# Table of Contents

## Overview
- DIY HQ Camera
- Easy/Fast 3D Print
- Snap Fit & Modular
- Parts

## 3D Printing
- Parts List
- CAD Assembly
- Slicing Parts

## Assembly
- Install Camera Ribbon Cable
- Install Hardware for Pi Cam
- Installed Hardware
- Install PCB Mount
- Secure Pi HQ Cam to PCB Mount
- Install PCB mount to Frame
- Secured PCB Mount
- Install Raspberry Pi
- Adjust Ribbon Cable
- Secure Raspberry Pi
- Raspberry Pi Ports
- Install Front Frame
- Installing Ribbon Cable through Cover
- Secure Ribbon Cable to Pi
- Installed Camera Ribbon Cable
- Install Front Cover
- Tripod Screw
- Micro SD Card
- Final Build
Overview

**DIY HQ Camera**
In this project we’re making a case for the Raspberry Pi HQ Camera. This 3D printed enclosure that houses the Pi 4 and the HQ Camera module. It’s compatible with any C or CS-mount lenses so we can use a wide variety of interchangeable lenses.

**Easy/Fast 3D Print**
The parts can be 3d printed without any support material using PLA. The case is modular and features snap fit covers that are easy to remove and swap out. The PCB mount is designed to secure the camera to the Pi and can be printed in just about 20 minutes.

**Snap Fit & Modular**
With snap fit parts you can customize the case to fit a number of different sensors and components. All of the ports and connectors are accessible so you can connect all sorts of devices like a display, mouse and keyboard.
This guide only covers the assembly of the enclosure. Please visit the links below to learn how to set up the Raspberry Pi HQ Camera module.

- Official Raspberry Pi Camera Guide
- Raspberry Pi HQ Camera Blog Post

Parts
List of parts used to build this project.
There are a few options for the USB Type A connector and a rechargeable USB battery.

- Raspberry Pi 4 - 4GB
- Pi HQ Camera
- 5.1V 3A Power Supply
- Micro HDMI cable
- M2.5 Black Nylon Hardware Kit
- 35mm 1.6f C Mount Lens
Raspberry Pi 4 Model B - 4 GB RAM
The Raspberry Pi 4 Model B is the newest Raspberry Pi computer made, and the Pi Foundation knows you can always make a good thing better! And what could make the Pi 4 better...
https://www.adafruit.com/product/4296

Raspberry Pi High Quality HQ Camera
Snap, snap! There's a new official camera board released by the Raspberry Pi Foundation! The Raspberry Pi High Quality Camera is the latest camera accessory...
https://www.adafruit.com/product/4561

Flex Cable for Raspberry Pi Camera or Display - 100mm / 4"
This cable will let you swap out the stock 150mm long flex cable from a Raspberry Pi Camera (either 'classic' or 'NoIR' type) or Raspberry Pi Display for a different...
https://www.adafruit.com/product/1646

16mm 10MP Telephoto Lens for Raspberry Pi HQ Camera
This is the 16mm 10MP Telephoto Lens, an essential for the Raspberry Pi High Quality Camera. It has a wide...
https://www.adafruit.com/product/4562
6mm 3MP Wide Angle Lens for Raspberry Pi HQ Camera
This is the 6mm Wide Angle Lens, an add-on for the Raspberry Pi High Quality Camera. It has a wide field...
https://www.adafruit.com/product/4563

Official Raspberry Pi Power Supply 5.1V 3A with USB C
The official Raspberry Pi USB-C power supply is here! And of course, we have 'em in classic Adafruit black! Superfast with just the right amount of cable length to get your Pi 4...
https://www.adafruit.com/product/4298

Micro HDMI to HDMI Cable - 2 meter
Connect an HDMI device with a micro HDMI port to one with a regular size HDMI port together with this basic HDMI cable. It has nice molded grips for easy installation, and is 2 meter...
https://www.adafruit.com/product/1322

Black Nylon Machine Screw and Stand-off Set – M2.5 Thread
Totaling 380 pieces, this M2.5 Screw Set is a must-have for your workstation. You’ll have enough screws, nuts, and hex standoffs to fuel your maker...
https://www.adafruit.com/product/3299
3D Printing

Parts List
STL files for 3D printing are oriented to print "as-is" on FDM style machines. Parts are designed to 3D print without any support material. Original design source may be downloaded using the links below.

