



# Piranha Pi Camera

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<https://learn.adafruit.com/piranha-pi-cam>

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# Overview



Build a Piranha Plant themed camera using a Raspberry Pi 5!

The Warp Pipe-shaped base houses the Pi 5 with a fan and a 4" touch screen.



A camera module is housed inside the Piranha mouth. The case has access to the USB ports with vents on the side to keep the Pi cool.



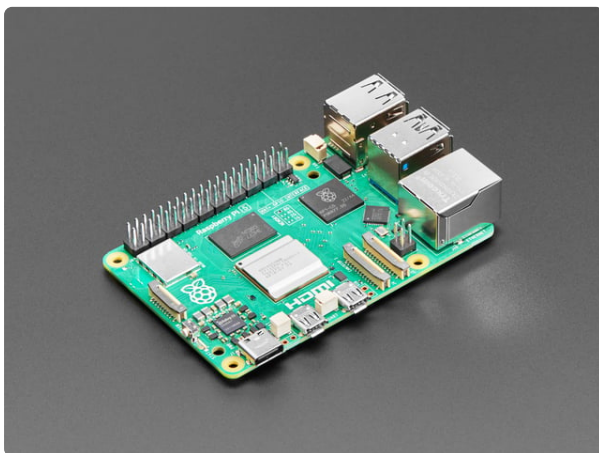
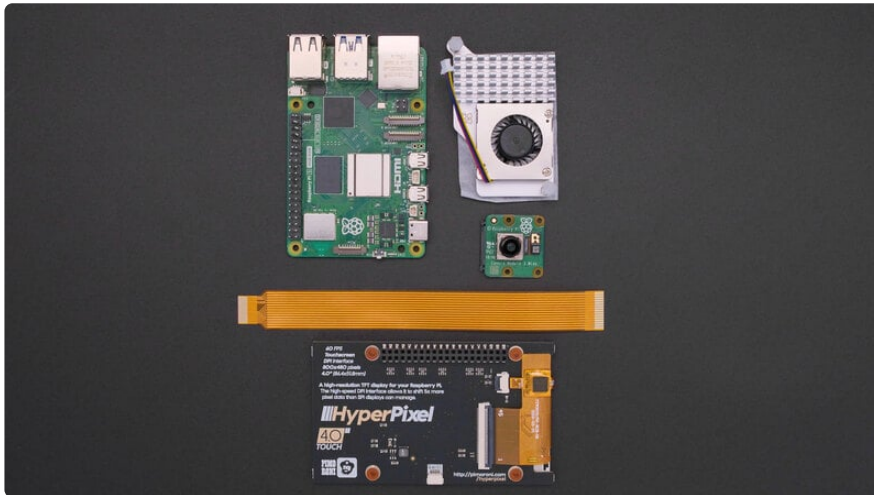
Build a timelapse rig with the sleeve to mount to a tripod. Capture stunning timelapses with dynamic exposure thanks to the HDR mode.

The wide angle camera module V3 features autofocus and a 12-megapixel sensor and an HDR mode, giving you excellent image quality.

High dynamic range means you can capture perfect exposures in timelapse videos.



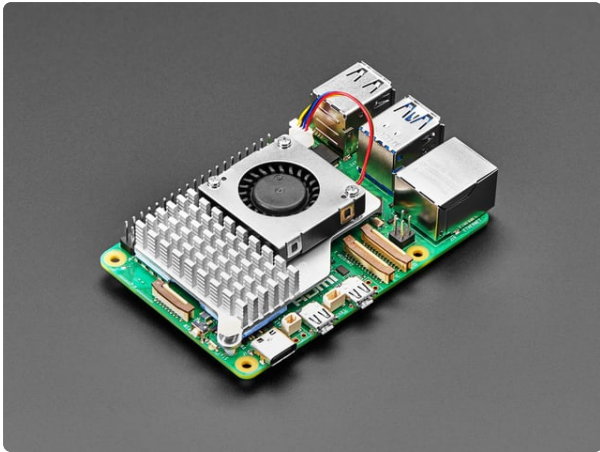
## Parts



### Raspberry Pi 5 - 4 GB RAM

The Raspberry Pi 5 is the newest Raspberry Pi computer, and the Pi Foundation knows you can always make a good thing better! And what could make the Pi 5 better than the...

