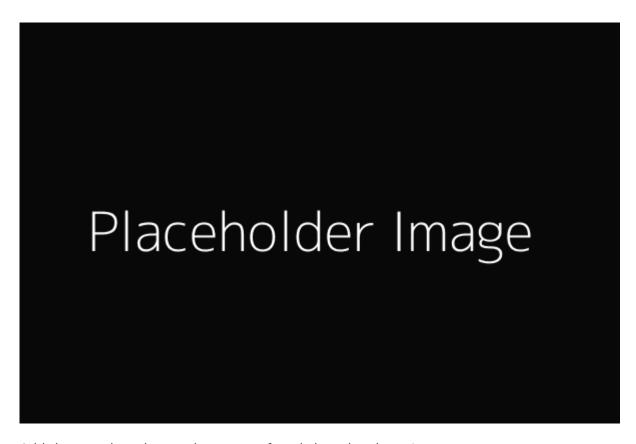
Photogrammetry Rig made with Raspberry Pi

SLQ Wiki Fabrication Lab 2025/11/29 00:41

Photogrammetry Rig made with Raspberry Pi

Please replace placeholder with a high quality finished outcome pic



Add the month and year plus name of workshop developer/s

Acknowledgement

We acknowledge Aboriginal and Torres Strait Islander peoples and their continuing connection to land and as custodians of stories for millennia. We respectfully acknowledge the land on which we all meet today, and pay our respects to elders past, present and emerging.



Cut the structure in 50mm XPS foam (note the 2 layers)



You will need a multitude of raspberry pis with cameras, we started with 15 sets.

For each set you will need: * A raspberry pi, we used the model B because they're cheap. * A raspberry pi camera module V2 (higher quality, ability to manual focus with the white knob thing in the box) * 2x standoffs with 2 open ends, at least 20mm long * 4x bolts 3M*15mm * Laser cut camera mount and backing we used 3mm acrylic. * USB cable 2m * Ethernet

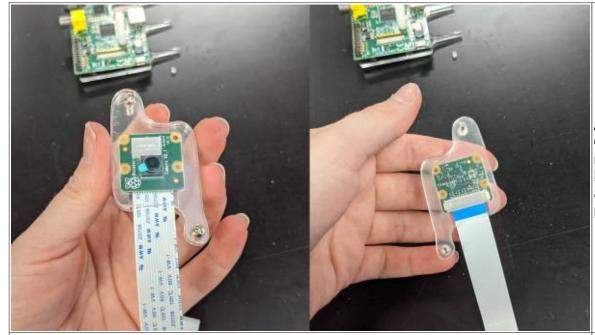
cable 2m



Add the back casing with 2 of the bolts



Attach the 2 standoffs to the screws on the front side



Assemble Camera mount, 3 layers of acrylic as per picture.



Plug in the camera by pulling the clip up, inserting the ribbon and pushing the clip back down to secure it. Ensure the ribbon cable is facing the correct direction, and you're plugging it into the camera port (not the display one).



Screw the camera mount into the standoffs.

Plug a usb
power supply
and ethernet
cable into the
Pi, and poke
the pi into the
foam. For our
prototype we
spaced them
3 per leg,
aiming for the
centre of the
structure.
The USB
cables meet
at a power
supply placed
on top of the
structure
The network
cables are
attached to a
network
switch.

Installing OS onto PIs and setting up camera:

- follow the official instructions for setting up your SD cards with Raspberry Pi OS
- plug in SD card and open it for the first time and go through setup routine *Add detail here*
- Get camera working official instructions
 - Go to main menu, open raspberry pi configuration tool
 - In the interfaces tab enable the camera.
 - reboot the raspberry pi
 - To test the camera: open a terminal window (black window icon on the toolbar)

- type in raspistill -o Desktop/image.jpg and hit enter
- it will show you a preview of the camera's view for 5 seconds then save a picture of it to the desktop.

set up mini network

- plug pi and a linux pc into a router (local network, don't connect to greater network)
- test networking get ip addresses of each
- ping pi from linux

set up server:

- on linux PC, open terminal
- install samba
- make a directory in root called server
- change owner to nobody. nogroup
- add 777 permissions
- test touch
- create mask

Processing the images into a 3D model

HP Sprout has some software. https://www.pi3dscan.com/ has a free trial for up to 35 cameras, paid beyond that. Meshroom is a free and open source option: https://alicevision.org/#meshroom