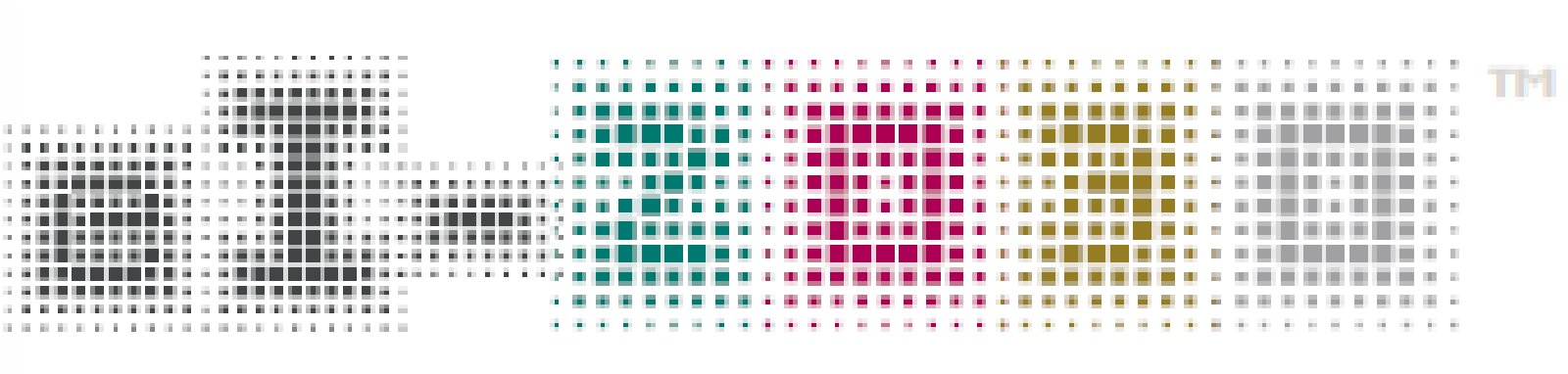


Community Built E-ink Laptop Project

Sunday, 28th March 2021, at 11 am PST

Alexander Soto
Boston, MA
(aka ”alexsotodev”)
Project Lead
Core Team

I’m a community organizer, educator, software engineer, hacktivist, and agent of social change.

My interests are in exploring community-building, social justice, education, and leveraging technology to address social problems.

In the past, I’ve worked as a labor rights organizer, a teacher, and I’m currently an Expert In Residence at Resilient Coders.

@alexsotodev alexsoto.dev

contact@alexsoto.dev

Giovanni Lostumbo
Chicago, IL
(aka ”initrd”)
Core Team

I'm an independent contractor- I provide tech support services to IT companies.

My hobby interests are in building technology (e.g. FOSS hardware & software) and making it easier to use and more accessible.

In the past, I have worked in technical support roles for IT companies in wireless networking, help desk, and hardware repair.

@techrecount

hackaday.io/initrd

Github

giovanni.lostumbo@gmail.com

Manuel Zeiler
Munich, Germany
(aka ”m10r-vc”)
Core Team

Manuel is repsonsible for various marketing and community management acitivties across the whole EI2030 initiative.

He's been an early adopter and big proponent of emerging technologies including electronic paper as well as cryptocurrencies.

His work setup and station is designed around paperless eink devices. On his day job Manuel works as an Account Executive at a German publishing house.

He has also been an IT Specialist and Network Administrator with the German government and the automotive industry with a stint in New York. He has also served as Marketing Manager at various startups.

@EI2030_official ei2030

manuel@manuelzeiler.com

Resilient Coders

Our students spend 20 weeks with us, learning object-oriented programming principles, through the vehicle of full stack javascript; that's vanilla JS, React, Express, Node, and PostgreSQL.

HIRE DONATE

Objectives

- To generate interest in the idea of creating an e-ink laptop.
- To unite and increase our numbers.
- To iterate, test ideas, document, and show our work.
- Create a crowdsource campaign after the successful creation of a minimum viable product.
- Bring the MVP to a manufacturer and build at scale.

