Pocket Science Lab
Powerful and Portable Mini Open Hardware Device for Open Science

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Asia’s Open Tech Organization Improving People's Lives Since 2009
Original SEELABLET
First Open PSLab Version in Arduino Uno Form Factor
Pocket Science Lab with Form Factor Arduino Mega

- Now supports Bluetooth module and wifi module ESP8266
- Many small enhancements for newbies, especially the backside with description and QR code
- 4 more digital pins to add one more sensor
Initially developed as SEELablet with minimal design

PSLab Hardware

Improved design and came out open source hardware design

PSLab Desktop

Initial user interface was a desktop application written in Python

PSLab Android

Android application was developed to widen the usability

PSLab Web App

Web interface is proposed to widen usability even further
PSLab - How to use it?

- Array of useful control and measurement tools
- The integrated components can be used by pins
- Functionalities can be accessed through:
  - PSLab Desktop app
  - PSLab Android app
  - Your own apps
So far, major functionalities include: Select, Control, Settings & Help. It spans 50+ different scientific experiments and general purpose test & measurement utilities.
OSCILLOSCOPE
Allows observation of varying signal voltages

MULTIMETER
Measure voltage, current, resistance and capacitance
Oscilloscope

Power Source

PV1
+3.76 V

PV2
+0.74 V

PV3
+1.14 V
Producing batches in China/Shenzhen and Fraunhofer IZM in Germany Berlin
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Hardware Production - Lessons Learned

- Creating a BOM and Coordinating with Producers is a Full-Time job
- There are parts in reels, tubes etc. - prices are different
- Best is to have someone who can speak Mandarin
- Expect Components to Become Unavailable
- Understand offers of “Remanufactured”
- Micro USB headers didn’t fit into the PCB
- The female pin headers are not soldered straight
- Some PSLabs didn’t work due to reflashing problem
- Expect Faulty Parts
Hardware Production - Lessons Learned

- Don’t always find the cheapest price as this will bring down the quality of goods. You might receive reels with some components broken or the manufactured product will face problems. The cheapest parts are either refurbished, scattered or clones.
- Non crucial components as resistors and capacitors should be replaced with cheaper no-name brands.
- Be ready to anticipate extra charges while production.
- Let them know how to test the finished product so you don’t have to do the testing yourself.
- Always know when are the public holidays.
What’s Next? Tutorials, Education, Workshops
What’s Next? Talk To Us About How to

- Get started with PSLab and Where to get it
- Include more instruments you would like to see
- Become a developer
- Do and design experiments with PSLab
- Conduct workshops
- Become a sales partner
- Make your own Open Hardware project
Taipei, Taiwan: FOSS/Open Hardware at Makerfaire, Nov. 2–5
Shenzhen, China: OpenTechSummit China, Nov. 30–Dec. 2
Leipzig, Germany: PSLab & FOSSASIA at CCC, Dec. 27–30
Brussels, Belgium: Social Dinner at FOSDEM: Feb. 2–3
Maskat, Oman: FOSS Oman: Feb. 11–12
**Singapore: FOSSASIA Summit, March 14–17**
Berlin, Germany: OpenTechSummit Europe, May 30

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