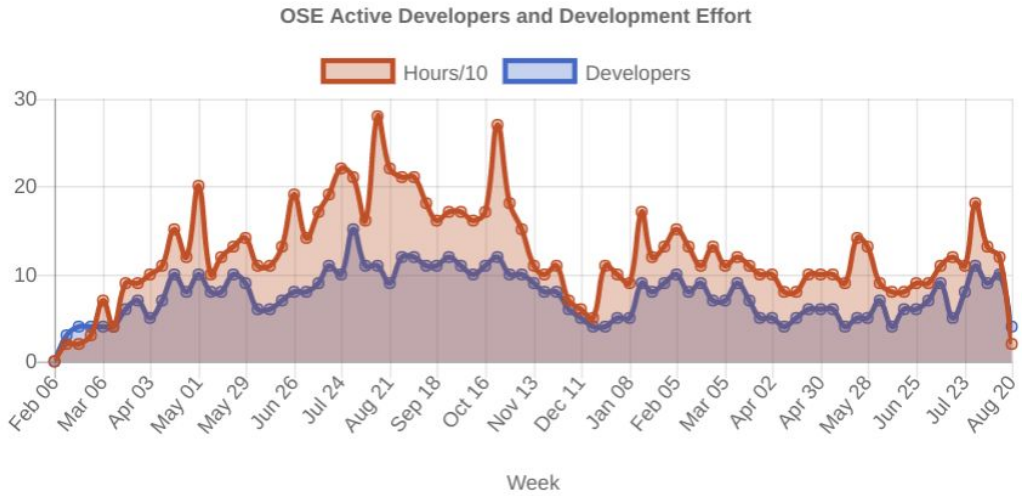
OSE Dev Team Meeting Agenda

Tue Aug 21, 2018

2 PM CST USA time

1. Agenda - Progress Reports
    a. **Marcin -**
    b. **Sara** - photogrammetry update. Nice progress -
    c. **Eric** - will make it to makerspace
    d. **Jon** - D3D extruder built. Remarks on build so far. Updates on D3D ideas (15 min)
    e. **Abe** - PC CAD, git & CAD, COLMAP
    f. **Miles** - small power supply
    g. Task Allocation
    h. Note taker -
    i. **Meeting Maintainer**
        i. Embed meeting on Dev Team Log, including YT, notes, and edit link
        ii. Insert current Effort Graph-
        iii. Post notes and video on OSE Workshops FB page
        iv. Organize old meetings - hide older than 1 month
        v. Assign Roles and Introduce the meeting



