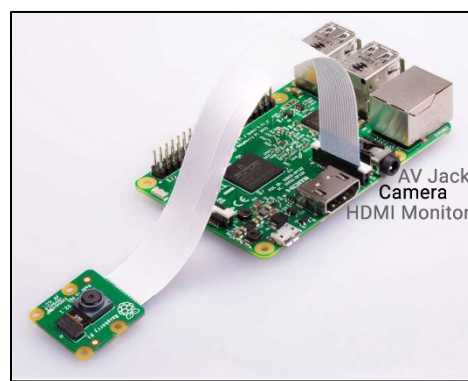# Using the Raspberry Pi Camera

The Raspberry Pi Camera V2 is a second generation Raspberry Pi camera module with fixed focus lens. With a Raspberry Pi computer, it is capable of 8MP still pictures and 1080P video at 30 frames per second.

Setup and Connection

The camera ships in an antistatic bag. It also has a protective cover over the lens. Remove the cover by pulling gently upward on the blue tab. Set the protective cover aside by sticking it to the antistatic bag. Replace the protective cover over the lens and store the camera in the antistatic bag when you are finished with the camera. **The Raspberry Pi must be shut down and power disconnected before connecting the camera.**

Click 🍓 ➤ *Shutdown* ➤ *Shutdown,* wait for the green light to go out, then remove power.

The camera connection in the Raspberry Pi is between the round AV jack and the HDMI connector, as shown in the photograph. The latch on the connector may be black, blue, or beige. Lift the latch by holding the two tabs on either end and gently pulling upward. Insert the ribbon cable into the connector; the blue side goes toward the round AV jack. Gently push until the cable stops. Close the latch by pressing on the tabs at the end.

To hold the camera in position, use masking tape or other removable adhesive.

Check the Interface Configuration

Start the Raspberry Pi and bring up the configuration panel. 🍓 ➤ *Preferences* ➤ *Raspberry Pi Configuration,* then select the "Interfaces" tab. Be sure that the camera is **enabled.** If you had to change from disabled to enabled, reboot the Raspberry Pi with 🍓 ➤ *Shutdown* ➤ *Reboot.*

Test the Camera

You can test the camera using the terminal window. Click the terminal icon near the top left of the screen:

Into the terminal window, type `raspistill -o Desktop/image.jpg` and press ENTER. You will see a preview on the screen for five seconds, then whatever the camera "sees" will be saved on the desktop as image.jpg. There is more information about controlling the camera from a terminal window here: https://projects.raspberrypi.org/en/projects/getting-started-with-picamera/4

If you get these error messages:

```
mmal: mmal_vc_component_enable: failed to enable component: ENOSPC
mmal: camera component couldn't be enabled
mmal: main: Failed to create camera component
mmal: Failed to run camera app. Please check for firmware updates
```

it is likely that you have a defective camera. *However*, this can also happen if the ribbon cables are not inserted properly or the latches are not closed. Be sure to check the connections carefully before deciding that you have a bad camera.

Take Still Pictures Using Python

The following Python code will take one still picture. There is much more information about controlling the camera with Python here: https://projects.raspberrypi.org/en/projects/getting-started-with-picamera/5

```python
# Import the camera code - Note the capitalization!
from picamera import PiCamera
from time import sleep

camera = PiCamera()         # Create a "camera" object

# To control this with a button, indent and put it inside
# an "if" statement.

camera.start_preview()
sleep(5)
# camera.capture() is what actually takes the pictures.  The
# picture file name is in single-quotes inside the parens.
camera.capture('/home/pi/Desktop/image.jpg')
camera.stop_preview()
```

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