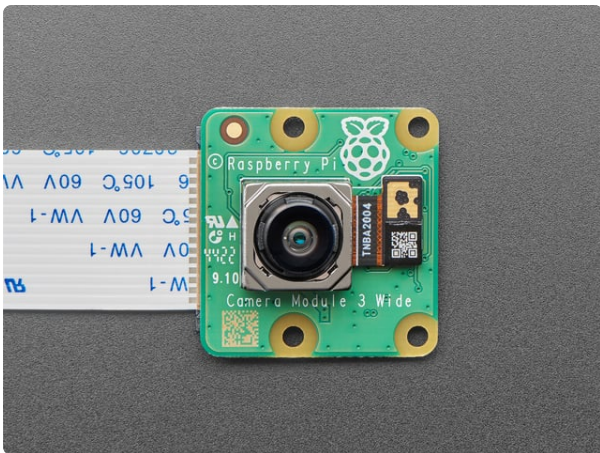
<https://www.adafruit.com/product/5812>



### Official Raspberry Pi 5 Active Cooler

The Raspberry Pi 5 Active Cooler is compatible with the Raspberry Pi 5 and the

<https://www.adafruit.com/product/5815>



### Raspberry Pi Camera Module 3 - 12MP 120 Degree Wide Angle Lens

Raspberry Pi Camera Module 3 is a compact camera from Raspberry Pi. It offers an IMX708 12-megapixel sensor with HDR, and features phase detection autofocus. Camera Module 3 is...

<https://www.adafruit.com/product/5658>



### Pimoroni HyperPixel - 4.0" Hi-Res Display for Raspberry Pi

Pimoroni's HyperPixel features a 4.0" display with 800x480 18-bit color pixels and a capacitive touch overlay, making it more sensitive...

<https://www.adafruit.com/product/3578>



### Camera and Tripod 3/8" to 1/4" Adapter Screw

Whaddya got a screw loose or something? This 3/8" to 1/4" Adapter Screw is super handy if you're building projects that...

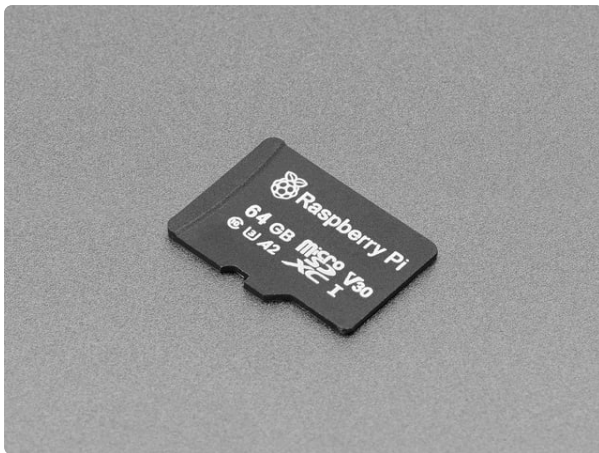
<https://www.adafruit.com/product/2392>



### Official Raspberry Pi 45W USB-C Power Supply

If you want a general-purpose USB Power Delivery supply, the official Raspberry Pi 45W USB-C power supply makes for a good quality PD supply that provides high current at a large...

<https://www.adafruit.com/product/6320>



### Official Raspberry Pi A2-Class microSD Card - 64GB Blank

Optimise data transfer speeds on your Raspberry Pi computer with an official Raspberry Pi 64GB microSD card. Rigorously tested to ensure optimal performance on...

