

# OSE Dev Team Meeting Agenda

**Tues March 19, 2019**

**2 PM CST USA time**

## 1. Agenda - Progress Reports

- a. **Marcin** - [OS Golf Cart](#); Open Source Everything Store Collaboration Specification (governance)
- b. **Jen** -  
<http://www.provident-living-today.com/Alternative-Refrigeration.html>
- c. <https://www.treehugger.com/kitchen-design/fifty-buck-fridge-keeps-your-food-cool-without-electricity.html>
- d. C
- e. **Jon** - wrapping up D3D OH firmware and wiring (Still)  
**3/26 ABSENT AT DAY JOB update on continuous printing / ejection**
- f. **Nathan** - Waiting for feedback on 1:20 model
- g. ping up wiring, getting firmware loaded. Some questions.
- h. **Abe** - D3D PVC Mini Assembly - top X-axis? - clamp

Insert current effort graph here

## 2. Meeting Maintainer/Jen

- 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



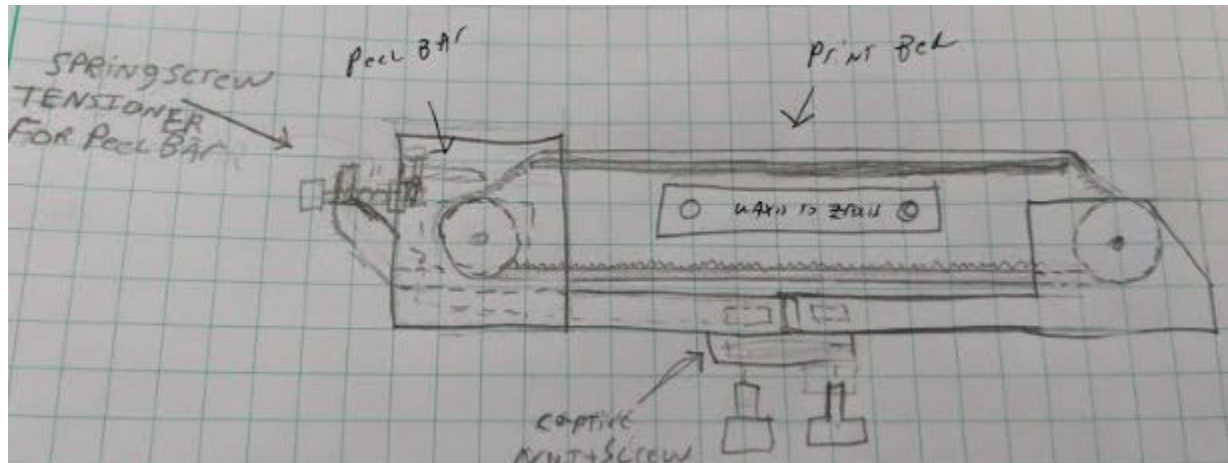
# Manufacturing Execution Systems

## With Jon Takacs

Small automated 3D Printer-based enterprise with 100% open source hardware and software toolchains.

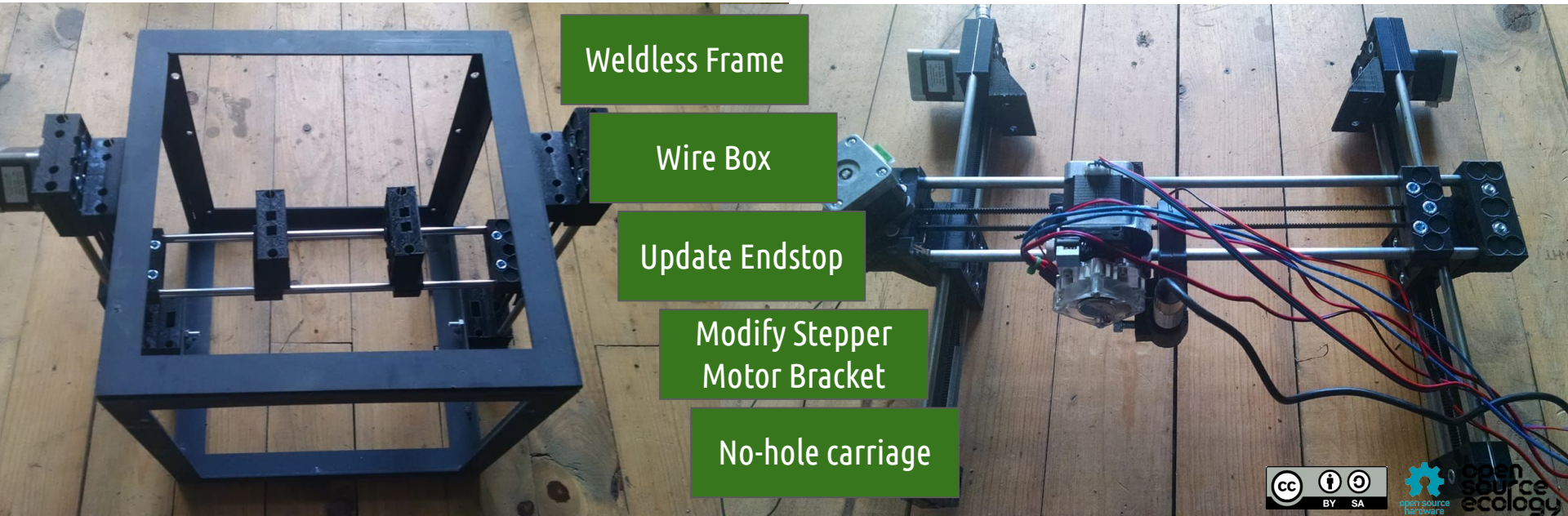
Concept peeler:

