Week 18: Invention, Intellectual Property, Income

- global class homework
- global class

global class homework

video that Henk posted in prep:

CNN

https://hackaday.com/2025/06/06/solder-stencil-done-three-ways/

https://ivy-honesty-3a3.notion.site/Stencil-making-and-Laser-Soldering-1f8654725b0f802d9b61f23d249f6c4c

Ahmed Tijjani

Solder mask with tin-can:



https://fabacademy.org/2021/labs/kochi/students/saheem-palayi/

Laser for reflowing PCBs

https://ivy-honesty-3a3.notion.site/Stencil-making-and-Laser-Soldering-1f8654725b0f802d9b61f23d249f6c4c

Tsheltrim Lhamo

Sara Seager



Sara Kutkova



Thomas Noah



Jeremy Losaw



ruling engine diffraction grating





Stanley Amaechi

side note: President of the Federal Rebublic of Nerdgeria

Paula Rivero

assistive device for people with Brachial Plexus Paralysis





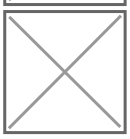
Oscar Gomez

Smart Bartender



Zhirayr Ghukasyan



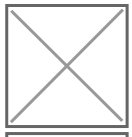


Mika Nils Günther





Namita Aravind





Mort Subotnick

Muheshkumar R



Maki Tanaka



global class

Invention, Intellectual Property, and Income

Bernd Schoner The Tech Entrepreneur's Survival Guide: How to Bootstrap Your Startup, Lead Through Tough Times, and Cash In for Success

ready, fire, aim... thingmagic rfid readers

https://en.wikipedia.org/wiki/Kendall_Square

https://patents.google.com/patent/US9566758B2/en?q=(gershenfeld+kenneth)&oq=gershenfeld+kenneth

https://patentimages.storage.googleapis.com/2a/75/1d/5ac86f7fa2bb5e/US10800127.pdf

https://mitmuseum.mit.edu/programs/mit-museum-after-dark

chat

15:14:21 Von Krisjanis Rijnieks an Alle: just read this https://trac.ffmpeg.org/wiki/Encode/H.264

15:18:24 Von saheen palayi an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": @Rico Kanthatham

15:18:29 Von saheen palayi an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": {93AFDEE7-7827-451A-86CE-813578D01AAD}.png Pablo Fab Lab Leon:□□ Milliam:□□

15:18:48 Von Adrián - Fab Lab León an Alle: The last day of random review....

15:18:49 Von Rico Kanthatham an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": superman only sleeps...when he is dead saheen palayi:□□

15:19:06 Von Adrián - Fab Lab León an Alle: Replying to "The last day of random review....": Good luck to everyone!!

15:19:13 Von Rico Kanthatham an Alle: go tsheltrim waag:□□ Adrián - Fab Lab León:□□

15:20:00 Von Pablo Fab Lab Leon an Alle: Maybe is a good idea that those who didnt appear in the random, and are in the call, has the oportunity to talk today.

15:20:01 Von Rico Kanthatham an Alle: Replying to "go tsheltrim": yes...Tsheltrim is the comedian among the 3 amazing students at DGI Adrián - Fab Lab León, Super Fab Lab Oulu, Milliam:❤

15:20:42 Von Krisjanis Rijnieks an Alle: Sara from Aalto is ready to present ;)

15:20:43 Von Garrett Nelson an Alle: wow.

15:21:21 Von Benedikt Ilmenau an Alle: Is there a 3d scan from Neil available to put him on our shoulder? Ricardo Marques:□□ Patrick - waag, Adrián - Fab Lab León:□□

15:21:28 Von Adrián - Fab Lab León an Alle: Replying to "Maybe is a good idea that those who didnt appear i...": The last opportunity with Neil, to have feedback for your final Project... use very well

15:21:46 Von Fab Classes an Alle: https://www.saraseager.com/

15:23:37 Von saheen palayi an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": ha, waiting for carvera cnc. current machine(MDX-20) will break the bit first, before it start milling

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so a breakout board is huge help in the lab, its been using various projects for the past 3 years here in kochi
https://github.com/saheenpalayi/ProshPlay-Type_C-Breakout_Board
Adrián - Fab Lab León, Svavar Konradsson Fab Lab Isafjordur:❤□
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15:24:12 Von Ricardo Marques an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": For the cheap v-bits you really need surface mapping... saheen palayi:□□

15:25:59 Von Benedikt Ilmenau an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": A vaccum clamp is a nice addon for the machine specialy to mill pcbs. I'll uploading a second version of it in the next weeks. The first that was build as a side project in FA25 working okayisch but have some room for improvement Garrett Nelson, Micka - FablabCuenca, Adrián - Fab Lab León:□□ Ricardo Marques:□□

15:26:46 Von Garrett Nelson an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": I love the dropping of the casual "oh, it's just a 60K rpm spindle, no big deal..."