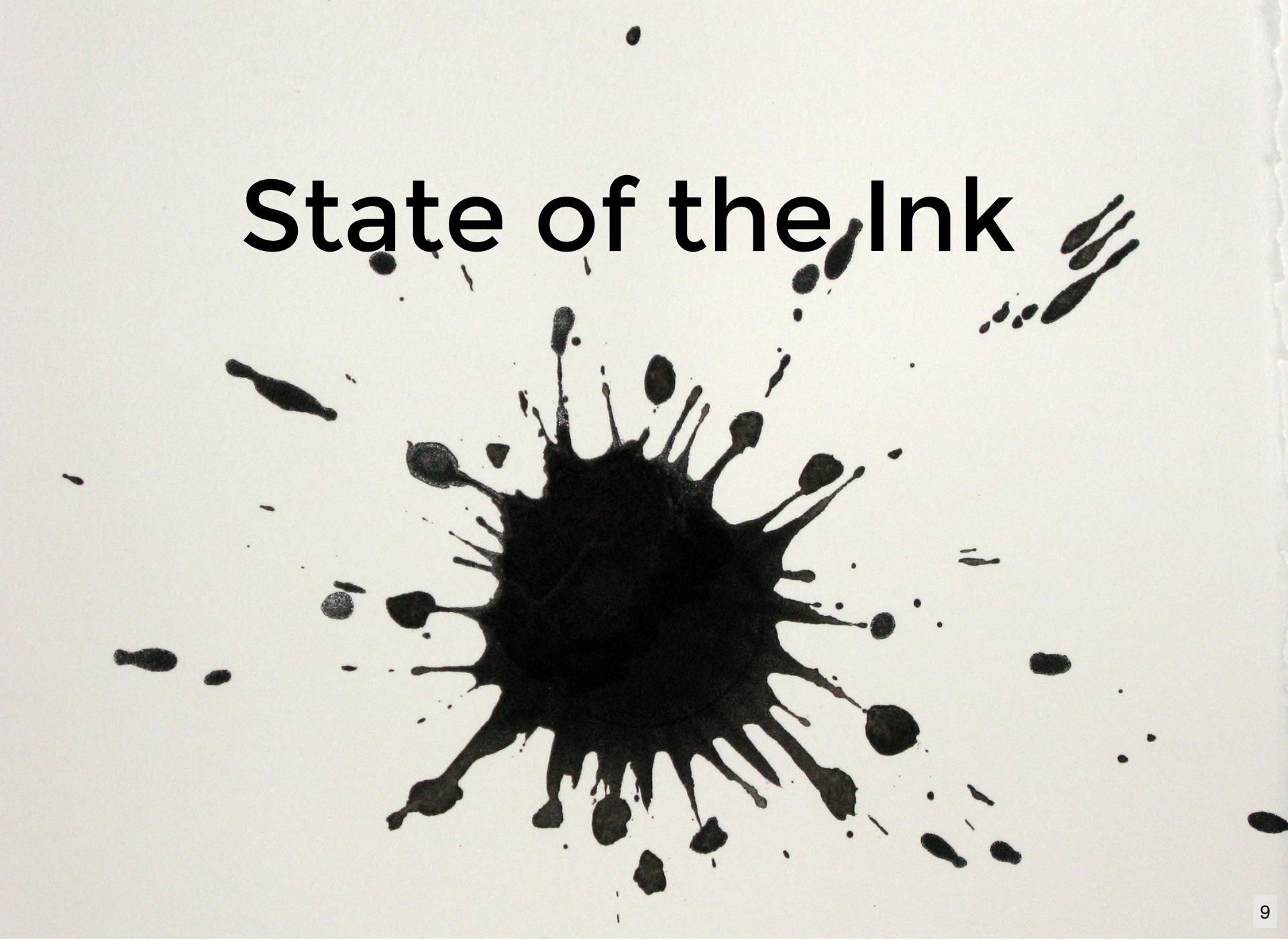
Working Groups

- Led by one or two people as leads.
- Research focused or revolve around a deliverable.
- Defines a metric/cost for who the device is for.
- Working groups are time-boxed defined.
- A "template" provided for the working groups to start and self-organize.

Working Groups Contd.