The image shows a screenshot of the R/VISYS website. The header includes navigation links for 'Industries', 'Services', 'Products', 'Platforms', 'Careers', 'About R/VISYS', and 'Contact'. Below the header, there is a main banner for 'MES/MOM' with a photograph of two workers in hard hats. The text on the banner reads: 'Manufacturing Execution Systems (MES) and Manufacturing Operations Management (MOM) are integrated business systems with the production/process systems that physically produce goods. Both solutions empower decision makers with accurate, reliable, real-time information, enabling decisions that improve efficiency, quality, and productivity across operations.' Below the banner, there are three circular icons representing 'PRODUCTION MANAGEMENT', 'PERFORMANCE ANALYSIS', and 'CONNECTIVITY'. At the bottom, there is a blue box with the text 'MANUFACTURING EXECUTION SYSTEMS' and a small gear icon.



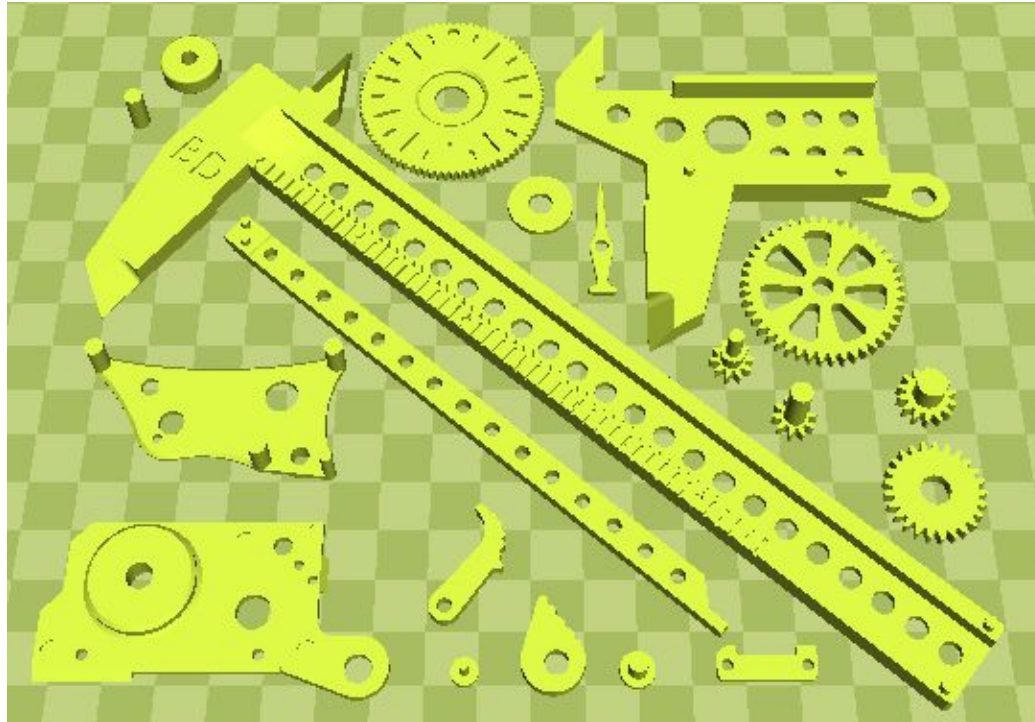
# D3D v19.02 Production Engineering

- 12 printer 1-day production engineering
- Electronics Quality Control



# Detail Prints - 3D Printed Calipers

- 12 printer 1-day production engineering
- Electronics Quality Control



# 3D Printer Production Engineering

Weldless Frame

Brackets that hold the corners. This assesses XY, but Z is in middle so it's weakly supported. This should not matter, and we can benchmark against a welded frame.