15:26:51 Von Rico Kanthatham an Alle: Nice job Tsheltrim!!! Adrián - Fab Lab León:❤ Roberto Delgado:□□ DGI:□□

15:27:34 Von Sedat YALÇIN an Alle: Go Sara….) Sara Kutkova:❤

15:27:45 Von Micka - FablabCuenca an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": A vaccum clamp is a nice addon for the machine specialy to mill pcbs. I'll uploading a second version of it in the next weeks. The first that was build as a side project in FA25 working okayisch but have some room for improvement Could you share a link plz?

15:30:13 Von Krisjanis Rijnieks an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": @Ricardo Marques do not use cheap v bits

15:30:34 Von Krisjanis Rijnieks an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": or there are also depth limiters that press the clad down

15:30:55 Von saheen palayi an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": dont worry. will keep sharing more.. more things in Queue□□ hints:- 1. 4 layer PCB 2. Xiao made in fablab Milliam:□□ Adrián - Fab Lab León:□□

15:31:28 Von Adrián - Fab Lab León an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": WIP @saheen palayi is your surname hahaha saheen palayi:□□ saheen palayi:□□

15:31:42 Von Ricardo Marques an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": strong double sided tape has been working well. plus the surface mapping...

15:32:33 Von Rico Kanthatham an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": superman has to have his secrets...or he will have too many groupies Adrián - Fab Lab León:□□

15:32:54 Von Ricardo Marques an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": they don't last super long but as long as the tip doesn't break and the copper is punctured they have been ok so far.

15:33:31 Von Adrián - Fab Lab León an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": There is better mills than the v-bits https://es.aliexpress.com/item/32827787956.html?spm=a2g0o.order_list.order_list_main.83.21ef194dOUbk2a&gatewayAdapt=glo2esp

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https://es.aliexpress.com/item/1005006083229169.html?spm=a2g0o.order_list.order_list_main.87.21ef194dOUbk2a&gatewayAdapt=glo2esp
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15:33:36 Von saheen palayi an Alle: IDC crimpers https://www.amazon.in/FRC-IDC-Connector-Crimping-Tool/dp/B09BZRGK9V

15:33:37 Von Milliam an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": @Adrián - Fab Lab León you should make him a T-shirt Adrián - Fab Lab León:□□ saheen palayi:□□

15:34:47 Von Rico Kanthatham an Alle: tom in kerela?

15:35:30 Von Superfablab Kochi an Alle: Gooo Tom□□ Nuria Robles | LEON, Adrián - Fab Lab León:□□

15:36:37 Von Benedikt Ilmenau an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": https://fabacademy.org/2025/labs/ilmenau/students/benedikt-feit/week07/

15:37:35 Von Benedikt Ilmenau an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": design files are at the bottom. Everything could be milled on the Carvera itself. After finishing version 2 I'll also uploaded it there. saheen palayi:❤ Micka - FablabCuenca:□□ Ricardo Marques:□□

15:41:16 Von devanshi mengar an Alle: this is so cool

15:44:25 Von Adrián - Fab Lab León an Alle: Attiny412 saheen palayi:□□

15:45:25 Von Adrián - Fab Lab León an Alle: Replying to "Attiny412": More smaller and cheaper tan the Xiao hehehe

15:46:56 Von saheen palayi an Alle: Replying to "Attiny412": I've 300 of them in stock. in my personal inventory. thinking to make a tiny dev board Adrián - Fab Lab León:□□ Milliam:□□

15:47:35 Von Jani Ylioja an Alle: There are different quality coppers, if you had bad thin one, it might be very difficult

15:47:47 Von Milliam an Alle: Replying to "Attiny412": @saheen palayi hoarder saheen palayi:□□

15:50:02 Von Garrett Nelson an Alle: Good job Jeremy Jeremy Losaw:❤

15:50:38 Von Garrett Nelson an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": I'd like to give this a try: https://www.harveytool.com/products/engraving-cutters---pointed---pyramid-point

15:55:27 Von Ricardo Marques an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": 20º looks really promising on those

15:55:51 Von Ricardo Marques an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": There are some similar end-mills used for deburring that also have potential, i've bought some to engrave wood but I haven't tried them on copper yet. They have a tiny bit of up-cut so shouldn't smoosh copper as much when they're less Sharp. Only seem them down to 60º

15:55:54 Von Ricardo Marques an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": {F9346F7A-F55D-421F-9C9B-82599CB0D8EF}.png

15:57:43 Von Adrián - Fab Lab León an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": https://es.aliexpress.com/item/1005006083229169.html?spm=a2g0o.order_list.order_list_main.87.21ef194dOUbk2a&gatewayAdapt=glo2esp

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0.1 mm 20º
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15:57:45 Von Adrián - Fab Lab León an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": {87A78E0F-1569-44ED-BE69-78F0F49A6FCB}.png

15:58:32 Von Adrián - Fab Lab León an Alle: Go Oscar!!!