<https://www.adafruit.com/product/6011>

### 13 x M2.5x6mm Screws

M2.5x6mm Screws

<https://www.amazon.com/gp/product/B078BBQ1WD>

### 4 x M2.5x5mm Screws

M2.5x5mm Screws

<https://www.amazon.com/gp/product/B01CEAD7HG>

### 2 x M2x6mm Screws

M2x6mm Screws

<https://www.amazon.com/Uxcell-a15123100ux0365-Phillips-Countersunk-Machine/dp/B01DKI5ME2>



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# 3D Printing



## Parts List

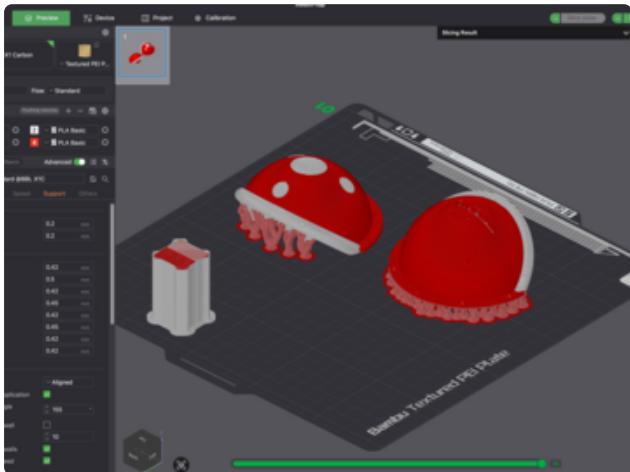
STL files for 3D printing are oriented to print "as-is" on FDM style machines. Most parts are designed to 3D print without any support material. Original design source may be downloaded using the link below.

[Edit Design](https://adafru.it/1aib)

<https://adafru.it/1aib>

[Download Pi Piranha Cam STLs + 3MF](https://adafru.it/1aic)

<https://adafru.it/1aic>



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

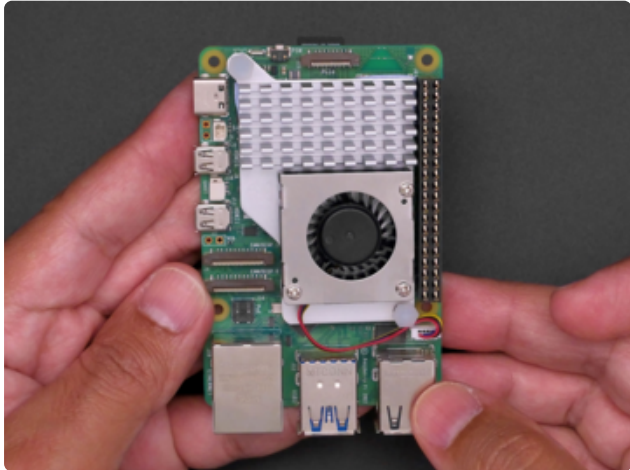
10% gyroid infill

60mm/s print speed

60c heated bed

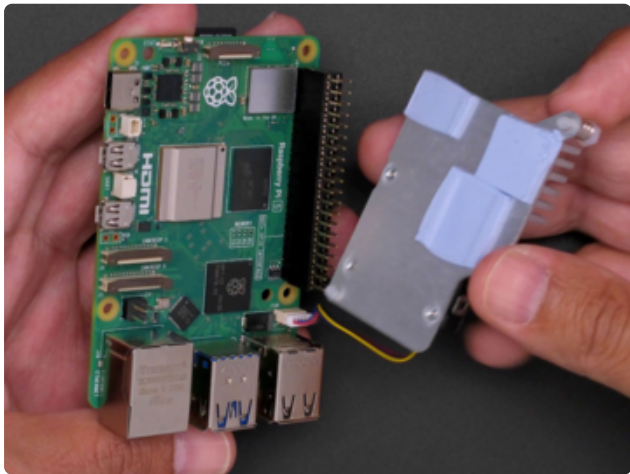
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# Assemble

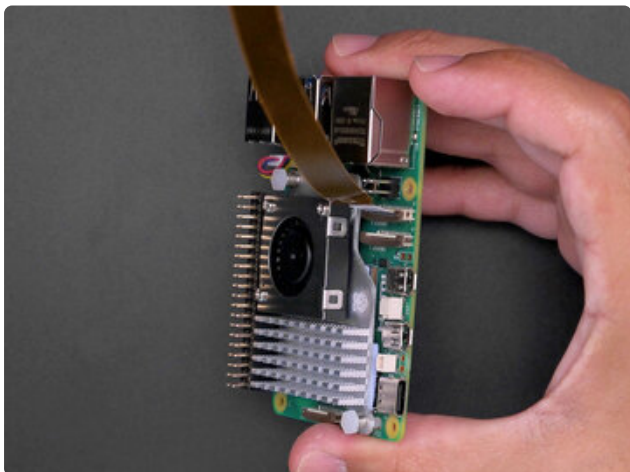


## Mount the fan

Plug the fan cable into the port by the headers on the Pi. Align the sticky thermal pads to the chips on the Pi.



