

Raspberry Pi USB Web Cam Time-Lapse

GETTING STARTED

It is possible to buy a dedicated Raspberry Pi camera module but for this use a normal USB WebCam with the Raspberry Pi to create a Time-Lapse the Pi using a little Shell/Bash code.

CONNECT THE CAMERA

To start you'll need to connect the camera to the Raspberry Pi using one of

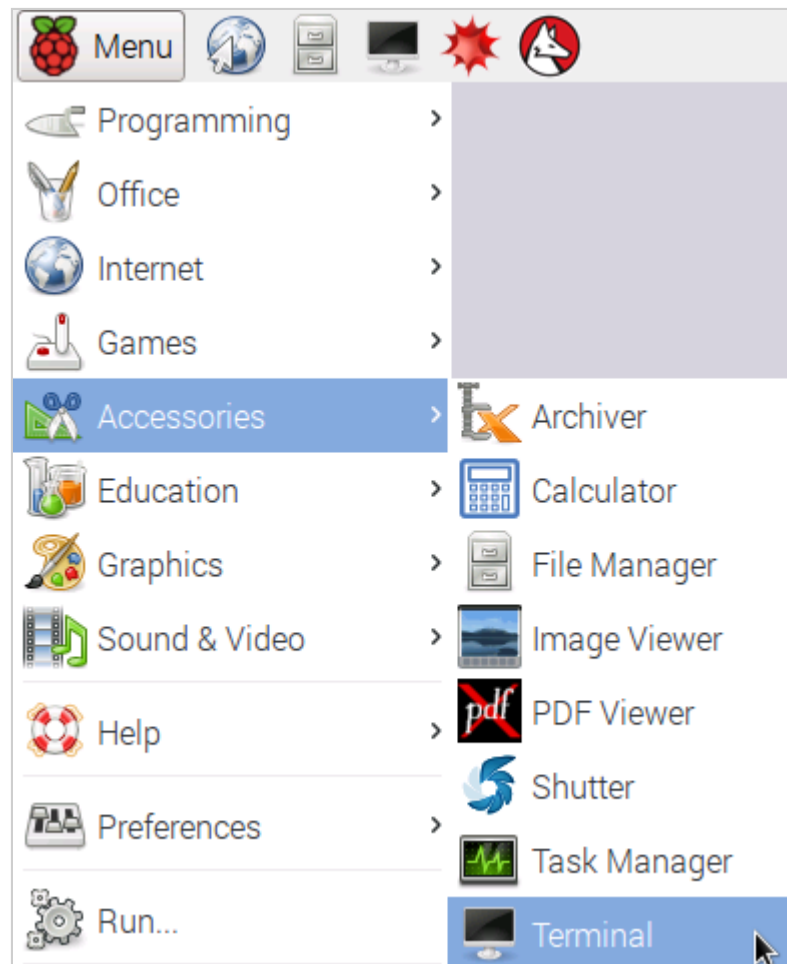
1. Locate the USB port and connect the Web Cam:





2. Start up the Pi.

3. Open the **Terminal** from the main menu:



4. Ensure the camera is recognised by typing:

```
lsusb
```

After pressing the Enter keyboard key you should see a reference to you

```
Bus 002 Device 003: ID 0c45:62c0 Microdia Sonix USB 2.0 Camera
```

ENSURE SOFTWARE IS INSTALLED

To capture images from the Web Cam we will use a program named 'fswebcam'.
Terminal type the command fswebcam

1. Ensure the software is available:

```
sudo apt-get install fswebcam mencoder
```

2. If the fswebcam is not already installed then the command above will fail and install it on your Raspberry Pi.

CAPTURE AN IMAGE

Now your camera is connected, you can get started by trying to capture a photo.