Wire Box

~~May be done as Spiralize Contour.~~ Holes are required. Can't do in Spiralize contour mode.

Update Endstop

Modify Stepper  
Motor Bracket

Printing without  
Cleaning

For getting wiring out of way  
of X endstop

No-hole carriage

Through wires didn't work

Double Heater  
Block

3mm Rubber  
Extruder

Update Build  
Instructions

Verify Detail Print

Verify Self-Replication  
with 0.8 mm nozzle

Update CAD



open  
source  
ecology

# OSES Collaboration Specification

- MES
- Opensourcewarehouse.org
- Osmicrofactory.org
- Opensourceecology.org
- Wiki
- Buy vs Buy Production
- Distributive Enterprise
- [[OSE Specifications]]

# Open Source Golf Cart

design sprint Friday 8'

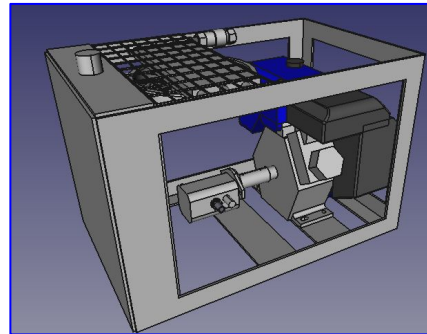
Specs:

- Max speed 20 mph for
- 14 or 15 typical industry standard
- Walking is 3 mph

5'

Golf Cart Body

Power  
Cube  
20x20x30"



Standard Dimensions: 4'x8'

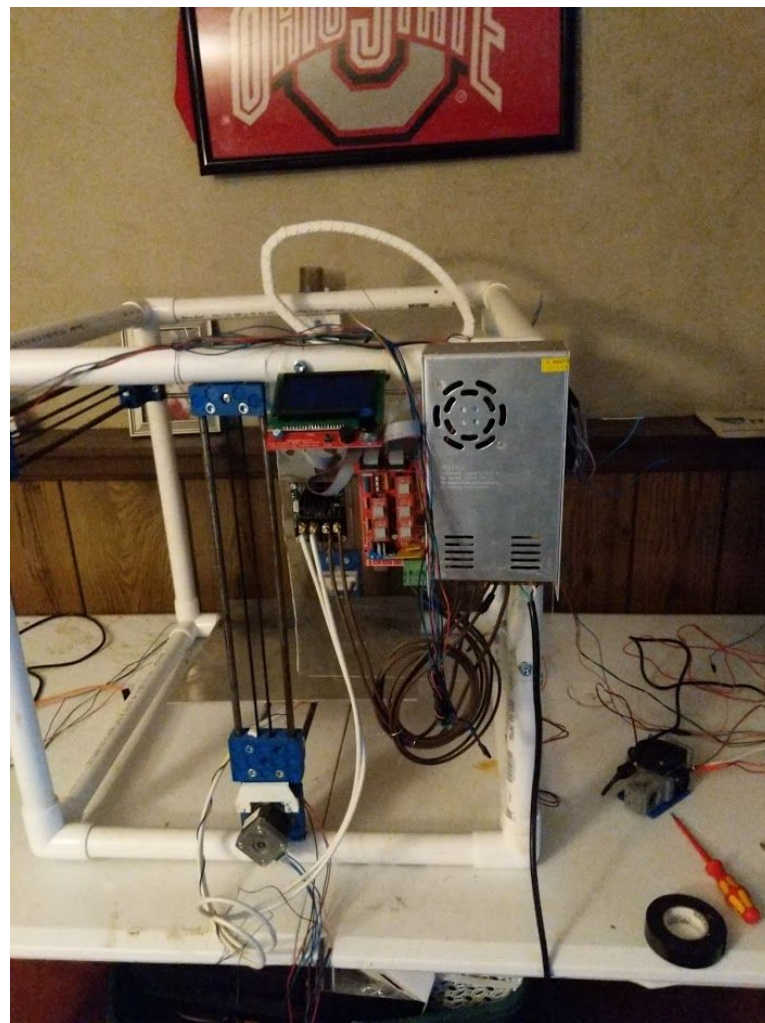
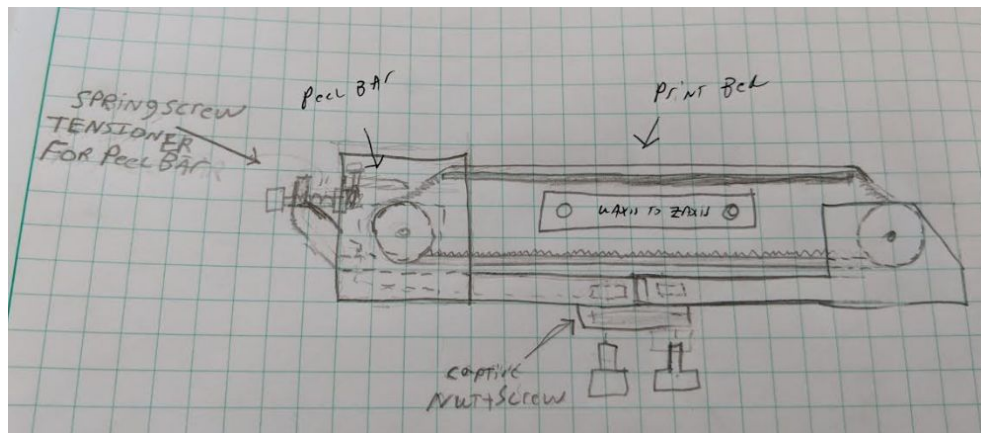
OSE skid steering golfcart: 5'x6'



