Project PAM

open source hardware

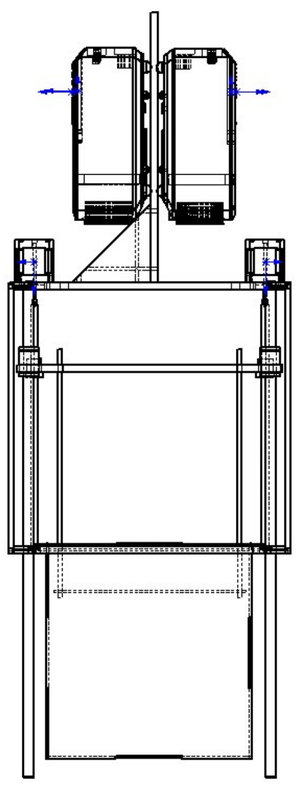
Problem

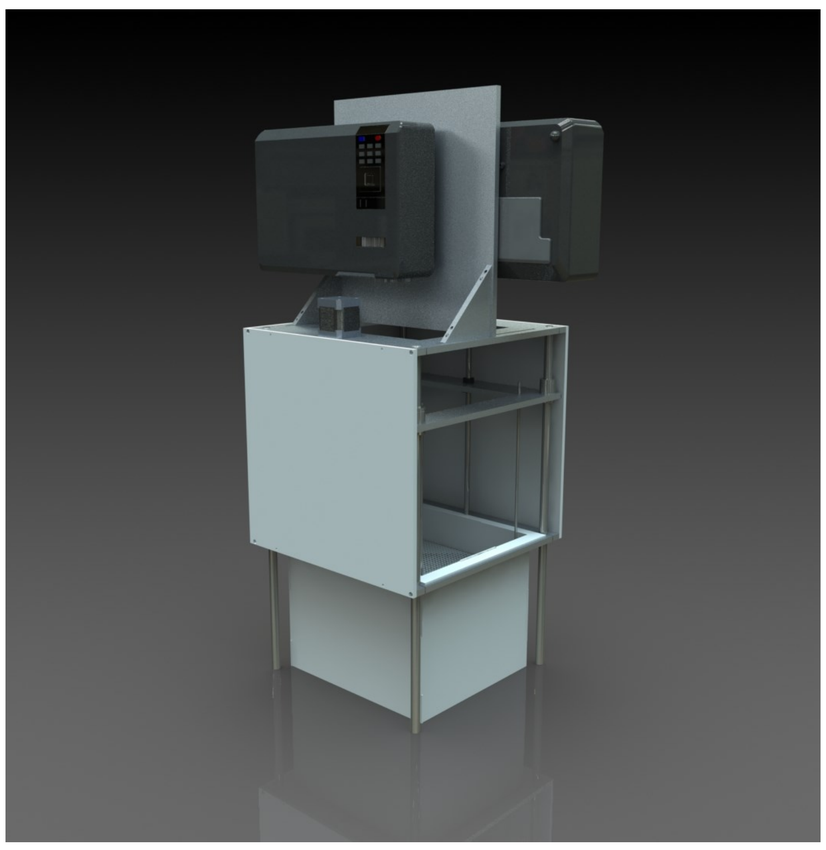
- High resolution additive manufacturing is not accessible for hobbyists (under $1,000)
- Current hobbyist 3D printers are imprecise, fault-prone, and poorly documented
- Available PAM systems are inflexible, use proprietary hardware and software