- The working group documents its process in a designated website, forum, Github, a build log.
- Share resources/knowledge/material/monetary.
- Generate interest, share our work with others.
- Iterate, iterate and iterate.

State of the Ink



Speaker notes

Overview of e-ink based devices and difficulties faced.

What we have done so far... 

We are growing!

- We've had **42** new members join our community!
- More people are viewing out forums, in particular the working groups.
- Continuously engagaging people and communities in social media platforms, Twitter, Reddit.

Thank you for joining our community!

We are growing!

Electrophoretic Ink Working Group (EI2030) Retweeted

Alexander Soto @alexsotodev · Mar 26

I had a great time at this month's pi-top session, saw so many great projects and conversations! Thank you!

@GetPiTop #raspberrypi #pitop

> **pi-topTEAM** @GetPiTop · Mar 25
>
> Join us tomorrow at 5 pm GMT for our next pi-top Sessions!
>
> We've got some new content to share, and new members of the community who have some exciting material joining the call🙌 Sign up now: hubs.ly/H0JQX610
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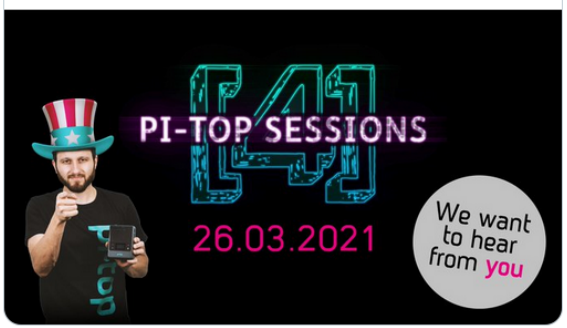
> #RaspberryPi #IoT



1 2

#2 Join our Second EI-2030 Monthly Community Call - Sunday, March 28th, 11am PST Announcements		1	83	22h
Low-power E-Paper OS Working Groups		1	167	8d
Proposal: ei-2030 - The Community Built E-Ink Laptop Project Project Introduction		10	667	8d
Research: Laptop case design Working Groups		1	67	10d
PaperTop Laptop Working Groups		6	1.8k	11d

Hi Pi-Top community, we are EI-2030!

EI2030 3 11d

Hi Pi-Top community,

At EI2030 1, we've started a community effort to promote the use of alternative displays to blue-light emitting screens in our devices. The objective of one of our working groups, the PaperTop 4, is to explore creating an e-ink laptop using a Raspberry Pi 3B+, Pi-Top and an e-ink panel.

Another of our working groups seeks to utilize ultra low power microcontrollers & microprocessors to design solar powered laptops. We thank the invitation by the Pi-Top CTO to post on this forum as well as offering to provide technical support. We also will be attending the next monthly Pi-Top Session and look forward to sharing more of our progress! 🙂

