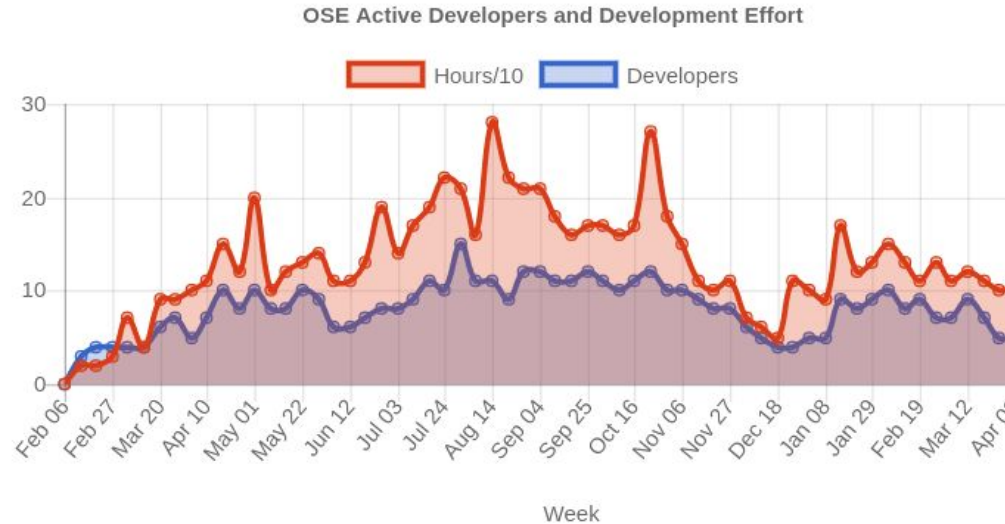


OSE Dev Team Meeting Agenda

Tue May 1, 2018
2 PM CST USA time

1. Agenda - Progress Reports
 - a. **5 Min - Intro.** [Immersion Program](#) .
 - b. **10 Min - Lex** - Collab CAD & OSEDev Workbench
 - c. **20 Min - Shane** on CNC Circuit Mill
 - d. **10 Min Ruslan** -
 - e. **Josh** - MicroTrac and FreeCAD assembly thoughts
 - f. **Abe** - 10 min - freecad
 - g. **Jon T** - build of d3d OH in progress
 - h. **5 Min** - Closing and Dev Narrative Summary
2. Task Allocation
 - a. Note taker
 - b. **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

- May 1 Immersion Program Announced

- Immersion program will help with turnover
- Can we put FreeCad in the cloud?
- Differences between cloud cad and collaborative cad
- Cloud, many can work simultaneously but on same part/
- Collaborative, can work on different parts same file
- and also can work offline. Requires complicated merging algo.

Shane/Circuit Mill

LF hobbyists making electronics in home

Open circuit board design /minimum parts/ just under 200

Designs in keycad/ CERN group software

Not finding good open source circuit board software/making own software

Not bloated/highly modifiable making YouTube vids on how code works.

Solved circuit board substrate warpage with height map.

Backlash, what is?/ $y = 0$ backlash is inexplicable

^ 500 ml/second causes motor to skip steps

Running w/no endstops/haven't been needed

Still debugging/not autonomous/will be click and run/

user will still have manual tasks.

Magnets 5kg force hold/cause problems/plastic frames stable enough?

/PVC pipe? Some printers use. Rebar and concrete inside PVC.

Can this be more modular? Advantage to screw axis?

3D printer has automatic bed leveling

- Ruslan on optimizing people usage
 - Workbench with table, part number...Testing offline version/ collaborating with OSE Germany/ difference is external files can be used, will be able to coordinate wikis with FreeCAD

This is still pretty advanced level.

Hopefully people will be able to use the workbench easily.

The idea is to facilitate workflow around using part libraries.

Idea is to make a modifiable skeleton workbench, not a huge universal one. It's like a construction set construction set.

Michael/Microtrack

Bushings should be moved. Simplify to make square tubes 3" shafts.

Draw up a concept drawing. Tensioning, how loader arms are mounted, a few parts are doing a lot of things/good/makes it hard to change one thing. Start with simple diagrams before going all out on FreeCAD.

Marcin/Microtrack/Started yesterday/loader arms not moving up/because using quick couplers on every cylinder? Sometimes lock closed.

