Paparazzo C/CS 12MP Camera

Manual

Introduction

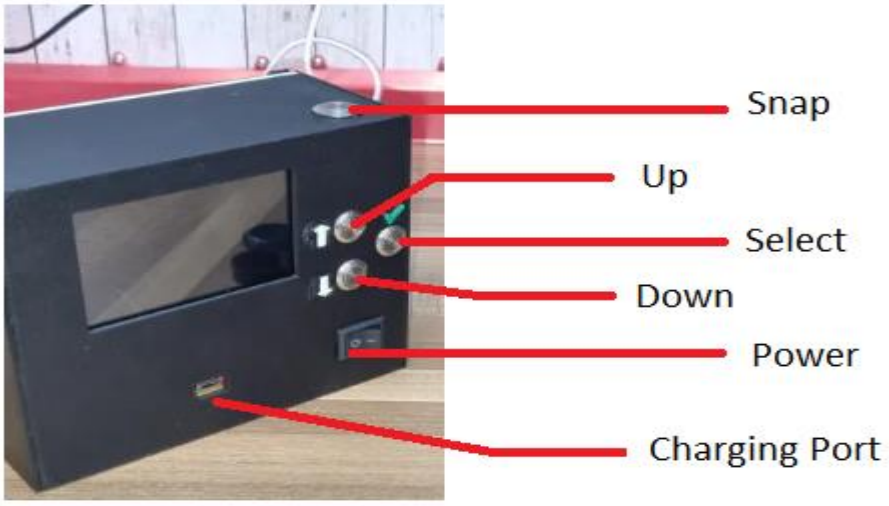
The Paparazzo is a camera built on a Raspberry Pi using the HQ 12 MP Raspberry Pi camera module. It is programmed in Python and supports single picture, 5 shot burst mode and video mode (no audio) operation. The menu allows multiple settings to be adjusted such as brightness, contrast, exposure, etc.

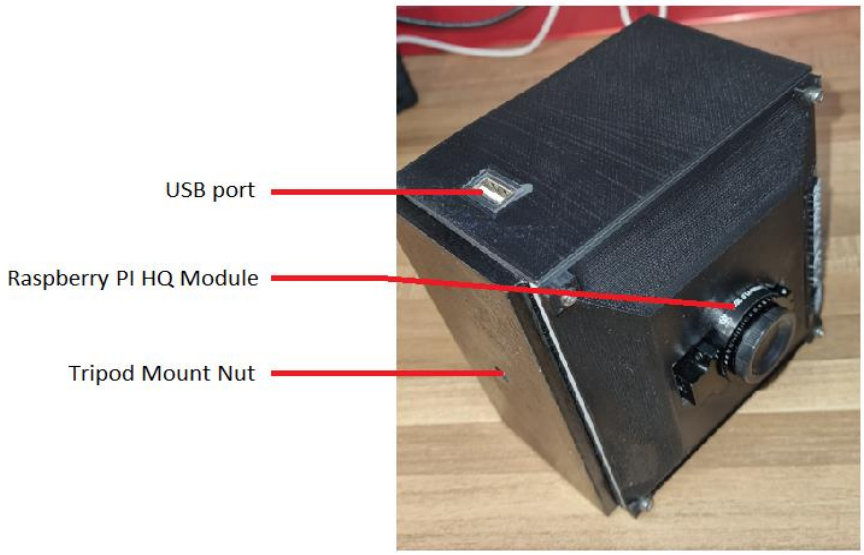
This latest version also incorporates a USB port where an external thumb drive can be inserted and all of the media recorded can be extracted.

The camera can be made by anyone who has a some small electronics skills and the parts mentioned in the parts list (you could even make the enclosure out of card if you don't have access to a 3d printer).

Disclaimer – This project was put together pretty quickly, as such you might find problems with the software and also think of some features that are lacking!

Camera Physical Layout





Snap – Used to take a picture, burst of pictures or video depending on operating mode.

Up – Used to change the options in each menu screen.

Select – Used to access the menu and also to carry out actions on different screens.

Down – Used to change the options in each menu screen.

Power – Used to turn on the power. DO NOT USE TO TURN OFF THE DEVICE WITHOUT SELECTING POWER OFF FIRST AND WAITING 5 SECONDS.

Charging Port – Used to charge the cameras battery.

USB port – Used to connect a thumb drive

Raspberry PI HQ camera module – Used to connect lenses and also to focus

Tripod Mount Nut – Used to mount the camera to external equipment

Turning On the Camera

When you first power on the camera with the main power button you are taken immediately to capture mode, using the same settings that were previously used. The SNAP button can be used to capture footage/images.