16:00:21 Von Milliam an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": I have had better results with the tapered mill in Adrian’s first link. the tapered is ball end, and the pointy one is pointy. So for PCB, The pointy ones give you uneven results based on how deep you go in the copper board. (Mostly too thin). While in my experience, the ball tapered end mill was easier to zero on surface, so it is harder to go too deep saheen palayi:□□ Adrián - Fab Lab León:□□

16:00:21 Von Benedikt Ilmenau an Alle: DIN EN ISO 14159 and EN 1672-2 have good guidelines for foodgrade machines

16:04:33 Von Adrián - Fab Lab León an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": Me too y try both, and i prefered the tapered mill and I didn´t break never hehehe

16:05:27 Von Milliam an Alle: Replying to "Nachricht wurde vor Ihrem Beitritt zum Meeting ges...": Yeah the pointy one also won’t break easily, but I am always afraid that I might dull the point. Adrián - Fab Lab León:□□

16:06:38 Von Milliam an Alle: GO Mika~!

16:08:54 Von Rico Kanthatham an Alle: physical pixels!

16:08:59 Von Pablo Fab Lab Leon an Alle: dungeon? tabletop? □□ Milliam, Patrick - waag:□□ Adrián - Fab Lab León, Jesal Mehta:□□

16:11:36 Von Fab Classes an Alle: https://gitlab.cba.mit.edu/quentinbolsee/urumbotxy-2.0

16:12:08 Von Milliam an Alle: Replying to "dungeon? tabletop? □□": Another one for our game booth? Pablo Fab Lab Leon, Jesal Mehta:□□

16:12:22 Von Tom Charlotte Latin School an Alle: charlotte everyone is taking exams

16:12:23 Von Rico Kanthatham an Alle: Go get 'em Namita. Wow the world! Adrián - Fab Lab León: □□

16:12:25 Von Milliam an Alle: ayyy~~!!! Namita~~ Adrián - Fab Lab León:□□

16:12:38 Von Milliam an Alle: Replying to "dungeon? tabletop? □□": Namita is also going to be there

16:13:28 Von Rico Kanthatham an Alle: Was there a solar flare issue today? Bad internet everywhere!

16:15:05 Von Pablo Fab Lab Leon an Alle: Replying to "Was there a solar flare issue today? Bad internet ...": we still have power in Spain, so far so good... Benedikt Ilmenau, Ricardo Marques, Adrián - Fab Lab León, Luis Díaz-Faes - A Industriosa:□□

16:16:28 Von saheen palayi an Alle: using attinys, both protocols available same pins :) Adrián - Fab Lab León, Milliam:❤

16:17:13 Von Ricardo Marques an Alle: neat Superfablab Kochi:□□

16:17:40 Von ferdi an Alle: Wow! Namita! That looks very awesome! Superfablab Kochi:□□ Frosti Gíslason - Iceland- Vestmannaeyjar - Fab Lab, Adrián - Fab Lab León:□□

16:17:53 Von Rico Kanthatham an Alle: Replying to "Was there a solar flare issue today? Bad internet ...": 2025-05-28 20_17_13-Alerts, Watches and Warnings _ NOAA _ NWS Space Weather Prediction Center.jpg

16:18:43 Von Svavar Konradsson Fab Lab Isafjordur an Alle: That's a really nice DIY magnetic pogo pin connector Superfablab Kochi:❤

16:18:47 Von Milliam an Alle: @Pablo Fab Lab Leon we might have to give up our Working Group for the Game Booth□□

16:18:48 Von Garrett Nelson an Alle: buchla synth

16:19:08 Von Rico Kanthatham an Alle: Replying to "buchla synth": westcoast! Garrett Nelson:□□

16:19:36 Von Rico Kanthatham an Alle: nice job Namita! Superfablab Kochi:□□

16:21:02 Von Pablo Fab Lab Leon an Alle: Replying to "@Pablo Fab Lab Leon we might have to give up our W...": Hahaha, let them finish the final project....then we make the group :P Milliam, Ricardo Marques:□□

16:21:39 Von Milliam an Alle: Replying to "@Pablo Fab Lab Leon we might have to give up our W...": ah, I am not worried, you are going to buy all of them anyway

16:22:12 Von Rico Kanthatham an Alle: go Maki-san! Shoko K, saheen palayi:□□

16:22:15 Von Adrián - Fab Lab León an Alle: Go Maki!!!