Gently apply pressure to the spring screws to the inner screw (the two holes without the yellow outlines) mounts on the Pi.



## Camera ribbon cable

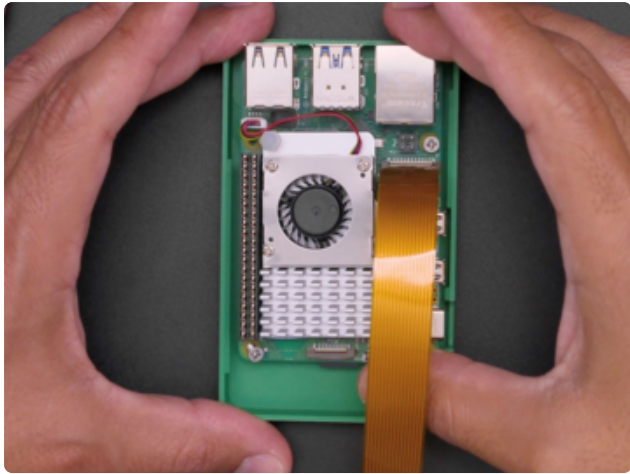
Insert the included 150mm camera cable into the CAM/DISP 0 port as follows:

Gently pull the two connector latches on each side of the camera ribbon connector.

The cable should face toward the USB A ports. Press fit the ribbon cable into the camera port.

Push each side of the latch connector one at a time to firmly attach the ribbon cable.



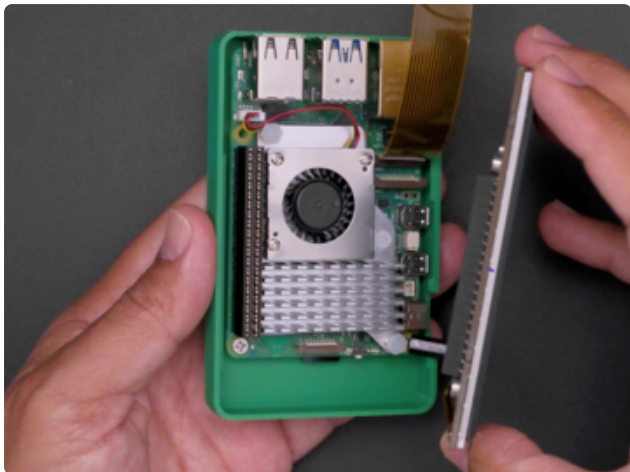


## Mount Pi

Align the USB A ports to the cutout on the bottom printed case.

Fasten it using three M2.5x6mm screws.

Leave the standoff next to the USB C port without a screw to accommodate the display standoff.



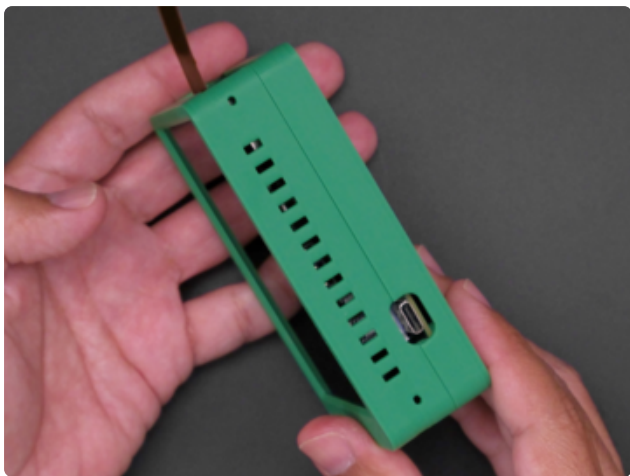
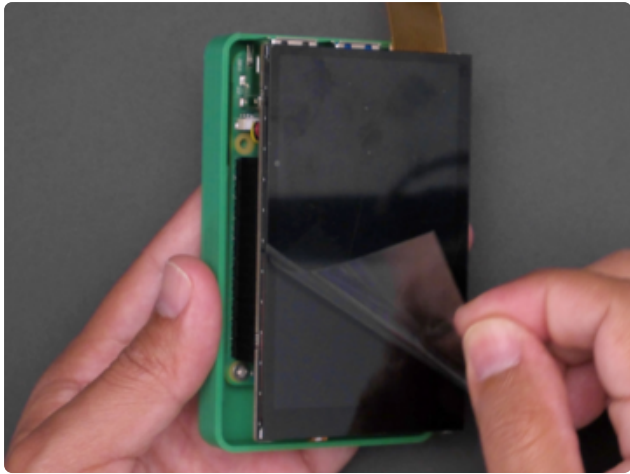
## Display standoff

