Key Players in Open Hardware

Diagram

SCUTTLE

- Hackster — community sharing
  - interchangeable projects
- Adafruit — open sensors
  - Parametric Designs
- Beaglebone — open Linux Computing
  - Actuators Integration
- OpenBuilds — mechatronics, scaleable
  - Portable Power Design
- Viam — Open software
  - Robotics hardware designs
- Arduino — Open MCU
  - Research-tier computing
- Turtlebot — Mobile Robot base
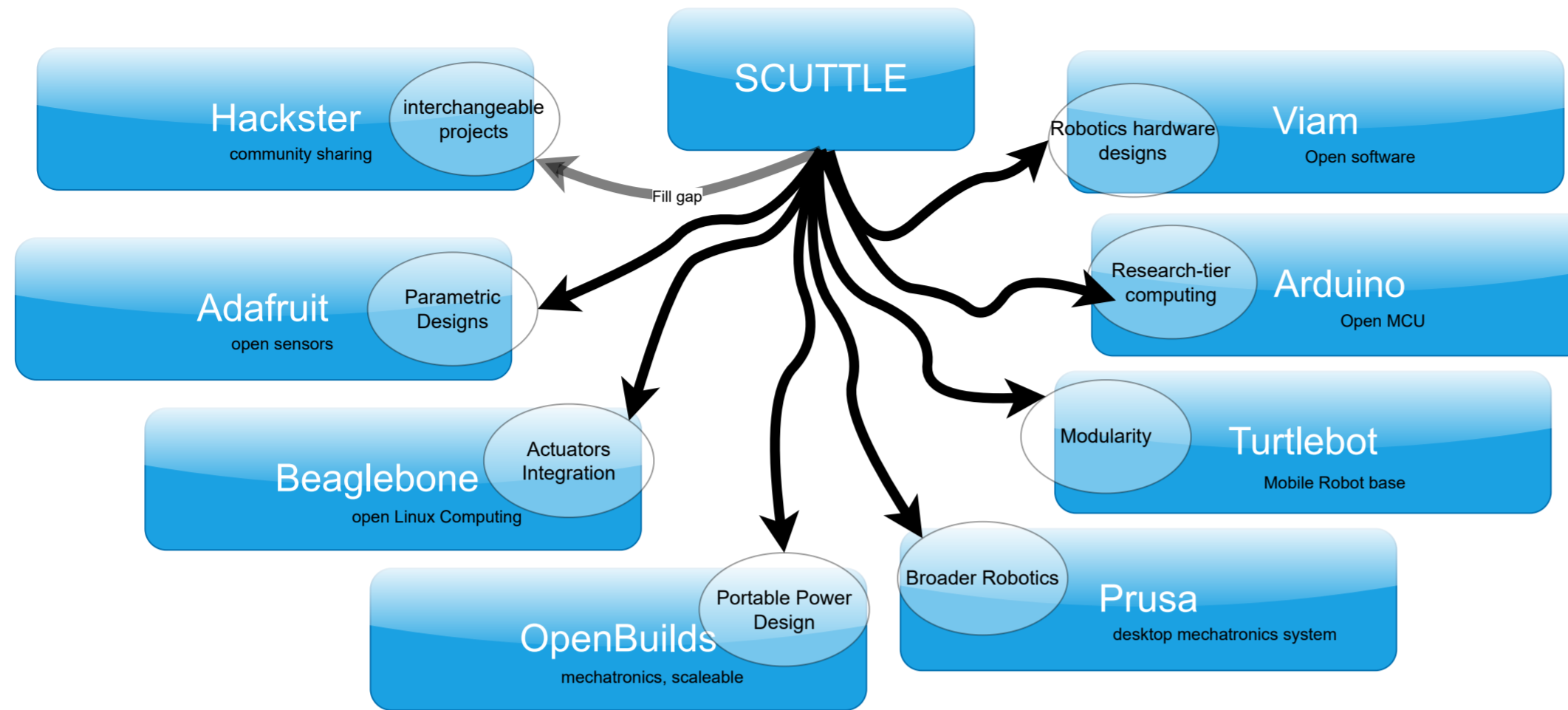 - Modularity
- Prusa — desktop mechatronics system
  - Broader Robotics

Fill gap

Each of the mentioned open communities has remarkable offerings, and has been utilized alongside SCUTTLE in one or more projects.

With open-source as a prerequisite, these communities offer everything needed to complete the open robotics challenge globally except for some gap areas.

This is the gap we aim to fill in the adjacent communities.

Openbuilds

Wonderful ecosystem, modular, and integrated with 3D printing and electronics, and often parametric designs (ie you can increase the size of a system by simply increasing the lengths of the aluminum parts.

But, lacking software and sensors in the sharing and development phases. Most projects just re-use a few control elements and the signals are not modified to do new tasks, just reconfigured

Arduino

Incredibly successfully and well organized content that brought embedded coding into classrooms worldwide. Huge and rapidly expanding lists of compatible software modules, that are well documented. They architected a foundation that made it extremely easy for contributors to desire to contribute and get their creations accessible to other makers

But, does not offer support and an architected platform for creating hardware other than circuits.

Adafruit

Wonderful ecosystem again, with really great documentation (software + datasheet + electrical diagram + example code + example use-cases) for each component.

But, not centralized enough for support of one component to carry over to other components, or to have a community that can help one another very strongly. Fairly decentralized in form.

Beaglebone

Wonderful Open project that offers open designs of high-performance electronics similar to Raspberry Pi, and often even higher processing performance.

But, very isolated in the circuit board designers. Most community members make and share projects that utilize the boards, but do not actually modify or improve the Beagle-designed products.

Beagle branded inventions support robotics, but do not teach robotics.

Also, the community branches into two areas with a wide gap. One side is very high-skilled linux + electronics developers, where the other side is makers and learners. These two communities can't often help one another.

Prusa

Wonderful ecosystem that is centralized on one platform sufficiently that mods and creations are frequently shared cross-community and the members teach each other.

But, not branching into projects outside of 3D printing. 3D printers are a form of robots, but Prusa does not have an offering to help educate yourself into being able to design robots.

Turtlebot

In truth, turtlebot is an open software with a closed hardware.

The hardware lacks modularity, and makers cannot adjust the robot design to suit new needs.

Additionally, the bot is not able to be reproduced except for buying another robot. The other open designs in this article provide enough design information for you to actually build a unit from parts or order from consumer-facing suppliers.