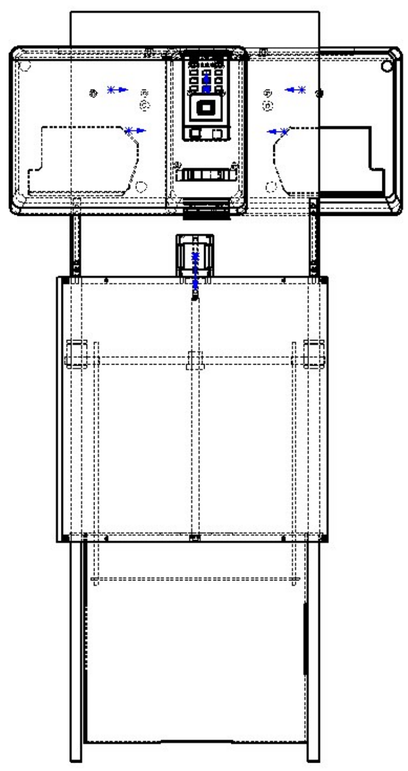
Solution

- Libre
- Accessible to the hobbyist
- Precise and repeatable
- Flexible for the end user
- Off-the-shelf open-source hardware
- A thoroughly documented reference design

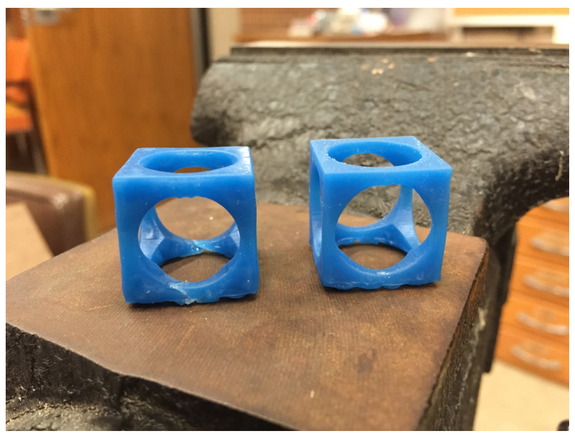
Design

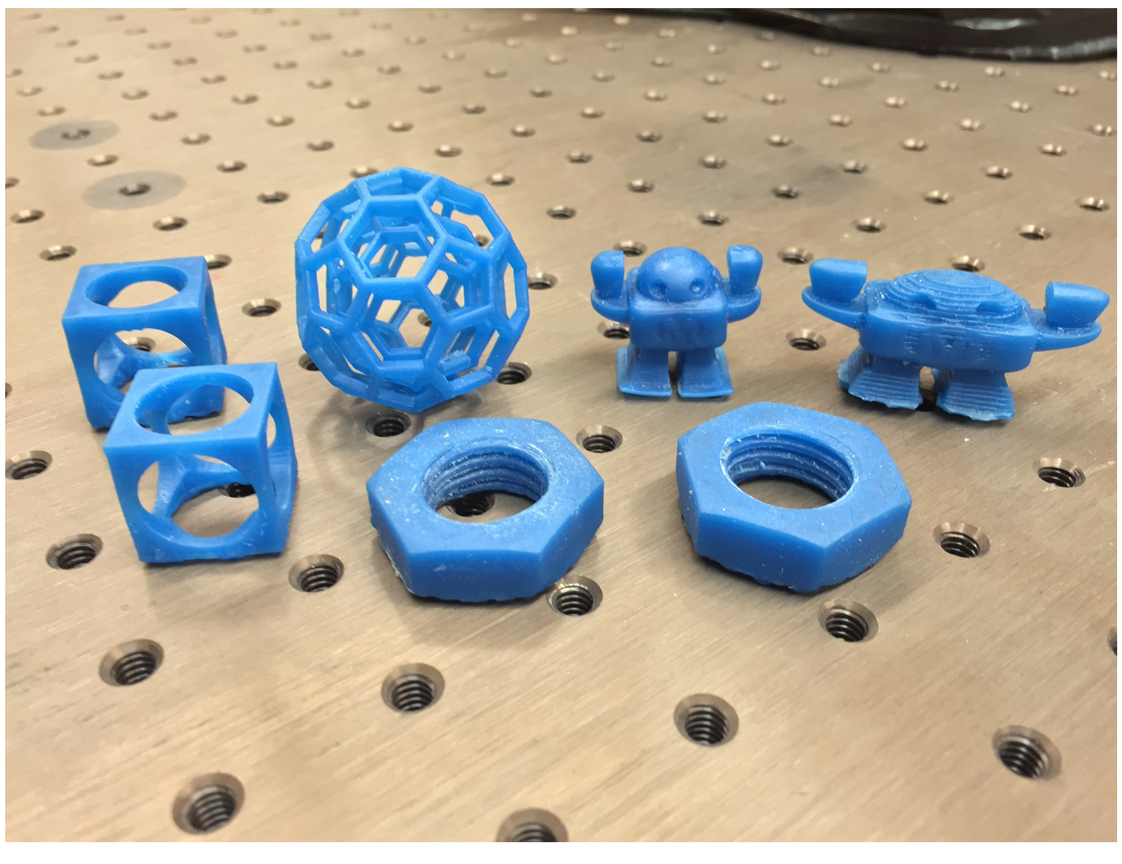


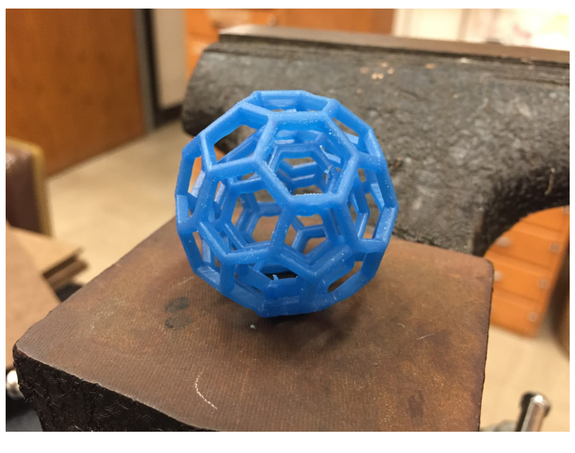




Test Prints





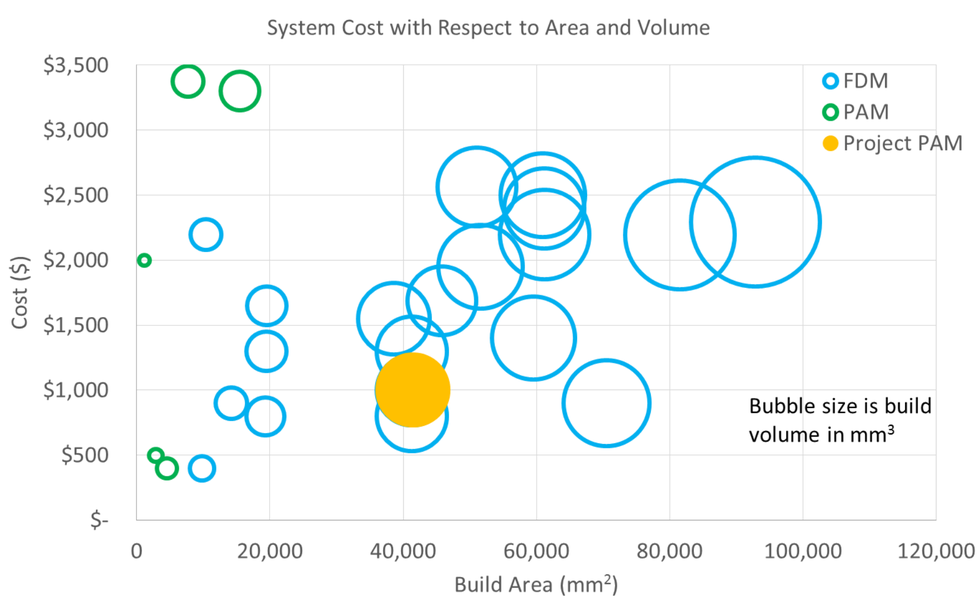


A Reference Design for Photoresin Additive Manufacturing for The Open Source Community

Saluki Engineering Company
Reference Number: S14-75-3DPR
2014-12-02

Nicholas Lowman	Computer Engineering
Daniel Olsen	Computer Engineering
Chance Baker	Electrical Engineering
Casey Spencer	Electrical Engineering
Jeffrey Burdick (PM)	Mechanical Engineering
Nathaniel Tyler	Mechanical Engineering

