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Harman Work Plan - Photogrammetry - initial project is a Cordless Drill 3D Scan

- Vacation - 13-23 August
- Boarduino
- 2 Avenues
  - Colmap - photogrammetry wiki page
- **Keep notes about the process in this doc**
  - **Refactor that for OSE case and make an instructional for OSE either written or screencast**
- **As soon as we have a procedure, let's pass this on to Abe on dev team to test it with Power Cube parts**

Photogrammetry

- May have to build COLMAP from source for Linux
- Need to create rig for hanging drill
  - Suggestion - small screw or nail into ceiling, hang with a wire
- Reconstruction -> Automatic Reconstruction
  - Select Folder
- Should download and use included pictures with tutorial first, and then construct rig
  - Downloaded via Ubuntu repos but have to start it using CLI using command:
  - ‘colmap gui’
    - Prevents it from being in the OSE Linux sidebar and being launched with a click,
    - could make a script to do it

- Unsuccessful Reconstruction attempts on Laptop on Desktop using Windows and Ubuntu
  - Could be due to use of AMD GPUs on both machines (COLMAP uses CUDA, an Nvidia API)
- Will be setting up a machine with an Nvidia GPU to test further, and post on COLMAP GitHub if still no luck

Schedule

- Day 1 - take 40 pictures and process them through Colmap for an initial reconstruction and document this at the [[Photogrammetry 101 with Harman]] wiki page
- Day 2 - export the Colmap into FreeCAD and document this process.
- Day 3 - begin optimizing Colmap results. Add scale. Add quality improvements.