Use one of the HyperPixel standoffs (included) to help level the display when attached to the Pi.

Attach the standoff next to the longer ribbon cable port.

Make sure the camera ribbon cable is laying towards the USB A ports.

Add the included header extender to the display and mount to the headers on the Pi.

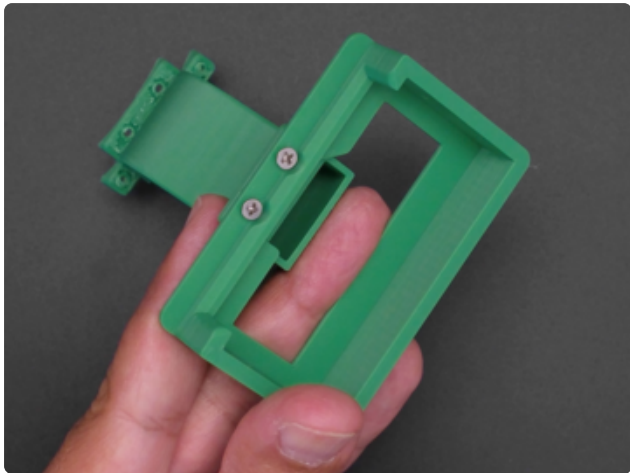
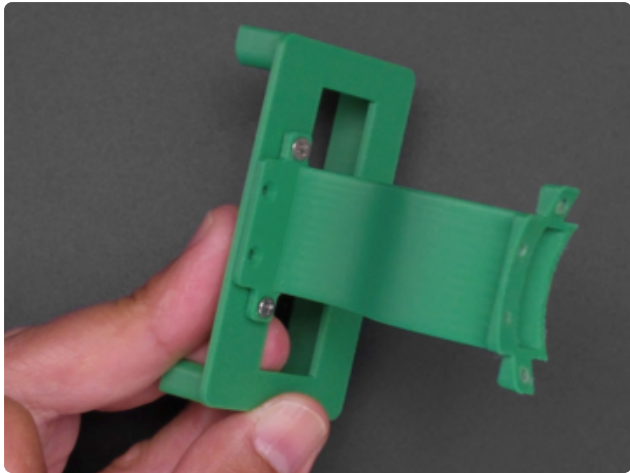
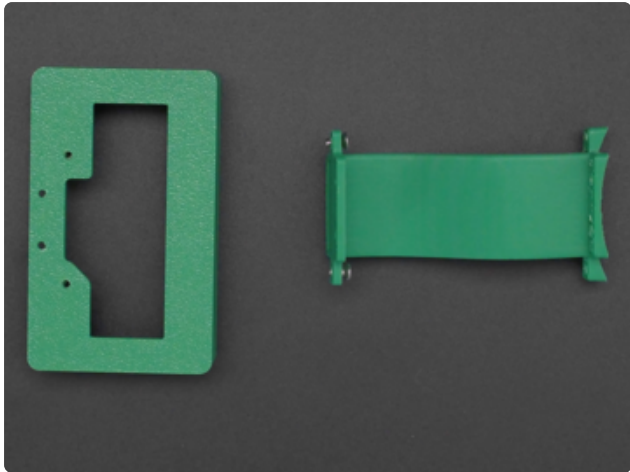


## Peel the protective film

Remove the protective film off the display before attaching the front case.