Sincerely,

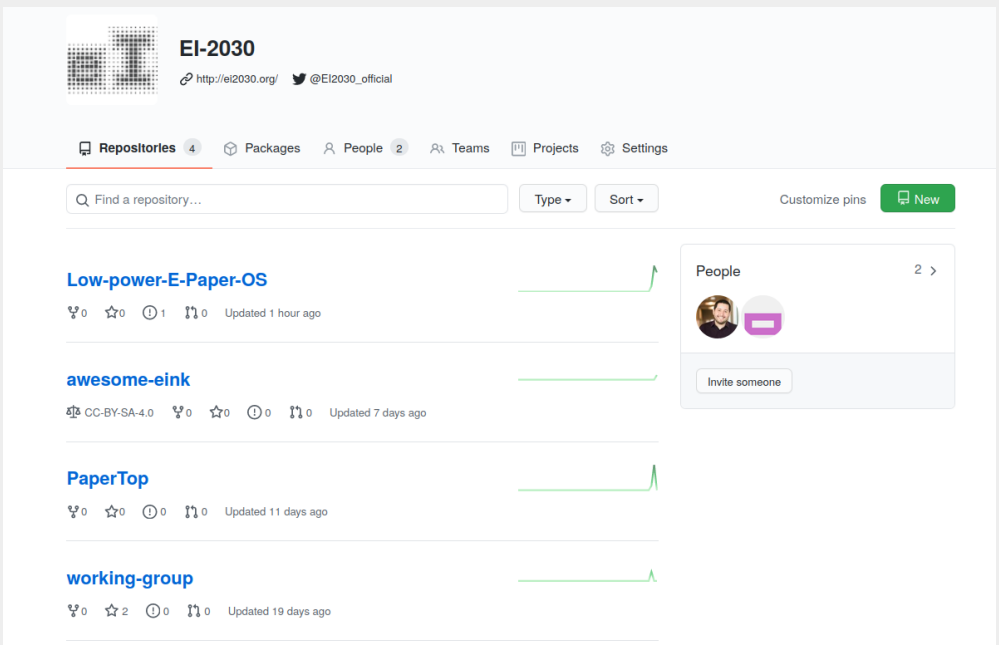
EI2030 Working Groups Core Team

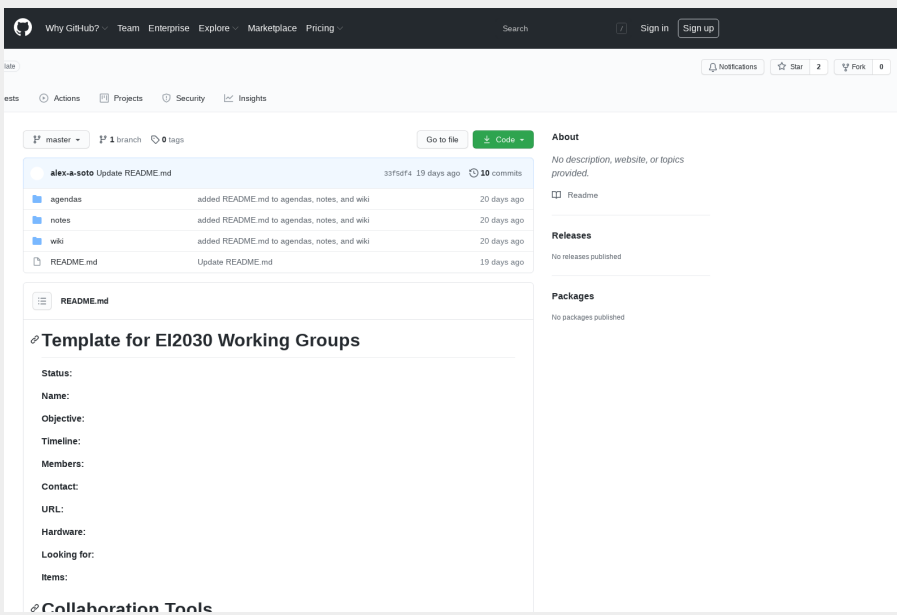
2 Reply

created	last reply	replies	views	users	likes	links
11d	2d	21	112	6	27	12

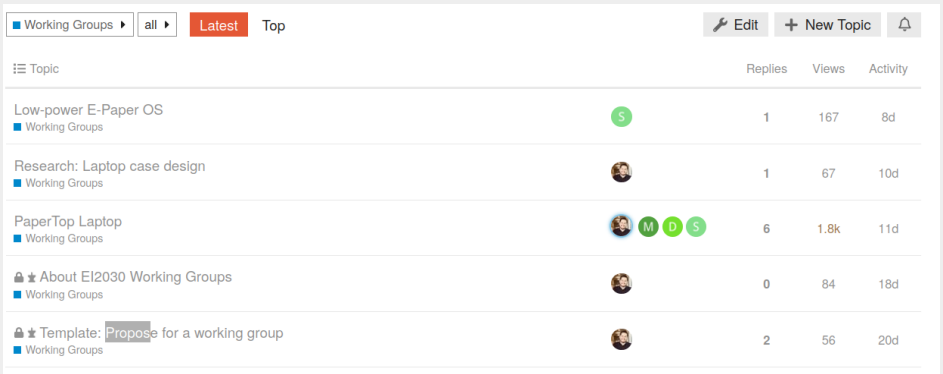
A structure is emerging!