Notes

- Preparation for Bootcamp workshop
- AquaGH growth & Hydronics getting covered at FeF
- Sara - Sparse Cloud - OpenMVS dense point - then Meshlab. Colmap has issues - because COLMAP is really GPU intensive? Nvidia GPU/CUDA framework dependent.
    - The feature that generates Dense Cloud - requires GPU
- Jon working on extruder
    - Worked on BOM and assembly instructions
    - No major catches on assembly
    - Except a Rod had to filed down
    - Got 1in pipe screwed to Uni-axis
    - PVC has pronounced bending of tube
    - Suggested test prints?
    - Larger filaments preferred to move to 3mm+ from 1.65mm
    - Goals reduce part count add larger nozzles
- Matching parts with paper printouts for workshop
- 20 builds in bootcamp
- Miles Rectification with Zener diodes
    - Zener Diode bridge rectifies AC to DC
    - Caps smooth half sin wave form
    - NgSpice electronic circuit simulator OSS
        - Not as good for transient sim
        - See I-V Graph
    - KiCAD design, but haven't tested input to NgSpice
    - QUCS Sim Spice integration, but spice not OSS. NGspice is OSS.
- Next meeting? Quick meetin At 12:30p next tuesday
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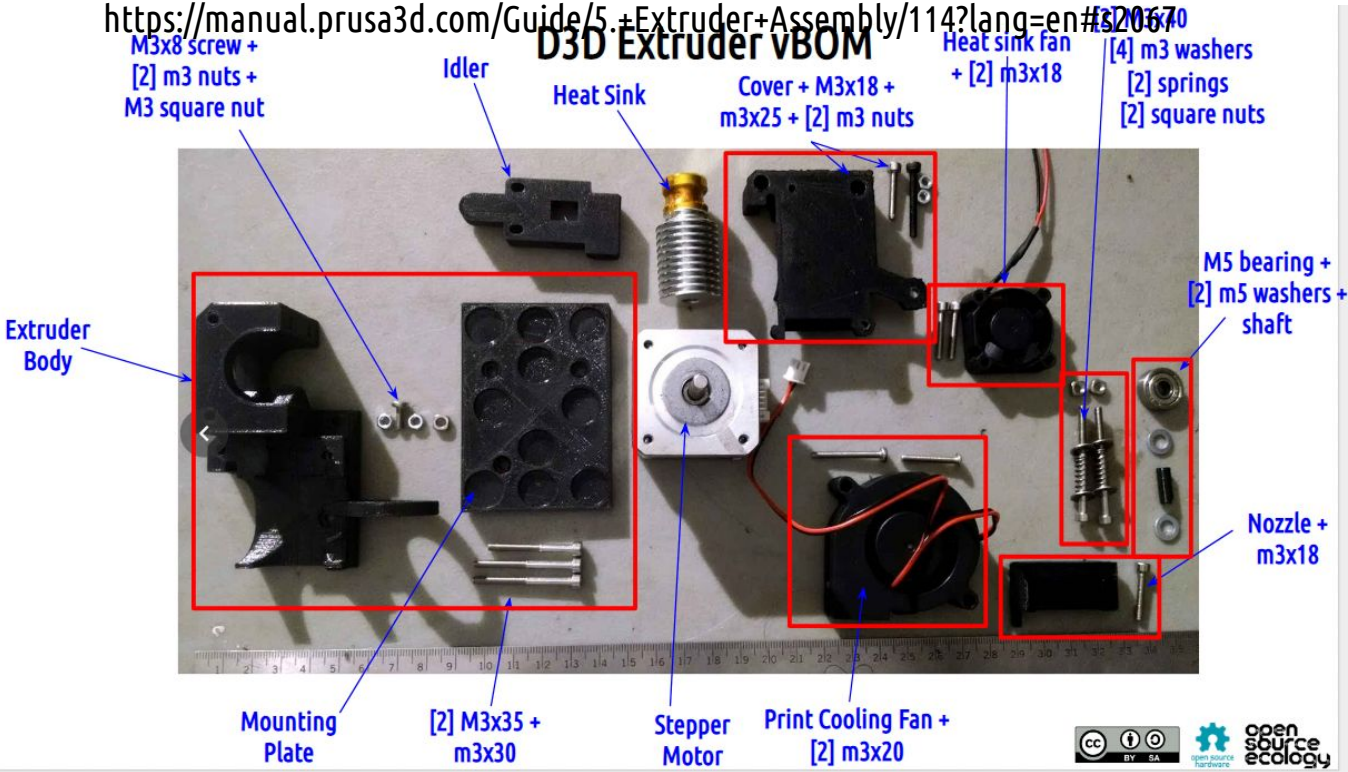
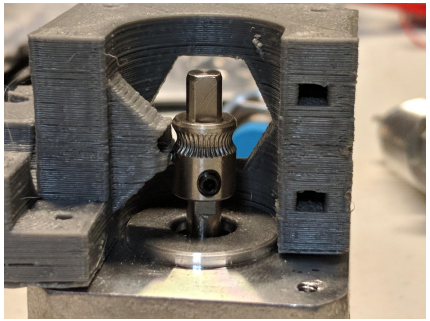
Takacslog - D3D Ohio 8/20

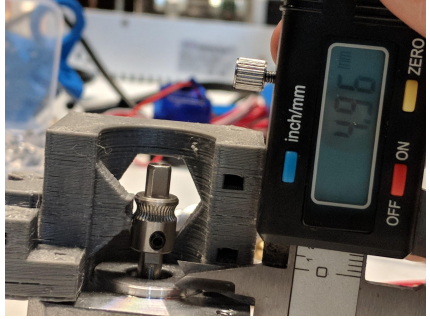
- See the Photos Folder for Build Sequence
- See D3D Extruder details for screw BOM and vBOM
- Prusa build instructions https://manual.prusa3d.com/Guide/5.+Extruder+Assembly/114?lang=en#52067