Design jam to solve this issue? Microfactory challenge/cordless drill/possibly involve tool chain/

Abe concerns about vs workbenches

More Notes

- FreeCAD + KiCAD integration - [YES!](#)
- Assembly 3 - [github](#)
- PLM in FreeCAD - should integrate with https://www.freecadweb.org/wiki/Resource_framework_project
- Abe - “Merging CAD files using software seems unnecessary given how well our parallel part work has worked previously.” - agreed
-
-

Dev Narrative

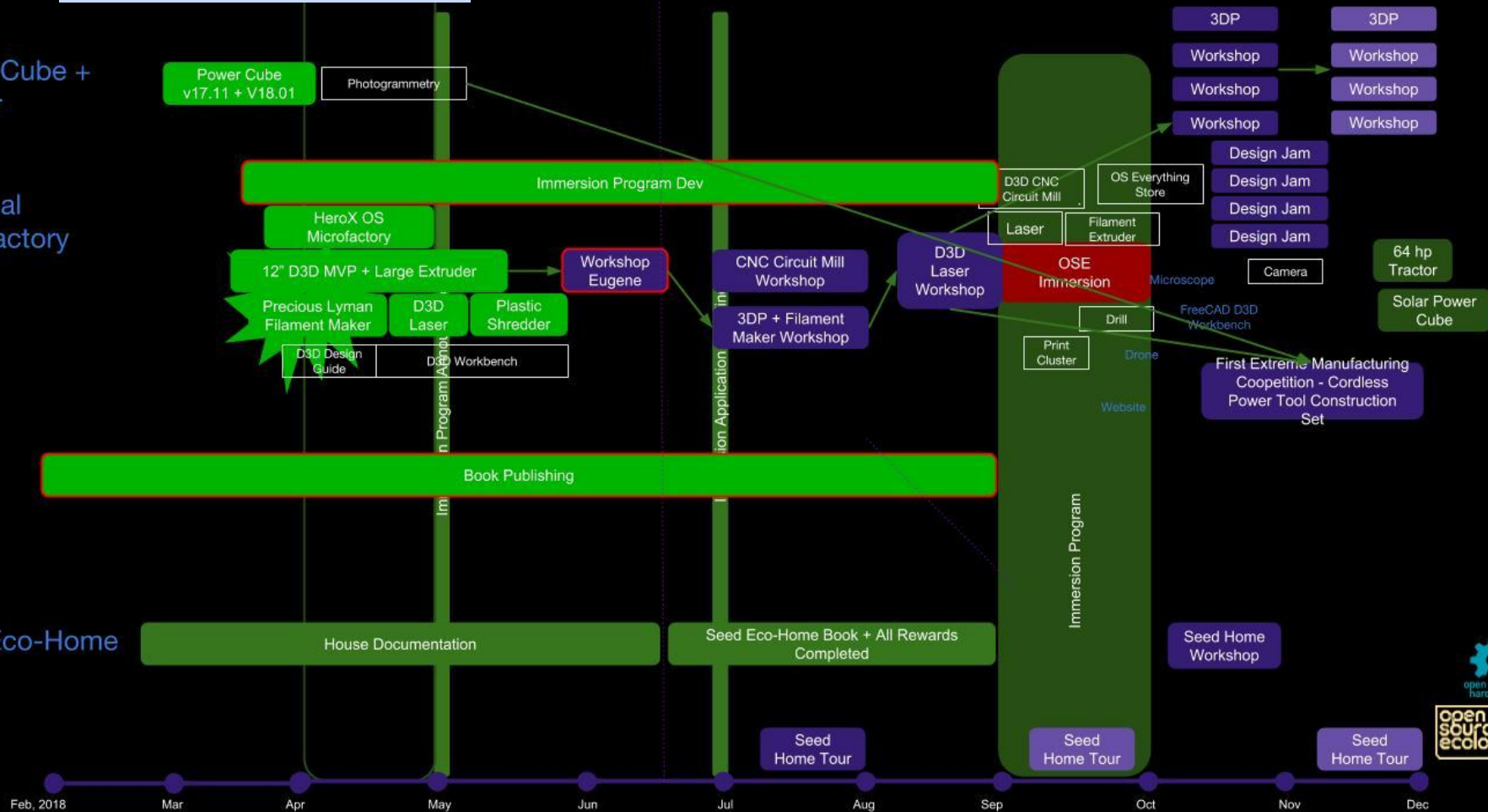
OSE Critical Path 2018

Power Cube + Tractor

Personal Microfactory

Book

Seed Eco-Home



Cloud CAD

Running FreeCAD on a central server for several people to work on the **same** part of a model at the same time (meaning they take turns clicking with mouse / typing on keyboard).

This is doable today by running FreeCAD on a hosted server and then connecting to it via remote viewing clients.

But: limit of Cloud CAD when working on modules gets you a similar function to Collaborative work, minus the versioning/merin

Collaborative CAD

Several people can work on **different** parts of the same model at the same time or asynchronously.

This requires very sophisticated diffing of CAD models and an intelligent (do what a human would do), automated (run when people save conflicting changes to the same model) and deterministic (explainable and consistently repeatable rules) merging algorithm.

Cloud CAD

vs.

Collaborative CAD

- **Con:** Requires reliable / low latency internet connection during use. Extremely frustrating / **Can this be resolved by selective forwarding?** unuseable with even slight delay.
-

- **Pro:** Human based merging and locking/unlocking in real time. End result makes sense to humans.
-

- **Con:** Human based merging and locking/unlocking in real time. Requires both people present.
-

- **Pro:** Nothing to install locally, computer just has to run browser.
-

- **Con:** Requires centralized infrastructure. Doesn't scale.