16:22:24 Von Milliam an Alle: oooh~!!! Let’s go Maki!!!

16:22:30 Von Hiroe Takeda an Alle: Go Maki san!!!

16:22:37 Von Rico Kanthatham an Alle: you live at Skylab now Maki-san Adrián - Fab Lab León:❤

16:22:55 Von Pablo Fab Lab Leon an Alle: Replying to "@Pablo Fab Lab Leon we might have to give up our W...": Dont you want to fund my envision? XD Milliam:□□

16:25:52 Von Rico Kanthatham an Alle: controller > spiral 1 lights > spiral 2 Adrián - Fab Lab León: □□

16:28:25 Von Milliam an Alle: Replying to "controller > spiral 1 lights > spiral 2": well she should control SOMEthing to show that her controller works

16:28:55 Von Milliam an Alle: Replying to "controller > spiral 1 lights > spiral 2": Is it weird that I like her cardboard prototype?

16:29:13 Von Rico Kanthatham an Alle: Replying to "controller > spiral 1 lights > spiral 2": she made that so Pablo could afford it Adrián - Fab Lab León, Milliam, Aristarco Cortes, Maki Laura TANAKA:□□

16:29:30 Von Milliam an Alle: Replying to "controller > spiral 1 lights > spiral 2": ah yes, Pablo’s money’s running out

16:29:49 Von ferdi an Alle: Replying to "controller > spiral 1 lights > spiral 2": Is it weird that I like her cardboard prototype? No…. I like it as well and put it on our Website!

16:30:14 Von Pablo Fab Lab Leon an Alle: Replying to "controller > spiral 1 lights > spiral 2": eh wait!!! i already buy this no? XD

16:30:46 Von Milliam an Alle: Replying to "controller > spiral 1 lights > spiral 2": Yeah but now she is using hardwood for the casing. It is too expensive for you now.

16:30:55 Von Rico Kanthatham an Alle: remember…shake test Maki Laura TANAKA:□□

16:32:32 Von Rico Kanthatham an Alle: @Maki Laura TANAKA Wood stain and wax is in the corner of skylab near the power supply. Have fun!

16:32:50 Von Mihir RIIDL an Alle: Last bio break

16:32:56 Von Adrián - Fab Lab León an Alle: We finish the last review

16:33:05 Von Rico Kanthatham an Alle: Nice job looking serious during your presentation Maki-san! saheen palayi, Ricardo Marques:□□ Milliam, Shoko K, Maki Laura TANAKA, Adrián - Fab Lab León:□□

16:33:05 Von Pablo Fab Lab Leon an Alle: Replying to "Last bio break": until when??? XD

16:45:07 Von saheen palayi an Alle: @Fab Classes this was a Quick test I think its possible pads of LSM6DSV16X
but the aluminum sheet need to leveled really flat to get better results

16:45:36 Von saheen palayi an Alle: {6BFAA824-23A2-4789-BE77-392247C9EF77}.png

16:46:33 Von Jóhannes an Alle: How many people weren't reviewed overall?

16:47:41 Von Fab Classes an Alle: https://gitlab.fabcloud.org/academany/fabacademy/2025/class/-/issues?show=eyJpaWQiOiIxMSIsImZ1bGxfcGF0aCI6ImFjYWRlbWFueS9mYWJhY2FkZW15LzIwMjUvY2xhc3MiLCJpZCI6MjA0MzA2fQ%3D%3D

16:47:53 Von shintaro ito: node japan kannai an Alle: At last, the last one...

16:48:10 Von Evert Stefán Jensson an Alle: how much is the ticket for thos thats not graduating

16:48:36 Von Ricardo Marques an Alle: https://fab25.fabevent.org/tickets

16:52:31 Von Fab Classes an Alle: https://nsf-gov-resources.nsf.gov/2023-04/EndlessFrontier75th_w.pdf

16:57:58 Von Fab Classes an Alle: https://www.amazon.com/Tech-Entrepreneurs-Survival-Guide-Bootstrap-ebook/dp/B00K6L8DDO

17:05:52 Von Patrick - waag an Alle: EPO for Europe https://www.epo.org/en

17:07:23 Von Ricardo Marques an Alle: https://www.wipo.int/portal/en/index.html if you want to have the same patent expanded through multiple "regional" offices you'll have to deal with wipo in Switzerland

17:07:27 Von Patrick - waag an Alle: Replying to "EPO for Europe https://www.epo.org/en": we also have the European Union Intellectual Property Office - EUIPO https://www.euipo.europa.eu/en

17:07:32 Von Ricardo Marques an Alle: Replying to "https://www.wipo.int/portal/en/index.html if you w...": same with trademarks,e tc

17:09:20 Von Marius Araújo an Alle: I don’t understand why universities insist on patents as a deliverable in research projects. Don’t patents hinder further research and innovation?