Slide the front case rails under the display with the USB port cutout first.

Press fit the rails one side at a time to snap fit together.



## Assemble stem

Align the stem to the sleeve and fasten the tabs on the sides with two M2.5x6mm screws.

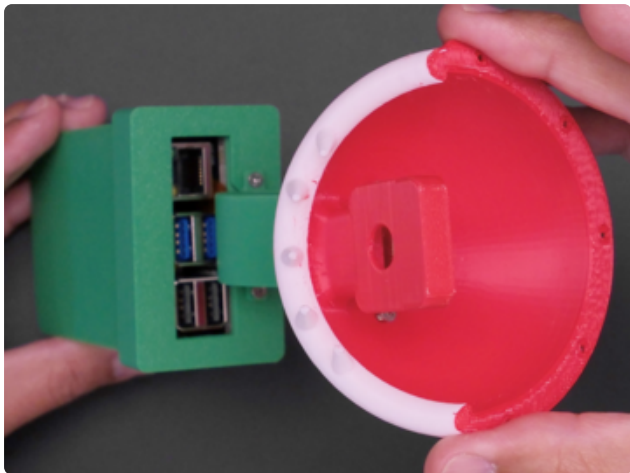
The front screw holes use two M2.5x5mm screws, fasten from underneath the sleeve.



## Stem ribbon cable

Align the sleeve to the screen cutout.

Insert the ribbon cable into the stem cavity.



## Place bottom mouth

Align the ribbon cutout to the bottom mouth part and place over the screw mounts on the end of the stem.



Pass the ribbon cable through the cutout.

Fasten the mouth to the stem. The two screws on the outer side are M2.5x6mm long. The two center screws are M2.5x5mm long.



## Attach the camera module

Gently pull the two connector latches on each side of the camera module.

Press fit the ribbon cable into the camera port.

Push each latch connector one at a time to firmly attach the ribbon cable.

Angle the camera module to press fit into the bottom nubs.

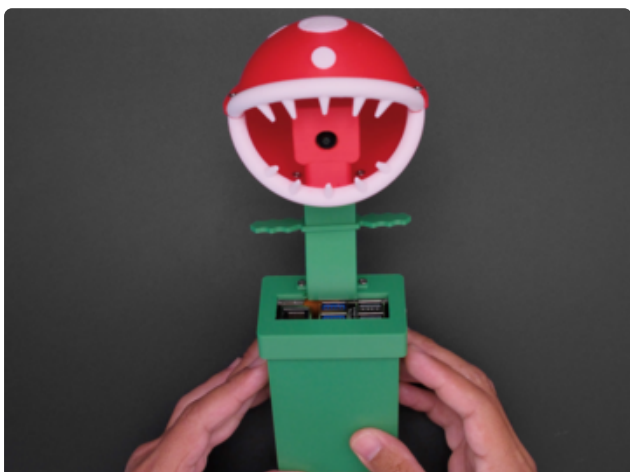
Fasten with two M2x6mm screws to the top standoffs.



## Attach the top mouth

Place the top mouth part over the screw holes and fasten with three to six M2.5x6mm screws.

To secure the sleeve to the case, use two M2.5x6mm screw on the sides.



## Attach the leaf

The leaf press fits by gently bending one side of the cutout and place over the stem.



## Tripod attachment

The tripod sleeve press fits to the bottom of the case and can be fastened with two M2.5x6mm screws.

A 3/8" to 1/4" adapter screw threads into the screw hole.



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## Use



The default installation of Raspberry Pi OS includes support for the V3 cameras. A full list of commands is linked below.

### Raspberry Pi Camera Commands

<https://adafru.it/18CE>

## Preview camera

open a terminal window and load a preview window to frame up the camera.

```
rpicam-hello -t0 --hdr
```

## Timelapse settings

We used the settings below for quick on location timelapses.

For 10 mins it will take one picture every 1 second.

```
rpicam-still -t 600000 --timelapse 1000 --datetime --hdr
```