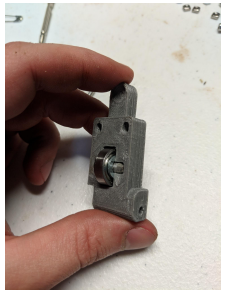
- Assembly of D3D hotend Finished - testing it
  - Extruder build photos https://photos.app.goo.gl/P3TpbyrDfRtszzoX6
- Starting 1” PVC pipes cuting and drilling.
  - PVC is still “bendy” from being in the heat. We will see printing results.
  - Let’s Discuss magnetic mounting to plastic pipes though a 3D printer adaptor.
- Let’s Discuss MES (Manufacturing Execution Systems) continuous printing and quality management
- Marcin D3D BOM https://docs.google.com/presentation/d/1l05C_XZbEyRR8SyY3q4D-qVYQQJwL4bn0x73lgD4FLY/edit#slide=id.g1861bf60d5_0_6

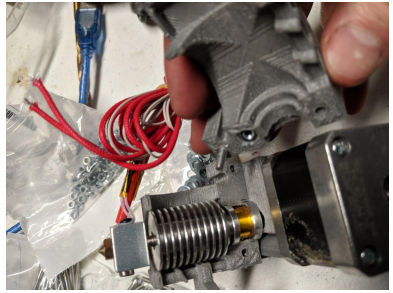


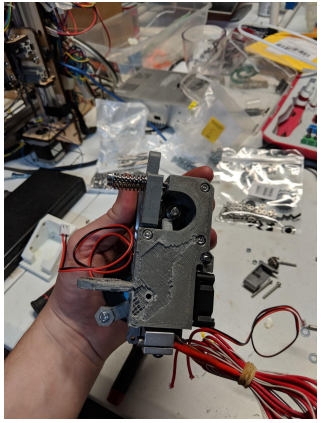
D3D_Ohio extruder build (V1807)

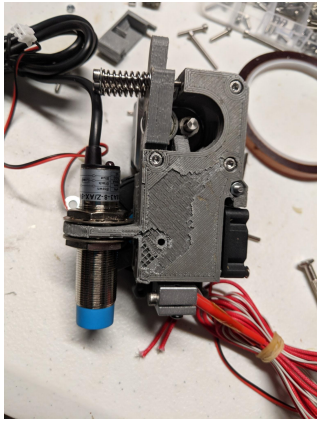












https://wiki.opensourceecology.org/wiki/D3D_Extruder_v1807

Power Cube - Abe Log

http://opensourceecology.org/wiki/Power_Cube_v17.11

- Power Cube on CAD on Github
- Next more plumbing
- Photogrammetry tests using COLMAP
- GPU and time efficiency of 3D from photos
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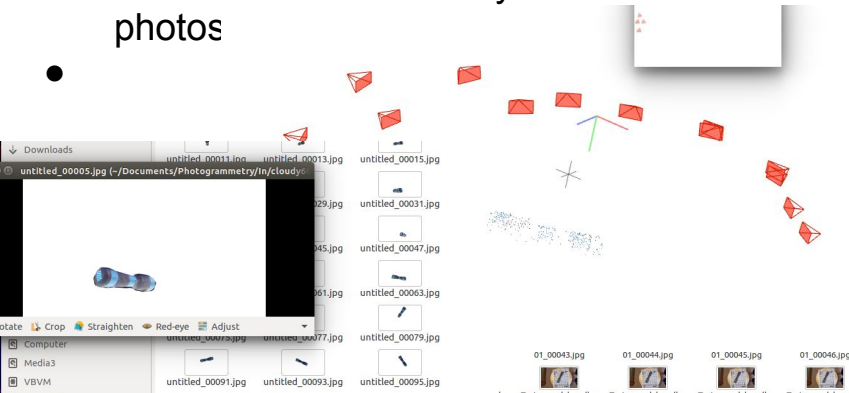