open  
source  
ecology

# Takacs log

- Auto eject - feature one is simple G code that we could custom make per print (to start)  
<https://www.youtube.com/watch?v=KxU3EIVLPw>
  - If this works great, great. Then I make a python post slice script for cura that checks the model for an area where the print does not occupy to lower the head a few cm to then drive forward and push it off.
- If this less complex method fails, I have a design here for an attachment to the print bed. Basically there will be a large PVA (or whatever that fancy plastic is) sheet that is expanded to have timing belt attached at the sides. This will be moved by stepper forward off the sheet and will be exposed to a peel bar to detach any print or bib material. Also opens up possibility for continuous printing head variants.

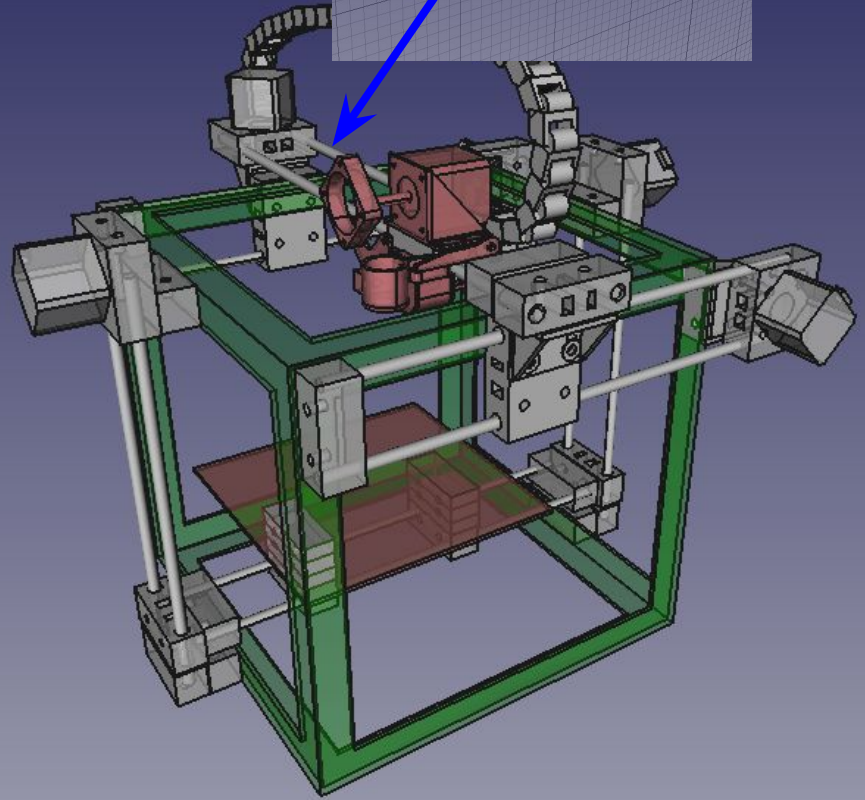
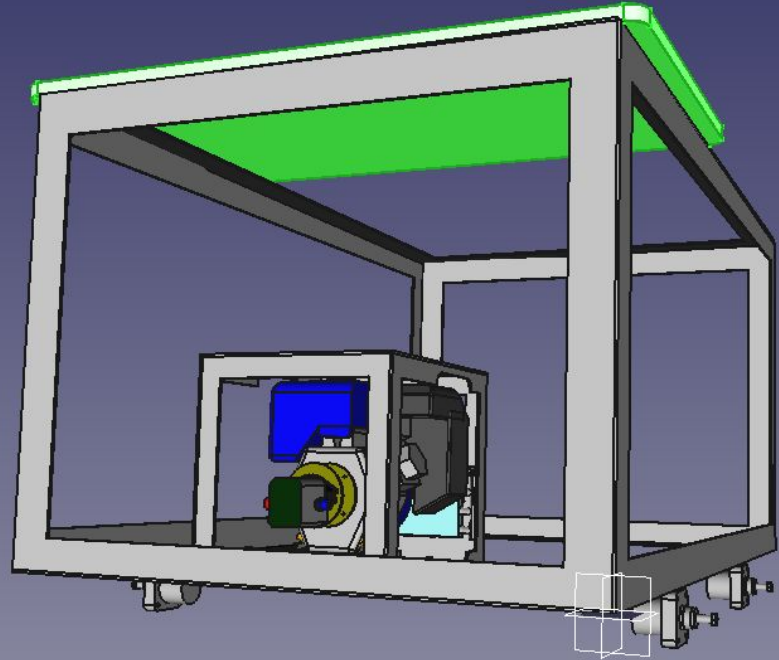
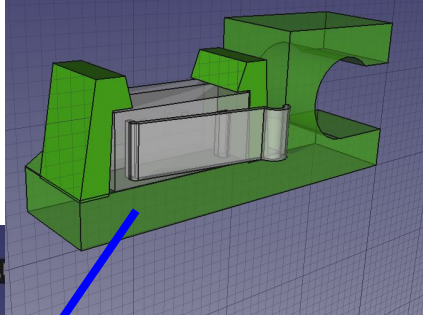