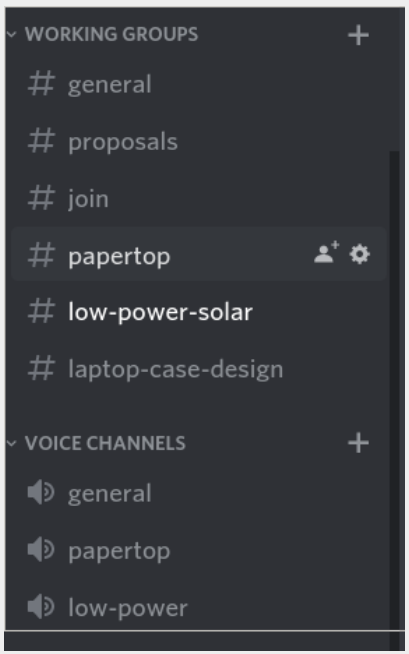
- Working Group Categories in forum.
- Templates for starting a working group.
- EI2030 Github organization.
- Github repository for each working group.
- New channels in Discord for working groups.

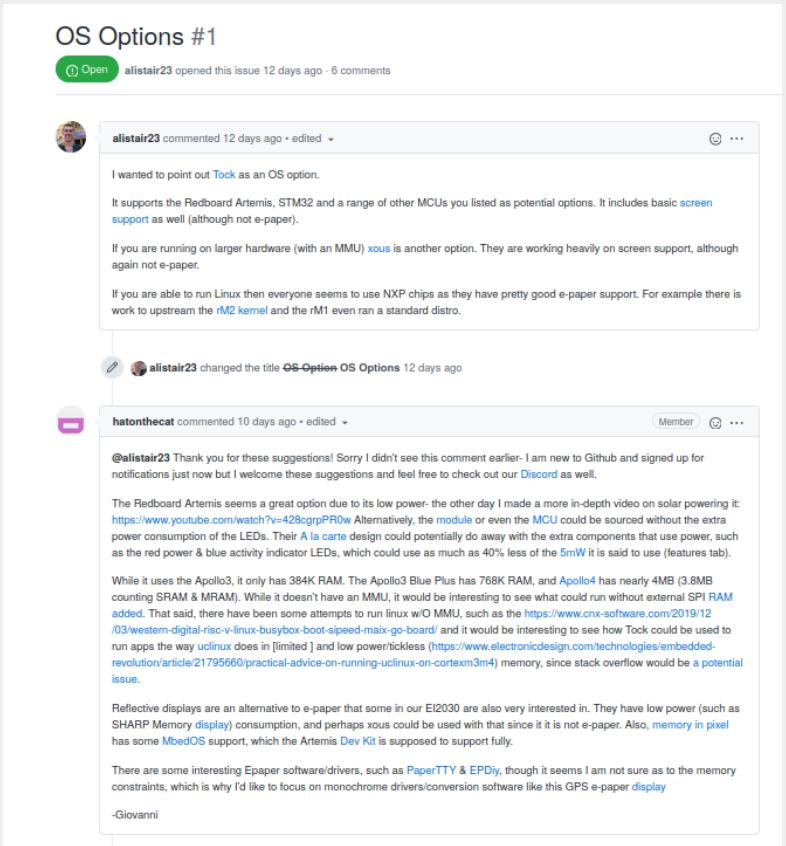




A structure is emerging!







Outreach Efforts

- Ambiq Micro
- Northwestern University
- TU Delft
- Emcraft
- Greenwaves Technologies
- PULP Platform/ ETH Zurich
- SiFive
- ARM
- Norcott.co.uk
- Samsung
- Intel
- Dreamchip.De
- Rdot Displays/Ynvisible
- Micromagic
- IMEC
- Sparkfun
- GroupGets
- Embox
- E-peas
- Epishine
- Powerfilm
- Cap-XX
- Bootlin
- Konsulko
- E-ink
- Astrohaus
- beck-elektronik
- Variscite
- Toradex
- Boundary Devices
- Pi-Top
- Slimbook
- XY Tech

ACTIVE

Working Groups

Speaker notes

- People self-organize into working groups.
- Some categories for the working groups:
- low power, high power, sub $500, $500-800, SBC, microcontrollers, general purpose.

