Start Here Guide

Hi, if you are reading this you are probably taking over the project or trying to rebuild the glasses from scratch. This guide just explains where everything is in the repo so you don't have to click around and guess.

1. What this project :

The device is a pair of 3D printed glasses with a Raspberry Pi Zero 2 W inside, a wide angle spy camera in the front, and an I2S mic on the top slit of the frame. The Pi records audio and video, and depending on the script used, it can save the files locally or send them to a server. The project also includes code for an iphone application in swift.

Everything you need to rebuild, test, or fix the device is in this repo.

2. Where all the important files are

Here's the repo layout and what each folder is for:

AV_testing_scripts

This folder has the simple test scripts:

- `test_camera.py`
- `test_mic.py`

Run these if you want to check that the camera or mic still works before doing anything else.

CAD Files / CAD_Files_guide

This folder has the 3D model references.
This is helpful if you want to reprint frames, battery cases, or modify the design.

Configuring electronics

This folder has the docs you need when wiring stuff or placing components inside the glasses:

- **Final Parts Used.pdf**

- **How to replicate.pdf**
  (this is the hardware replication guide for placing everything inside the frame)

- **Setting up the SD CARD.pdf**
  (explains how to image the SD card and configure things using Raspberry Pi Imager)

- **What_if_electronics_fail.pdf**
  (troubleshooting guide for if the mic, camera, Pi, WiFi, or SD card stop working)

Open these first if you're rebuilding or fixing hardware.

Frame

This folder has the 3D frame prototype PDFs:

- different frame versions

- the final frame update
  These help you understand how the slits for the mic and camera are placed.

GlassesApp

This is the iPhone app code (Swift). Only needed if you want to change how the app connects or displays recordings.

GlassesFirmware

This holds the Python BLE server:

- `glasses_ble_server.py`
  This is what lets the app talk to the Pi through Bluetooth.

setting up software

This is where new setup documents.
This folder is useful for:

- how to provision a new device
- how to set up the server connection
- required libraries

3. If you want to rebuild the hardware

Start with:

- Final Parts Used.pdf
- How to replicate.pdf

These explain what parts we actually used and how the Pi, camera, mic, battery, and PowerBoost all fit inside the glasses and battery case.

4. If you need to set up or reimage the Pi

Open:

- Setting up the SD CARD.pdf

This shows:

- how to use Raspberry Pi Imager
- how to set the WiFi name and password
- how to enable SSH
- how to write the OS to the SD card

Once my partner adds the rest, check the **setting up software** folder for server setup and required libraries.

5. If you need to test the mic or camera

Go to **AV_testing_scripts** and run:

- `test_camera.py`
- `test_mic.py`

If these fail, open **What_if_electronics_fail.pdf** for the basic checks.

6. If something break

Open:

- **What_if_electronics_fail.pdf**

It covers:

- mic not detected
- camera not working
- Pi not powering on
- WiFi not connecting

- SD card corrupted
- Pi freezing

Most issues can be fixed without replacing parts.

7. Recommended order if you are starting fresh

1. Read **Final Parts Used**
2. Read **How to replicate**
3. Build the hardware
4. Use **Setting up the SD CARD** to image and configure the Pi
5. Check **setting up software** for server and library setup (once added)
6. Test with `test_camera.py` and `test_mic.py`
7. Try the full audio video scripts
8. Use **What_if_electronics_fail** if needed

8. Who this guide is for

Anyone rebuilding the device, testing it, or trying to understand what is what.