Marcin:

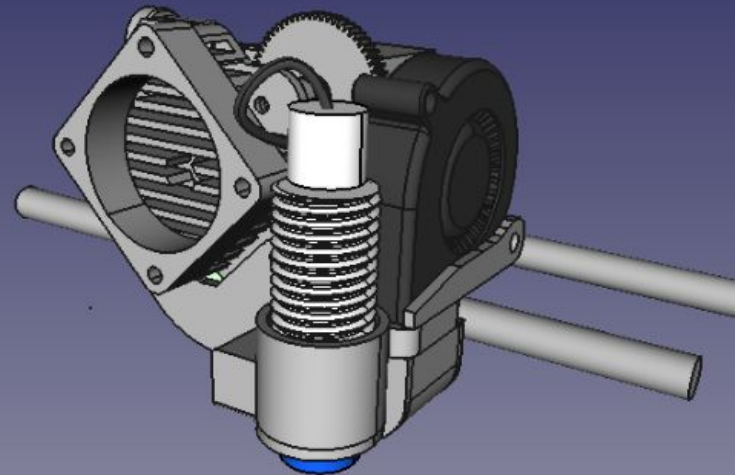
- [D3D v19.02](#)
- William - [open source simple extruder](#)
- [Clamp](#)

# Notes





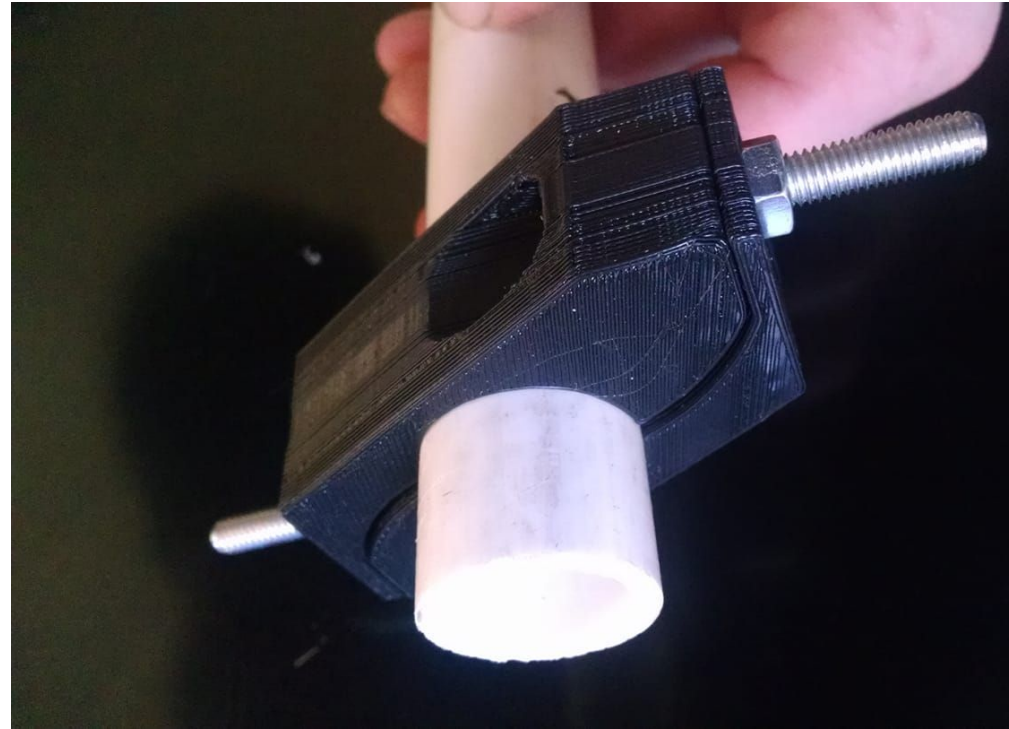
Marcin Jakubowski  
18 hours ago



[https://wiki.opensourceecology.org/wiki/D3D\\_v19.02](https://wiki.opensourceecology.org/wiki/D3D_v19.02)