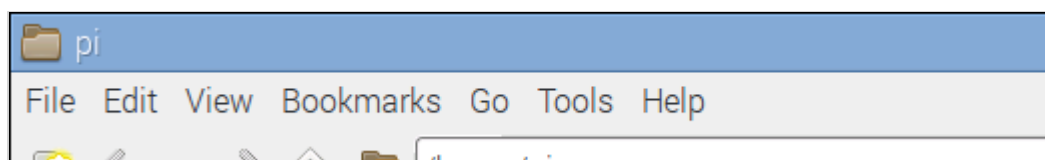
1. In the **Terminal** type the following command to take a photo:

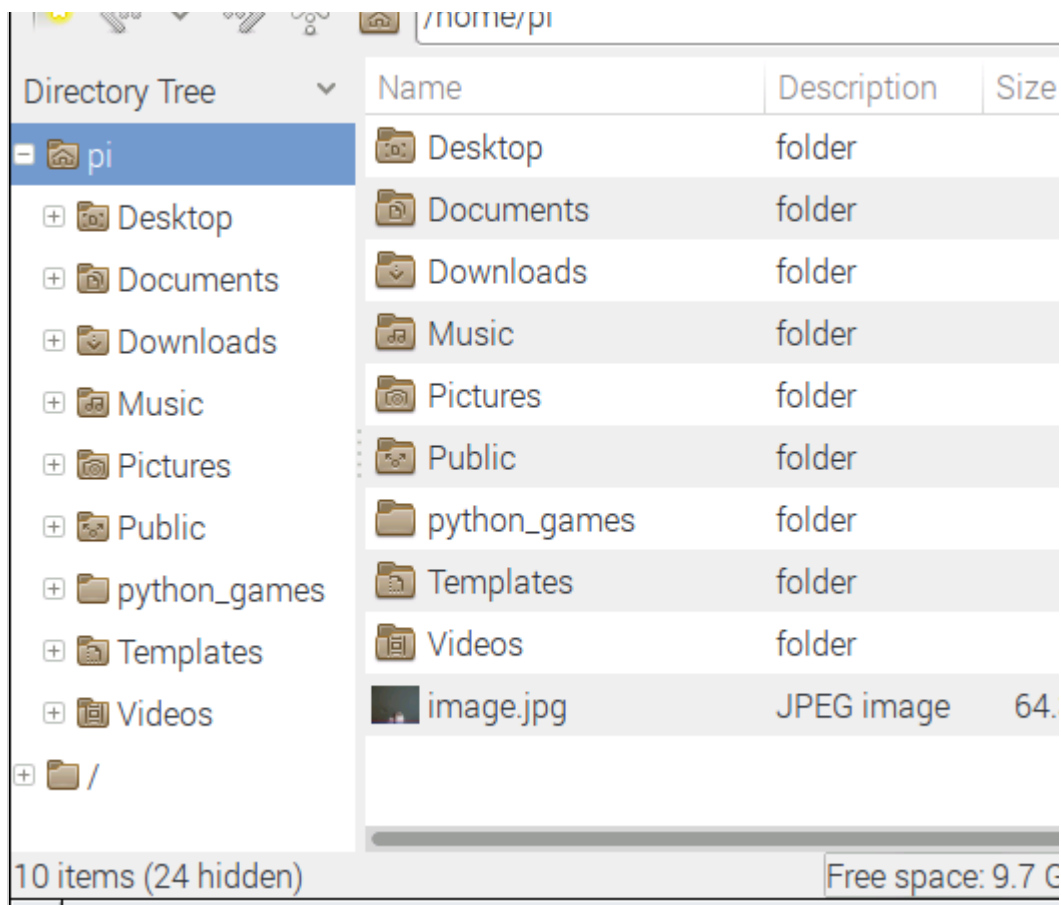
```
fswebcam image.jpg
```

2. You should get some output telling you that the image was captured.
3. Open the **File Manager** from the main menu



4. Locate and open the captured image i.e. image.jpg:





5. You should notice that the image is black with no detail. We need to tell the camera to wait a few seconds so it has finished adjusting for the exposure. We can do this with the `fswebcam` command. Try the following in the **Terminal**:

```
fswebcam -S 20 image.jpg
```