Main Menu

To access the main menu from the picture/video capture screen, press the SELECT button.

The menu screen will present you with a list of options you can select (in WHITE) and the current settings (in GREEN).

There are 10 different options to select from the menu screen

1. Mode – This allows the user to change between single shot, 5 shot burst and video capture mode.
2. Brightness – This section is used to alter the cameras brightness from values between 1 and 100.
3. Contrast – This section allows the user to alter the cameras contrast from values between 1 and 100.
4. Exposure - This section allows the user to alter the cameras exposure from values between 1 and 100.
5. White balance – This section is used to alter the White Balance from different pre-set values. They are –
    i. Auto
    ii. Off
    iii. Sunlight
    iv. Cloudy
    v. Fluorescent
    vi. Flash (this is for future expansion when a flash will be added)
6. Effects - This section is used to change the selected effect from different pre-set values. They are –
    i. None
    ii. Negative
    iii. Colour swap
    iv. Cartoon
    v. Sketch
    vi. Oilpaint
7. View Pictures – This allows the user to look at pictures that have been taken. It currently does not show the pictures correctly due to the pictures being taken in a higher resolution than the software can easily display after capture. For best results look at your pictures on an external device.
8. Copy to USB – This allows the user to copy all recorded pictures and videos to an external thumb drive. It does not yet allow you to select what to copy over (in other words all photos and videos that were taken are copied over).
9. Power Off – This is the correct way to power off this device in order to avoid it being corrupted. After selecting Power Off, wait 5-10 seconds and then power off with the main power switch also
10. Exit – Exit the menu and go back to capture mode

Parts List

1. Raspberry Pi 3 or 4
2. Raspberry Pi High Quality Camera Module - https://thepihut.com/products/raspberry-pi-high-quality-camera-module?variant=31811240591422
3. Lenses to match your camera module such as – https://thepihut.com/products/c-mount-lens-for-raspberry-pi-hq-camera-35mm-focal-length?variant=32439787946046
4. Threaded brass inserts - https://www.amazon.co.uk/gp/product/B07CPRHP2X/ref=ppx_yo_dt_b_search_asin_title?ie=UTF8&th=1
5. Nuts and bolts such as - https://www.amazon.co.uk/1080pcs-Stainless-Assortment-Washers-Wrenches%EF%BC%88Silver%EF%BC%89/dp/B098QB7LXD/ref=sr_1_81?crid=2EFW5QR571W8W&keywords=hex+screws&qid=1658872842&sprefix=hex+screw%2Caps%2C157&sr=8-81
6. Raspberry PI power supply (I got this and a 4000mAH battery - https://www.aliexpress.com/item/4001334525649.html
7. Screen - https://www.amazon.co.uk/gp/product/B087WVC1J2/ref=ppx_yo_dt_b_asin_title_o08_s01?ie=UTF8&psc=1
8. Menu buttons - https://www.amazon.co.uk/gp/product/B07L4L2H2F/ref=ppx_yo_dt_b_asin_title_o07_s01?ie=UTF8&th=1
9. Photo buttons - https://www.amazon.co.uk/gp/product/B075WTT1D3/ref=ppx_yo_dt_b_asin_title_o07_s00?ie=UTF8&psc=1
10. Power button – https://www.amazon.co.uk/gp/product/B08ZHY42WD/ref=ppx_yo_dt_b_asin_title_o09_s00?ie=UTF8&psc=1
11. Short USB extender such as this - https://www.amazon.co.uk/StarTech-com-6in-Extension-Adapter-Cable-Black/dp/B000E5CYW8/ref=sr_1_3?keywords=small+usb+extender+cable&qid=1660891529&sprefix=small+usb+exten%2Caps%2C104&sr=8-3
12. Camera Nut if you want to mount your camera to a tripod

Software and 3d Files

The relevant software and 3d print files are available at –

https://www.printables.com/model/251382-raspberry-pi-camera

https://github.com/billy-osullivan/paparazzo_picam

About the author

A guy and his shed making, tinkering and programming his way through life!

Using my trusty 3d printer, soldering iron and some know how, I make anything that strikes me as interesting, and usually try to make it have some functionality behind it!

If you like gadgets and crafting, please take a look at my videos, like, leave a comment and subscribe!

https://www.youtube.com/channel/UCSLhccJc34ZlHV2Sk5as9ug

You can send gadgets, gizmos and samples to my mailbox at:

Shed Tech c/o William O Sullivan,
PM2056893,
UPS Customer Centre,
Unit 5 Mygan Park,
Jamestown Road,
Dublin 11 D11 A729,
Ireland

Contact

Facebook - https://www.facebook.com/Shed-Tech-110309148422805

Email – billy@shedtech.ie