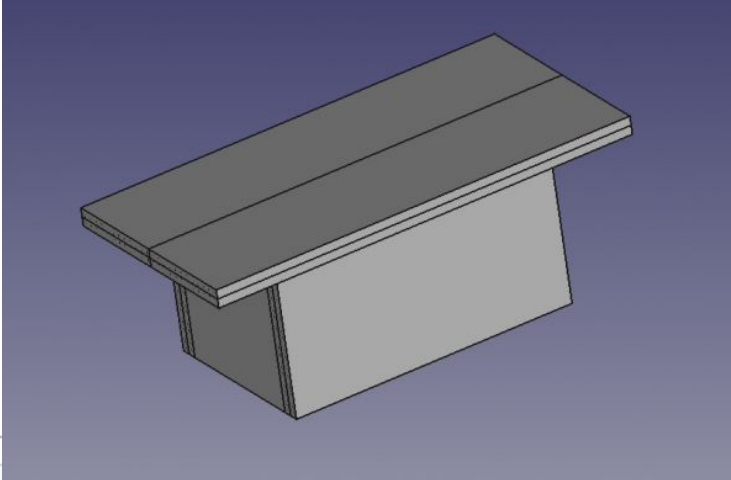
# Abe

- [Gitlab D3D Mini PVC Parts and Assembly](#)
- [Abe working doc](#)
  - Extruder options and upgradability of PVC/plastic frame D3D's.
  - Looking v19.02 parts for possible compatibility with Mini.
  -
- Next priorities
  - More D3D Mini PVC assembly testing in CAD
  - Continue exploring python for freecad



# Nathan - Seed Eco Home Model

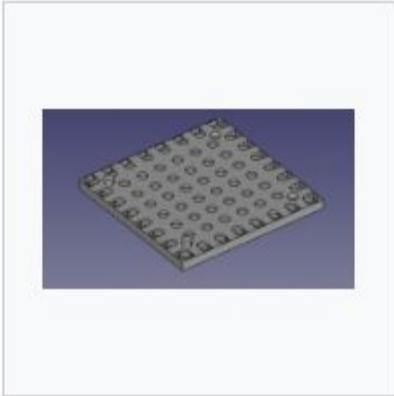
## Part Library



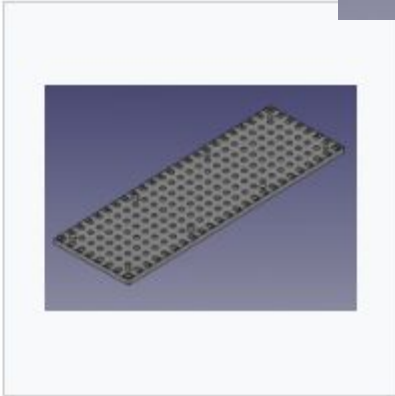
Part Library [\[edit\]](#)



**4x8x6.5" Insulated Exterior Wall** [File:Wall-4x8x6.5.fcstd](#)



**4x4x6.5" Insulated Exterior Wall** [File:Wall-4x4x6.5.fcstd](#)

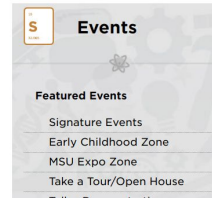
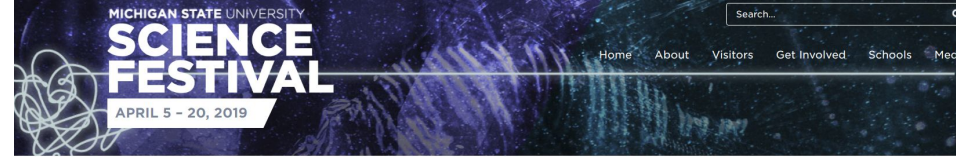