17:10:21 Von Patrick - waag an Alle: Replying to "I don’t understand why universities insist on pate...": depends on the patent condition some you only need to say who made it if I am not mistaken

17:10:27 Von shintaro ito: node japan kannai an Alle: If we are going to patent something in hardware, I feel that we need a patent in China, which plays the role of the world's factory.□□

17:13:48 Von Jeremy Losaw an Alle: Replying to "If we are going to patent something in hardware, I...": maybe.. its more expensive, and if you are not going to commercialize there, then may not be worth it... and you have to think of if you are willing and able to defend it there too.. it's not a straightforward decision

17:21:54 Von henk an Alle: stupid patent blues: Interlocking (brick) layers https://hackaday.com/2024/11/09/brick-layers-the-promise-of-stronger-3d-prints-and-why-we-cannot-have-nice-things/

17:23:04 Von Ricardo Marques an Alle: Replying to "stupid patent blues: Interlocking (brick) layers h...": there's also a patent on vertical reinforcement of infill voids.

17:23:52 Von Jeremy Losaw an Alle: patent agents are less expensive than paten lawyers and can often do as good of a job to protect your IP

17:24:12 Von Tom Charlotte Latin School an Alle: Laminar Research (make Xplane Software) that fought a patent troll, refused to settle and later sued the patent troll to help discourage this behavior Ricardo Marques:□□

17:24:44 Von henk an Alle: Tomorrow (29th May) is RepRap Day! Marius Araújo, Tom Charlotte Latin School, Jeremy Losaw:❤ Milliam, Micka - FablabCuenca, saheen palayi, Node Ilmenau, Adrián - Fab Lab León:□□

17:25:18 Von Jeremy Losaw an Alle: (taylor's version) Enterprise fablab, Rico Kanthatham:□□

17:26:14 Von saheen palayi an Alle: Replying to "Laminar Research (make Xplane Software) that fough...": its copy right for softwares right. same rules apply as patent ?

17:43:10 Von shintaro ito: node japan kannai an Alle: A very clear picture of the MVP For more information https://blog.crisp.se/2016/01/25/henrikkniberg/making-sense-of-mvp

17:43:13 Von shintaro ito: node japan kannai an Alle: Screenshot2025_05_29_004254.jpg Pablo Fab Lab Leon, Patrick - waag, Adrián - Fab Lab León:□□

17:55:12 Von Jeremy Losaw an Alle: crowdfunding is deceptively hard.. it takes a lot of work to get a return

17:55:25 Von Ricardo Marques an Alle: there's also crowdfunding directly for equity.

18:02:56 Von Adrián - Fab Lab León an Alle: Remember, this Saturday, Global Open Time returns, at 10:00 AM Boston Time. Final project, slides, video... any questions, come join us. Ricardo Marques:□□ saheen palayi, Milliam:□□

18:03:30 Von Rico Kanthatham an Alle: Replying to "Remember, this Saturday, Global Open Time returns,...": join if you are freaking out and need a virtual hug. Adrián - Fab Lab León, Vicky Gonzalez-Moonlighter, Jesal Mehta:❤ Geovanny Fortín, saheen palayi:□□ Milliam:□□□

18:04:01 Von Jani Ylioja an Alle: Replying to "Remember, this Saturday, Global Open Time returns,...": I'm always like that :D Ricardo Marques, Jesal Mehta, Milliam:□□

18:04:33 Von Rico Kanthatham an Alle: Replying to "Remember, this Saturday, Global Open Time returns,...": @Jani Ylioja awwww...hugs Jani! Adrián - Fab Lab León, Jani Ylioja, Milliam:❤

18:05:10 Von Pablo Fab Lab Leon an Alle: Replying to "Remember, this Saturday, Global Open Time returns,...": do you think the course is about digital fabrication? no, its not.

18:05:18 Von waag an Alle: Replying to "Remember, this Saturday, Global Open Time returns,...": join! Its save you a couple of hours where you could not demolish you final project!