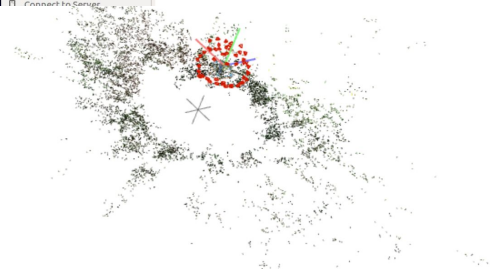

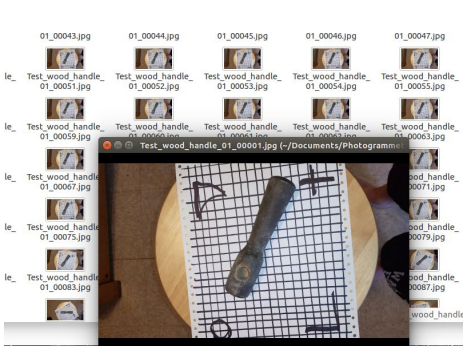

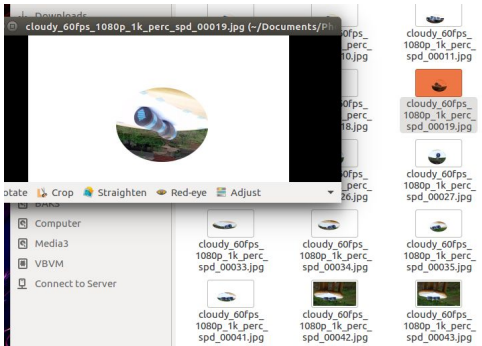

http://opensourceecology.org/wiki/File:PC17.11_auxiliary.fcstd

- Made changes to PCv17.11 added to PCv18.01 including engine dimension corrections requiring the larger frame
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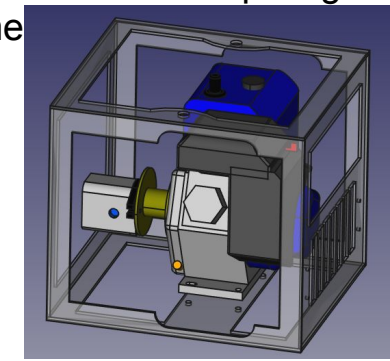
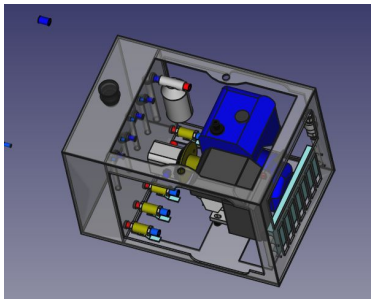
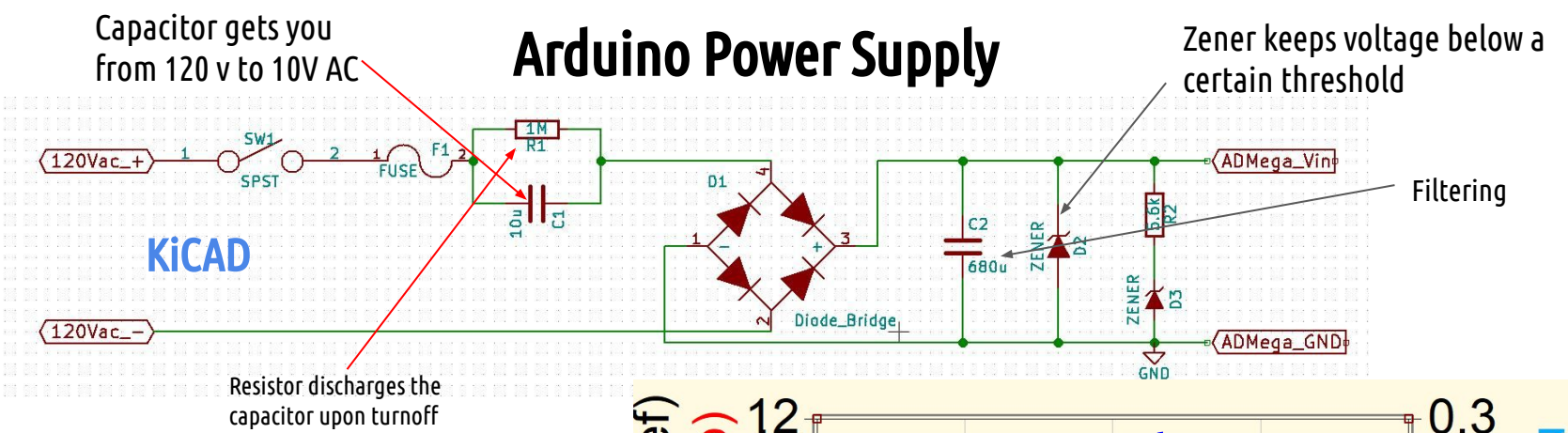
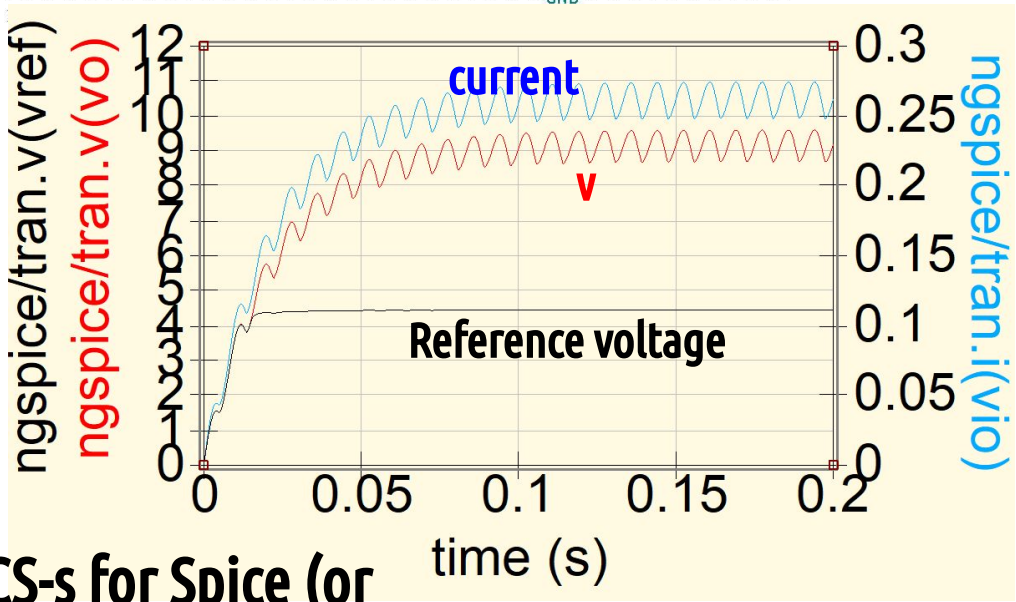




Arduino Power Supply





- Fuse: FUSE GLASS 1A 250VAC
- Cac: CAP FILM 10UF 5% 400VDC
- Cac discharge resistor: RES 1M OHM 1/4W
- Bridge rectifier: RECT BRIDGE 2A 40V
- Filter capacitor: CAP ALUM 680UF 10% 10V
- Output zener: DIODE ZENER 9.1V 5W
- Voltage reference: IC VREF SHUNT 4.096V TO92-3
- Voltage reference resistor: RES 5.6K OHM 5W 5%
- Total cost of components ~$10 + shipping

- Reducing voltage with capacitor works but acts more like a current source (DC circuit must draw constant current otherwise voltage will change)
- Using a small transformer costs ~$3 more but offers efficiency over a wider range of currents and provides isolation

QUCS-s for Spice (or NGspice) Circuit Sim

Power Supply Simulation Example

- Probe placement at 2 min
- Simulation at 2m 50s
- Diagrams at 3m 30s