**4x12x6.5" Insulated Roof Panel** [File:Roof-4x12x6.5.fcstd](#)

↖  
**My New House**

## Notes

- **Nathan** - 3D printable OBI house models
  - [Nathan Log](#)
  - [Small magnets as connectors](#)
  - Scale - is called 1/2" scale - 1/2" = 1'
- **Eric** - <https://sciencefestival.msu.edu/Event/View/1165>
  - Going to build volcano heater nozzle
  - 70C for bed adhesion
- **Jen** - homeschool programs to join project
  - Open source hackathon in North Seattle Community College
- **Abe**
  - [D3D Mini PVC](#)
  - Model to determine if axes are clear
  - Bolt length and nut catchers
- **Marcin**
  - [Book - Solar Car](#)
  - Golfcart open source. [Motors.](#)
  - Control Code



## Open-Source 3D Printing

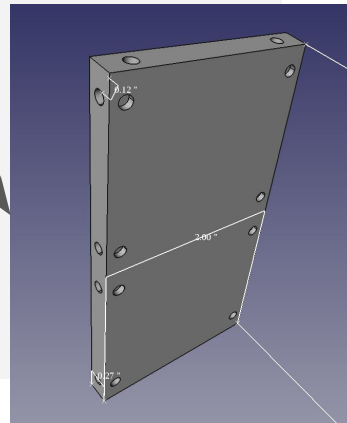
Type: Expo Zone

### Description:

Come learn about 3D printers or print your ideas. An open-source toolchain including a Distributed 3d printer (D3D) makes turning ideas into reality possible. The D3D is designed for robust operation and easy assembly, and is controlled by an Arduino microcontroller, OSE Linux, and Cura. Custom 3D models can be built using FreeCAD or shared models downloaded.

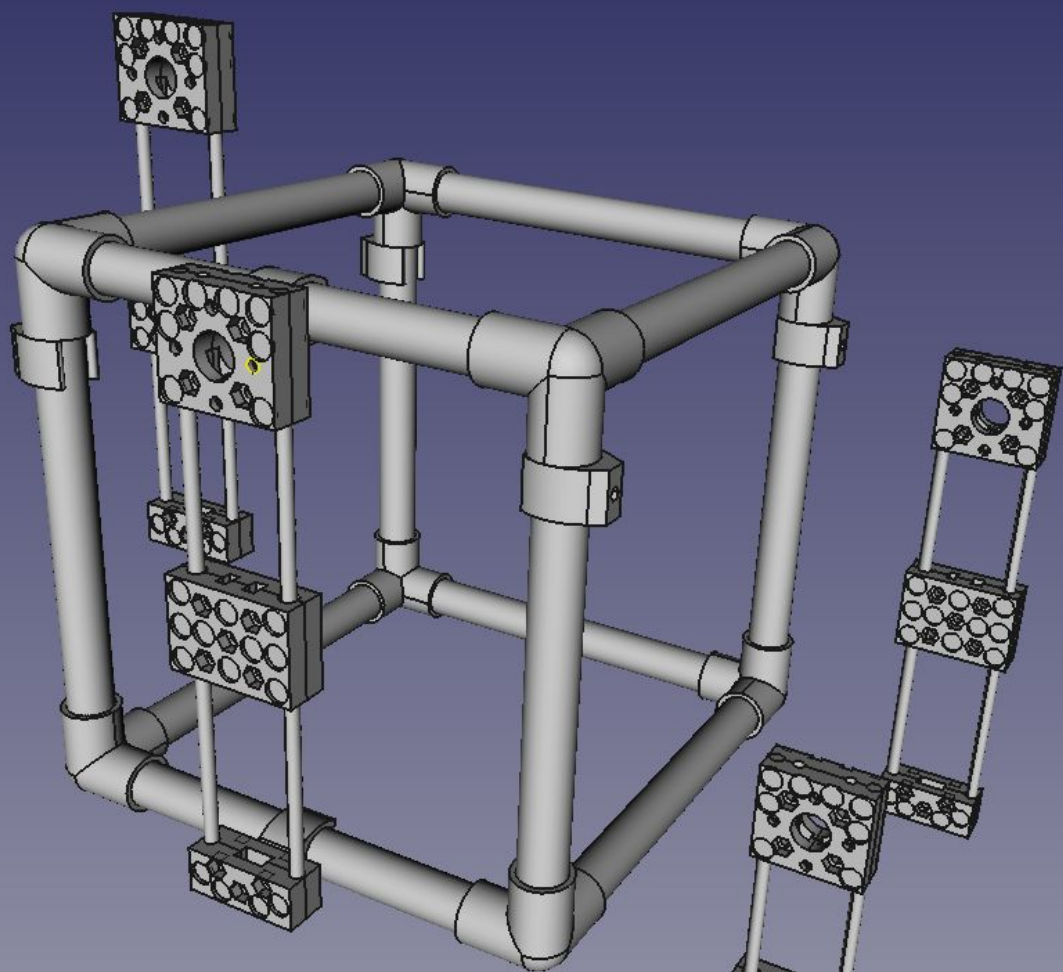
### Presented by:

- Eric Poliner, Developer, Plant Research Lab Open Source Ecology, MSU



# OSE Clubs

1. 1 Year Online Curriculum for High Schools, Home schools, Universities
  - a. Many participants
  - b. Used to recruit for OSE Clubs, Dev Team, Workshops
2. Can we achieve 10% conversion to OSE Clubs?
  - a. Market this actively to local high schools and beyond



# DC/DC Converter Module

Can we measure here directly with Arduino?