6. We can also remove the banner from the image by adding the `--no-banner` option. Try the following:

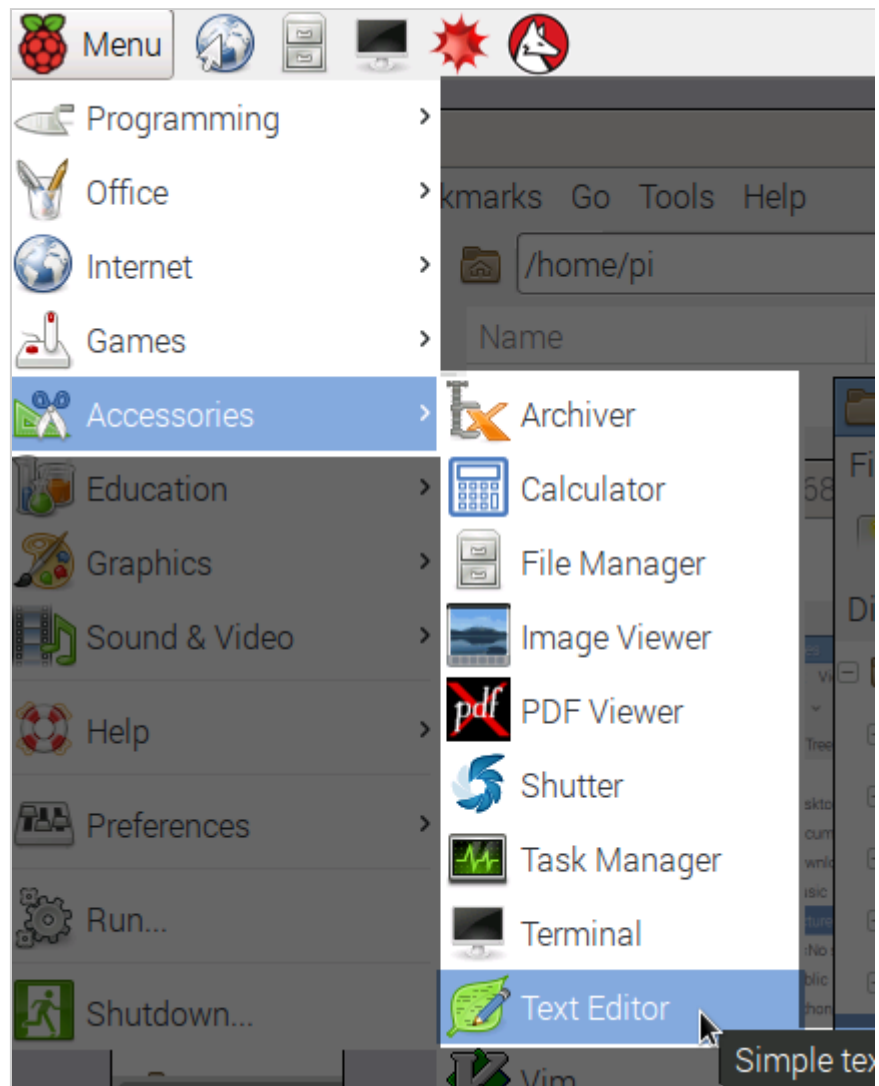
```
fswebcam -S 20 -r 640x480 --no-banner image.jpg
```

BASH SCRIPT

In this section of the exercise we will use a programming language called Bash script (program) to take multiple photos using the webcam and later

to create a time-lapse video.

1. Open a Text Editor



2. Enter the following Bash code into the Text Editor:

```
#!/bin/bash

DATE=$(date +"%Y-%m-%d_%H%M")

for i in {1..100}
do
    fswebcam -S 20 --no-banner /home/pi/$DATE.jpg
    sleep 10
done
```

3. Save the file as create-timelapse.sh
4. Return to the **Terminal** and type the following command to run the Bas

```
bash create-timelapse.sh
```

5. This code will run for approximately 17 minutes and will save a photo e
the code has finished running you should find 100 photos in your **File M**

COMBINE THE PHOTOS INTO A VIDEO

Now you'll need to stitch the photos together to create a video.

You can do this on the Pi using mencoder. First create a list of the names

1. Open your **Terminal** again and type the following:

```
ls *.jpg > stills.txt
```

2. This will create a file named stills.txt with the names of all files that end
stills.txt file as input to mencoder.
3. Type the following command into the Terminal to join all the files into a
enter key until after the .txt bit at the end):

```
mencoder -nosound -ovc lavc -lavcopts vcodec=mpeg4:aspect=16/9:vbit.  
-vf scale=1920:1080 -o timelapse.avi -mf type=jpeg:fps=24 mf://@sti
```

4. Once that's completed, you should have a video file called timelapse.av
from your images.