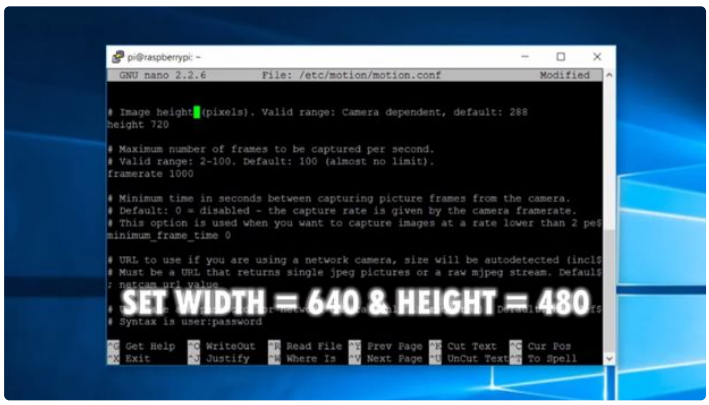


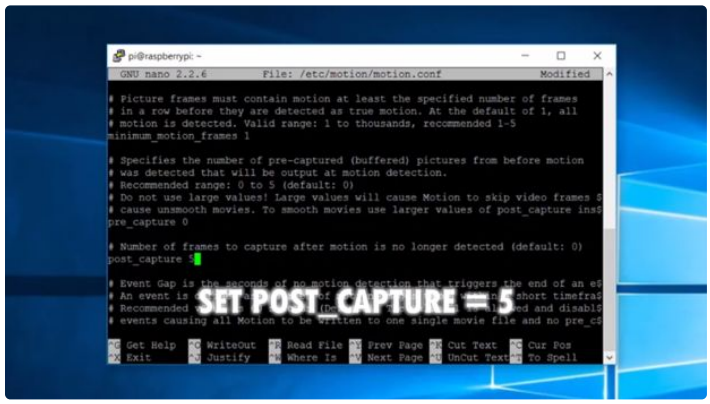


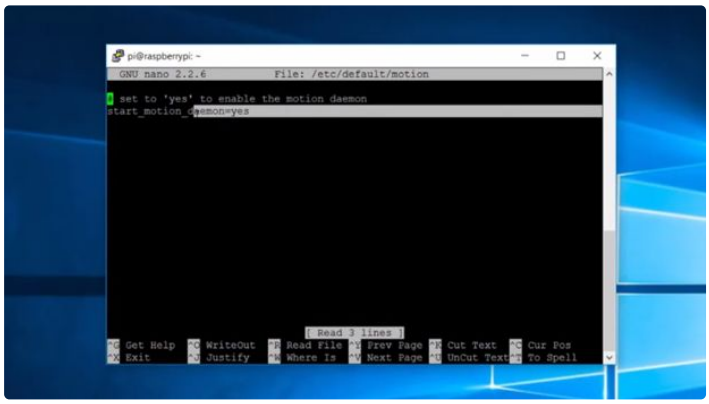








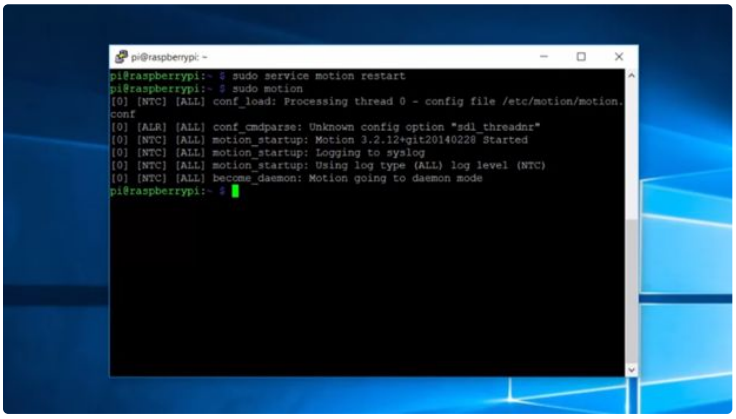




Step 7: Start The Server

First of all your have to **restart** the motion software. To do it type in the command **'sudo service motion restart'** and press **enter.**

Again type in the command **'sudo motion'** and press **enter.** Now your server is ready.



Step 8: It's DONE!!

Now open up your browser. Type in the IP address of your raspberry Pi and the port number in this way:

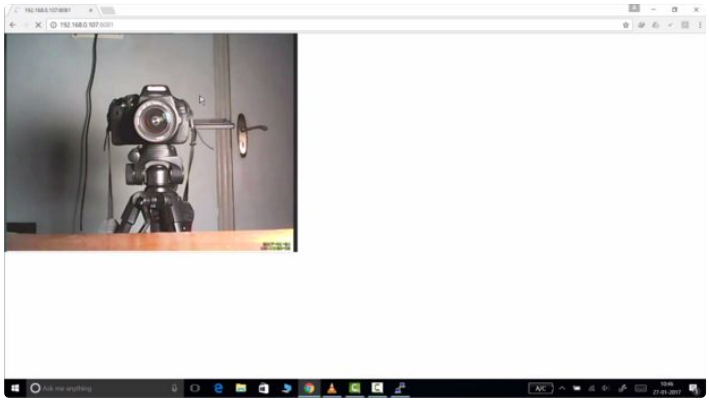
192.168.0.107:8081 (First there is the IP address, then a ':', then the port number). Press **Enter.**

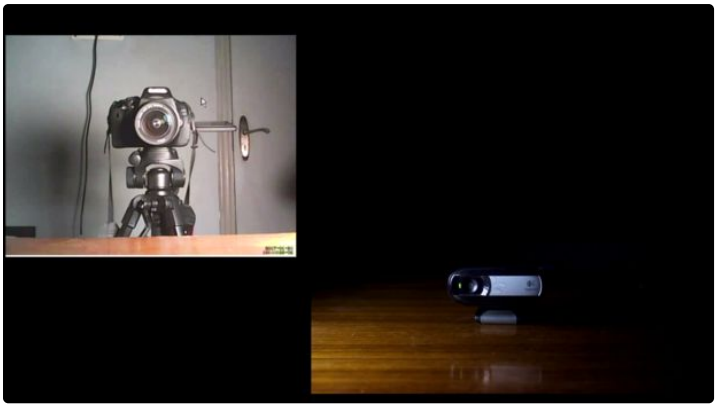
Now **you can see the Live feed coming from your webcam** directly on your laptop or mobile or both at the same time.

Hope you have enjoyed this tutorial. If yes then please do **SUBSCRIBE** to our channel **Being Engineers**. It really helps us a lot on seeing your support and interest towards our channel and don't forget to share :)

Channel link - https://www.youtube.com/c/being_engineers1 (https://www.youtube.com/c/being_engineers1)

Peace.





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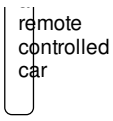
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