- **Pro:** Works offline. So can work in remote locations

- **Con:** Requires complicated algorithm / implementation to merge changes. End result may not make sense to humans.
-

- **Pro:** People can work asynchronously when they have availability.
-

- **Con:** Requires local installation and computer capable of running CAD.
-

- **Pro:** Decentralized, infinitely scalable.

OSSEDev Workbench

- Short term goal is a partial implementation of the Collaborative CAD from previous slide.
 - Instead of sophisticated diffing / merging algorithm it uses a locking mechanism so that model history is linear and thus only one person can work on a model at a time.
- Saving data to remote server for backup / sharing purposes (current plan is Amazon S3).
- Enforcing OSE specific workflow rules and best practices.
 - Smaller components are re-useable and make up larger components (modules).
 - Final products / machines are collection of components and modules.
- Automating the part library.
 - Generate web view of all the components and their interdependencies.
 - Generating BOM listing.
- More Info: http://opensourceecology.org/wiki/OSSEDev_Workbench

https://www.freecadweb.org/wiki/Resource_framework_project

How can this be done more cooperatively with the existing freecad community and efforts? -abe

D3D CNC Circuit Mill

- <1000 lines of code, college freshman level, no concurrent threading
- 0.1 mm plunge - but typical warpage is 1 mm scale
- 10 micron resolution!

Ruslan

- Last time we were talking about creating good documentation. I was wrong saying “value the time [of the reader]”. Wrong focus. Correct is: “Value the people” including developers. Do not optimize developers. But to give advices how to achieve a particular goal more efficient is OK if this person pursue the same goal.
 - NOT OK: force anyone to make short instruction because of your “precious time” and laziness to process complex and not perfect prepared information.
 - OK: Give an advice to teacher* who **wants** to be understood that the time and presentation matter. Also tell how one can improve.

*in this context a teacher is also an instructor, a trainer, or a developer who writes program descriptions, and anyone who writes on the Wiki, and so on.

Why: fun and wellbeing are the currencies you pay your OSE-developers.

- Idea about new Library workbench similar to OSE-pipe-workbench.
 - Toolbar with buttons. Every button is coupled with a .csv-Table. You click the button and the bench shows you a table.
 - The table contains 4 columns: PartNumber, Description, PicturePath, FcstdPath. When you select the program show you a picture and a description. When you click OK the FreeCAD part is inserted into the active document.

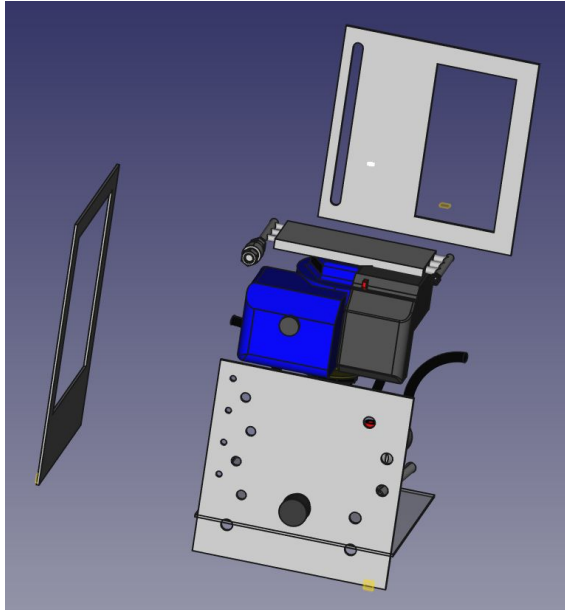
D3D OHIO - Takacs Log

- WORK STATUS:
-
- Build has started!
 - X and Y axis as built can fully travel the distance of the bed
 - Waiting on an order of steel rods to arrive this week to finish z axis. Should have complete build mid may.
- On vacation this week, last week was a large project at the office.
 - Commissioned new sump pumps and controls for cleveland!

Power Cube - Abe Log

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

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



- <https://docs.google.com/spreadsheets/d/1-XNxT2tAiBmut8vKd6KnvqYSLq71kMVL5qHYYOdXfw/edit#gid=1327173174>
 - Considering the freecad and Assembly2 WB version/development situations and development of more work benches it is a good time to discuss software dev version compatibility and how to develop most efficiently with the rest of the freecad and open source dev community.
 - #FreeCAD<-->OSE discussion in slack channel
<https://osdevorg.slack.com/messages/CAF16UM99/>
 -
- Next steps (Review priorities with respect to roadmap/timeline)
- Finish PCv17.11 + PCv18.01 CAD
 - LT fit of PC's
 - Figure out process for converting CAD parts to 2D for nesting and cutting
 - Update FreeCAD workflow and tutorials for 0.17
 - Photogrammetry
 - Python
 -

Michael Altfield Log

- jitsi meet POC
- Rocket Chat + Atlassian Researc
- Blocked on s3 backups pending wiki migration
- Blocked on wiki migration pending validation & plan

How is the wiki being migrated? Versions update? And how and when will it affect use? Any future usage changes?