- pcb-mount.stl
- front-frame.stl
- front-cover.stl
- back-frame.stl
- back-cover.stl

Download CAD files from Fusion 360
Download CAD files from Thingiverse

CAD Assembly
The Pi HQ camera is secured to the PCB mount using M2.5 hardware screws and standoffs. The Pi 4 is secured to the PCB using M2.5 screws. The PCB mount is secured to the back frame with screws and nuts. The front frame is snap fitted onto the back frame. The front and back covers snap fit onto the frames respectively.
Slicing Parts
No supports are required. Slice with settings for PLA material.

The parts were sliced using CURA using the slice settings below.

- PLA filament 220c extruder
- 0.2 layer height
- 10% gyroid infill
- 60mm/s print speed
- 60c heated bed

### Raspberry Pi 4 3D Model – GrabCAD

### Raspberry Pi HQ Camera 3D Model – GrabCAD

---

Assembly

Install Camera Ribbon Cable
The camera ribbon cable must be installed before assembling the enclosure. The ribbon cable is installed with the blue side facing up with the back of the PCB.
Install Hardware for Pi Cam
Use 4x M2.5 x 12mm long standoffs and 4x M2.5 x 8mm long screws to secure the Pi HQ camera to the PCB mount.

Installed Hardware
The standoffs are secured to the back of PCB. Insert and fasten the M2.5 screws through the front of the PCB. Do not over tighten, finger tighten is suffice.

Install PCB Mount
The Pi HQ camera is secured to the PCB mount using 4 x M2.5 x 8mm long screws.
Secure Pi HQ Cam to PCB Mount
Place the Pi HQ cam over the center set of mounting holes in the PCB Mount. Insert and fasten 4x M2.5 x 8mm long screws to secure the camera to the PCB mount. Reference the photo for the correct orientation.

Install PCB mount to Frame
The PCB mount is secured to the frame using 4x M2.5 x 8mm long screws and 4x M2.5 hex nuts.

Secured PCB Mount
Insert and fasten 4x M2.5 x 8mm long screws through the four mounting tabs. Use M2.5 hex nuts to secure the screws in place.
Install Raspberry Pi
Place the Raspberry Pi PCB on top of the PCB mount with the mounting holes lined up correctly.

Adjust Ribbon Cable
Insert the camera ribbon cable through the frame and thread it through the side. Pull the ribbon cable all the way through the frame.

Secure Raspberry Pi
Insert and fasten 4x M2.5 x 10mm long screws through the mounting holes on the top of the Pi. Use 4x M2.5 hex nuts to secure the Raspberry Pi PCB to the PCB mount.
Raspberry Pi Ports
The frame features cut outs for the various ports on the Raspberry Pi 4.

Install Front Frame
Orient the front frame with the back frame. Use the notch as an indicator and orient it with the tripod mount on the Raspberry Pi HQ Cam.

Installing Ribbon Cable through Cover
The ribbon cable is fitted through the top of the camera port on the back cover.
Secure Ribbon Cable to Pi
Insert the cable ribbon cable into the camera port on the Pi. Use the connector clip to secure the ribbon cable to the port. The front cover is snap fitted over the Raspberry Pi with the cutouts oriented correctly.

Installed Camera Ribbon Cable
The camera ribbon cable remains exposed but is mostly kept in place. To avoid damaging the ribbon cable, remember to take precautions when handling.

Install Front Cover
Place the front cover through the front of enclosure with the cut out lined up with the camera lens.
Tripod Screw
The tripod screw hole is accessible through the bottom side of the enclosure.

Micro SD Card
The slotted hole on the side of the enclosure allows access to install and remove a micro SD card.

Final Build
And that's it! The Raspberry Pi is ready to power up and start snapping pics.