- yes but input resistance of Arduino would be in parallel

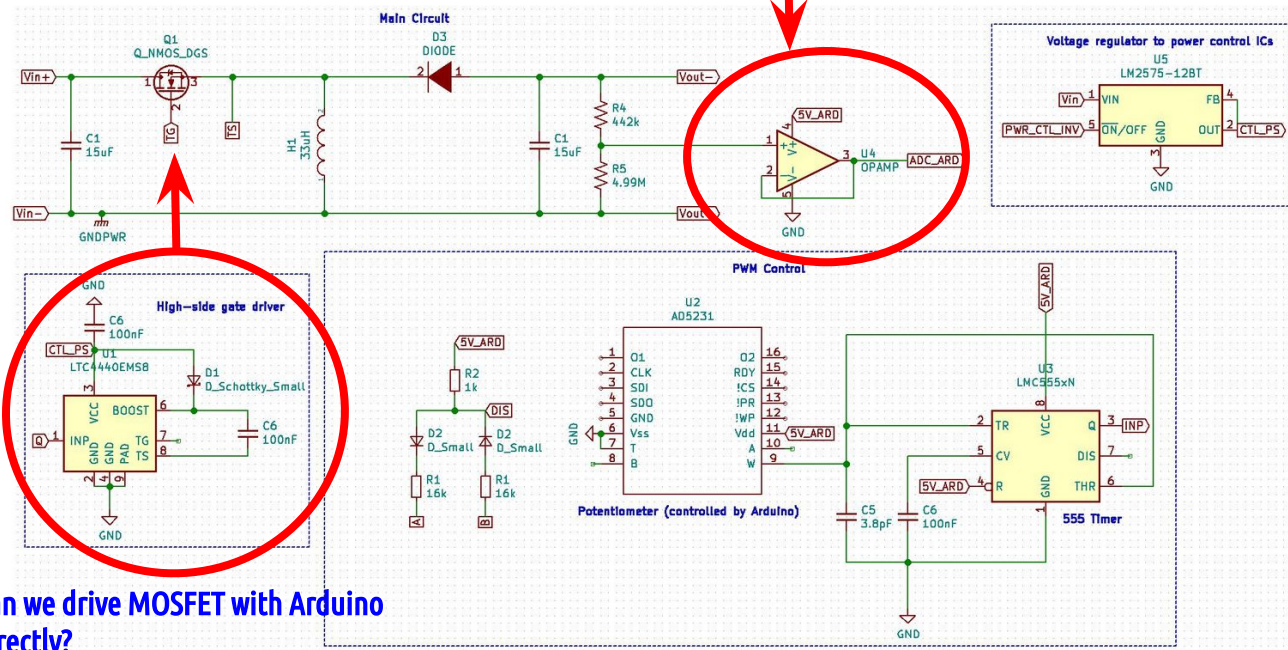
- ~\$35 for parts shown here
- 5V - 60V input and output (can change input by factor of ~3)
- 30A max current

Next steps:

- order parts and build prototype
- choose microcontroller and display
  - [ARM Cortex M0](#) with [7-segment display](#) could work, cost ~\$15
- write code for sensing voltage and controlling potentiometer

[Instructable on Buck Boost Converter](#)

[https://wiki.opensourceecology.org/wiki/Adjustable\\_Power\\_Supply\\_v18.08#Buck-Boost\\_Converter](https://wiki.opensourceecology.org/wiki/Adjustable_Power_Supply_v18.08#Buck-Boost_Converter)



Can we drive MOSFET with Arduino directly?

- Maybe with P-channel FET, but they tend to be slower and have more resistance to current flow

# Jen update and questions

Homeschool communications and progress report

Alternative economic and governance projects

1. Cultu.re- not financial, blockchain based, free associations of individuals- I would like to invite Toni Lane to speak briefly at a meeting soon- It seems she's done a lot of the self-governance legwork. WE have the hardware to build the civilization. Her project has the structure.
2. Michael Tellinger's Ubuntu project- Can mesh cashless with current governance systems
3. [https://wiki.opensourceecology.org/wiki/Alternative\\_Economy\\_Projects](https://wiki.opensourceecology.org/wiki/Alternative_Economy_Projects)



# Eric/Poli

Successful prints. Hopefully get good prints again today.