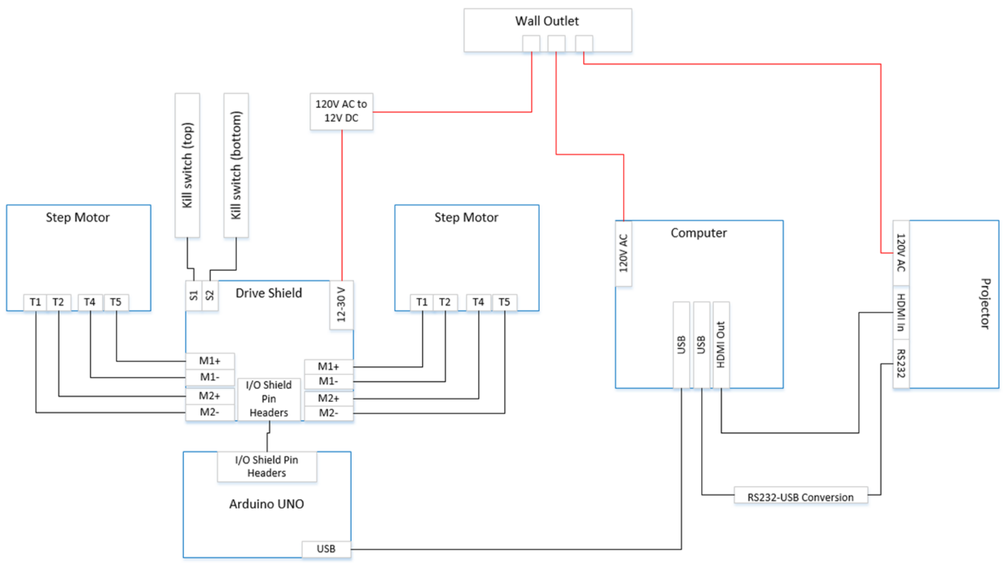
Market Gap



Specifications

Geometry	Dimension/Tolerance
Build Volume Size	192 mm x 216 mm x 216 mm
X and Y Axis Resolution	0.100 mm
Minimum Layer Height	0.015 ± 0.002 mm
Parallelism/Perpendicularity of a 20 mm cube	0.050 mm
Dimensional Tolerance of a 20 mm cube	± 0.050 mm

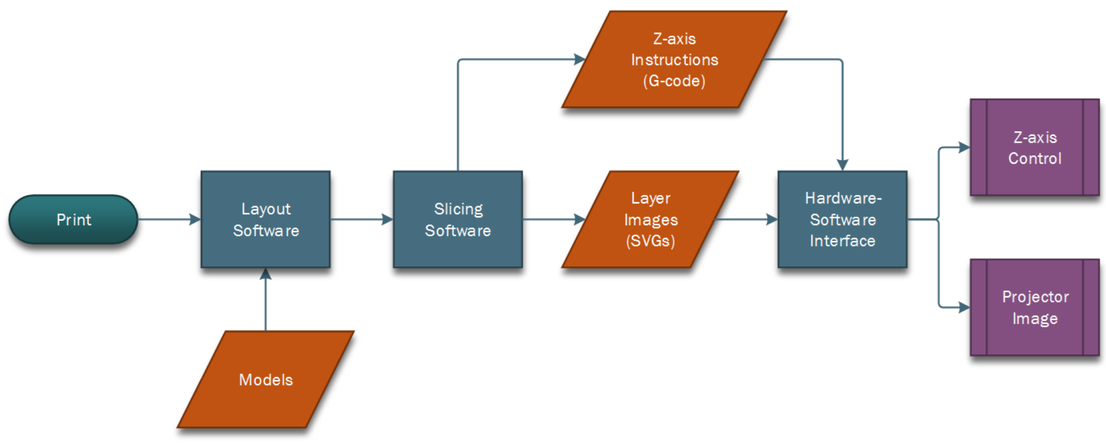
Wire Diagram



Costs

Item	Price
Motion control	$113.61
Chassis	$315.99
Hardware software interface	$25.97
Motors/motor control	$82.83
Maker Juice resins	$45.00
Total	$60217

Functional Block Diagram



Printer Running