PaperTop

- PaperTop as an initial prototype for an eink laptop.
- Working Group: PaperTop thread
- Presented PaperTop at the Monthly Pi-Top Session.
- Next Steps
  - Extending the cables of the ES133TT3 panel
  - Connecting and fitting everything to the Pi-Top
  - Working with Pi-Top team to complete the prototype

PaperTop

duwudi 11d

Hi @alexsotodev, pi-top co-founder/CTO here - just wanted to say I absolutely love this project! 😃 I'd be happy to help support from a technical standpoint if you need any more details than what you can find online, but it seems you've made a pretty good start already!

It's interesting that you mention a solar-powered laptop as a possible use-case, the genesis of pi-top 1 was actually a solar-powered Raspberry Pi laptop powered by supercapacitors! An e-ink display certainly would have increased the 2 minute runtime I had with those supercaps powering an LCD panel 🤣 I posted some info on that here over on our forum 4 if you're interested 👍

We have a monthly community meeting on the last Friday of every month called pi-top Sessions, it would be great if you could attend and do a 5-minute talk on PaperTop. Also, you could post this project on our forum as I'm sure our community would love it as much as I do!

Alexander Soto @alexsotodev · Mar 26

I had a great time at this month's pi-top session, saw so many great projects and conversations! Thank you!

@GetPiTop #raspberrypi #pitop

> **pi-topTEAM** @GetPiTop · Mar 25
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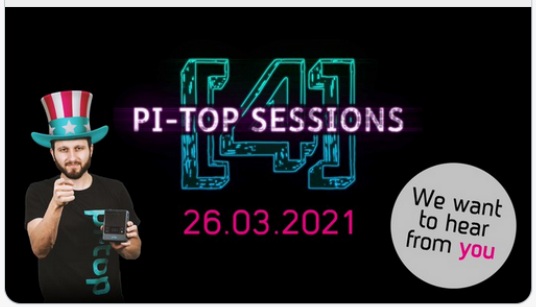

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alexsotodev 4 15d

Introduction: PaperTop

The objective of the PaperTop is to explore creating an e-ink laptop using a Raspberry Pi 3B+, Pi-Top, and an e-ink panel. Explore what other single-board computers could be supported with the chassis. Explore what modifications to the Pi-top and what is and is not possible.

The first pi-top started as part of an IndieGoGo campaign in 2014. Since then, there have been different iterations of the pi-top. The v1 to v3 of the pi-top is of particular interest since they share a similar design. The pi-top we are using, v2, is available on eBay for about $50-80 dollars; the one shown here was purchased for $30.

alexsotodev 3 12d

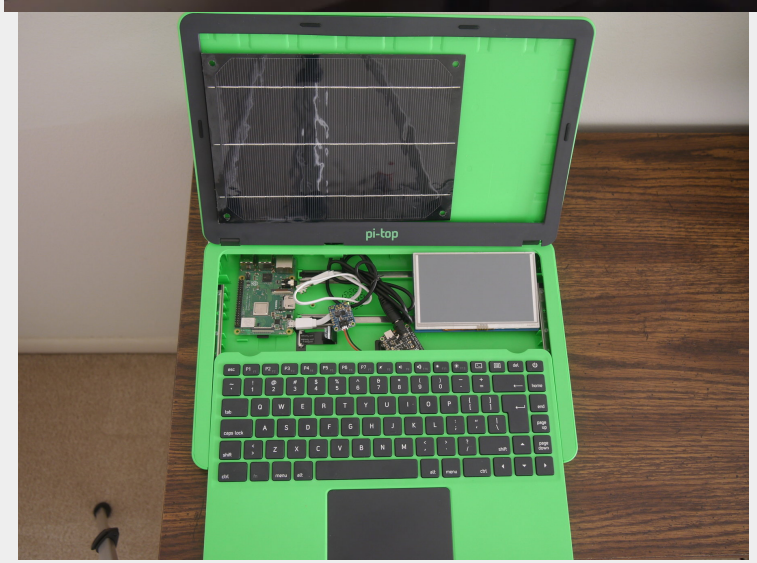
Teardown of the Pi-top v3

Block Diagram of the Pi-top v3

Overview: Teardown

I performed a small teardown of the Pi-top to learn more about it and see what's possible; what follows is an overview of the process and concludes with thoughts and considerations for the next steps.

Low Power

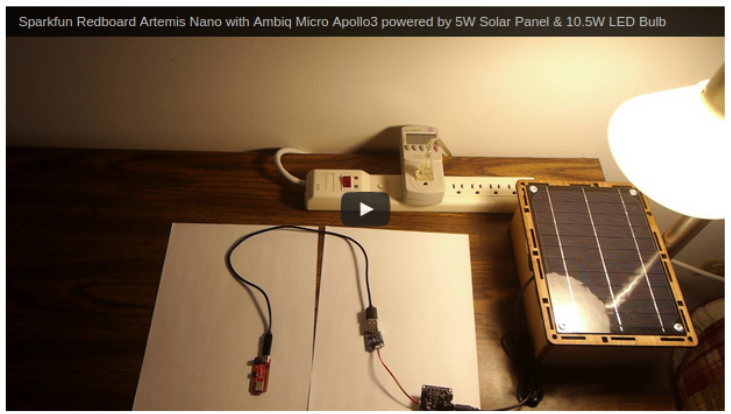


scrunch 13 19d

Status: Approved
Name: Low-power OS
Objective: The goal of this project is to run an OS on an ultra low-power CPU/MCU that can output terminal or a window manager to an e-paper display.

Audience: low-voltage, proof of concept
Timeline: 3/14/2021-4/13/2021
Members: @scrunch, @alexsotodev open to new members, including after project started.
Contact: giovanni.lostumbo@gmail.com
URL: Discussion ("low-power-solar" group) : https://discord.com/invite/nnxKnxh
https://github.com/EI2030/Low-power-E-Paper-OS 14

Hardware: Redboard Artemis,



pi-top pi-top.com KnowledgeBase

Solar PiTop for E-Paper Display Development

pi-top [3]

Initrd 2 8d

Hi,

this is Giovanni from EI2030.org 1 !

I have posted a concept mod for the Pi-Top [v3]: I was thinking more of a cyberdeck idea since the solar powered display would need a larger panel since it would use more power. Under the keyboard fits a 5" screen, although I plan to order a different one without HDMI since the one in the photo arrived doa.

NEW

Working Groups

Laptop case design

Name : Research: Laptop case design

Objective : An ongoing group that researches the design of a laptop case to use with a non-emissive display. Group members will define, ideate, prototype, and test ideas.

Audience : General, modders, DIY,

Timeline : Ongoing

Members : @alexsotodev, looking for members.

Contact : contact@alexsoto.dev or Discord

Looking for :

- Digital Fabrication
- DIY/Creatives/Modders
- Researcher
- Onshape, Fusion 360, OpenSCAD

i.MX7/8 and Drivers

Name : Research: i.MX7/8 and Drivers

Objective : An ongoing group that researches the NXP microcontrollers i.MX7/8 with the intention to use with as a laptop with an e-ink display. Group members will research the I-MX7Dual, I-MX8ulp, EPDC, waveforms, reverse-engineering.

Audience : General, modders, DIY, engineers

Timeline : Ongoing

Members : @alexsotodev, looking for members.

Contact : contact@alexsoto.dev or Discord

Looking for :

- DIY/Modders
- Researchers
- Knowledge of C, programming, embedded dev

Porting Linux to Ambiq Apollo 4

- New Research Group (April 14-5/13)
- Goals
  - Porting Linux to Ambiq Apollo platform
  - Determining system requirements for apps
  - Bootloader development (Coreboot-like/Petitboot)
  - Multiboot “app as an OS” or kexec method

Next Steps ↘↗↘

- Continue spreading the word and bringing more folks on board.
- Further defining and bringing clarity to the project.
- Ramp-up state: formalizing tools, forum, templates
- Writing an article that summarizes the information shared here
- Building community, building relationships, building openly

alexsoto.dev/slides

Thank you!