

HOLP



History of LulzBot Printers

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by Aleph Objects, Inc.

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Introduction

HOLP

Free Software, Libre Innovation, Open Source Hardware

Aleph Objects, Inc. is a Free Software, Libre Innovation, and Open Source Hardware company based in Loveland, Colorado, USA. Aleph Objects manufactures the LulzBot line of 3D printers, sold worldwide.

This document outlines the History of LulzBot Printers (HOLP). HOPE and HELP. HOLP.

Prusa Bootstrap

Mars

The first two printers in the LulzBot 3D Printer cluster were Prusa RepRaps put together with printed parts purchased off the Internet. They were built in the first quarter of 2011. These two printers printed the next set of parts needed by the subsequent LulzBot Prusa Clonedels.

1.1 Prusa Mars P1

Prusa Mars P1.

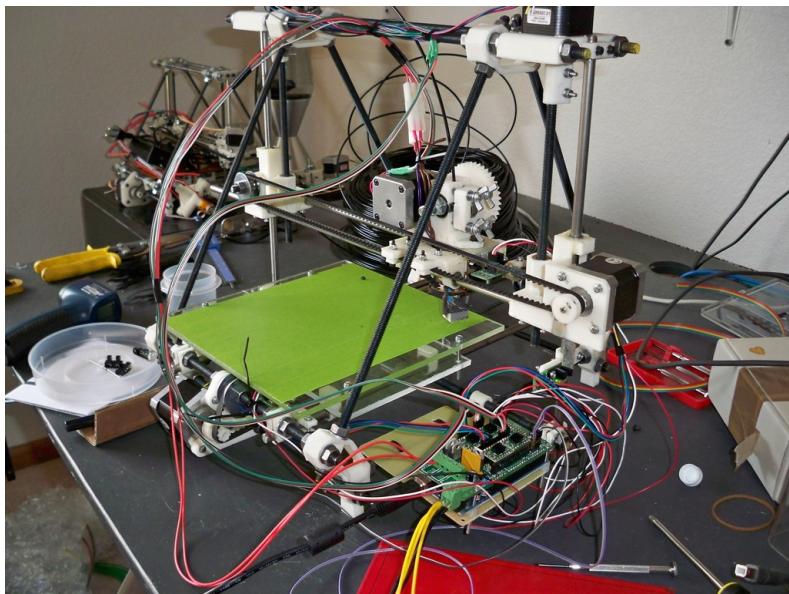


Figure 1.1: LulzBot Mars P1.

1.2 Prusa Mars P2

Prusa Mars P2.

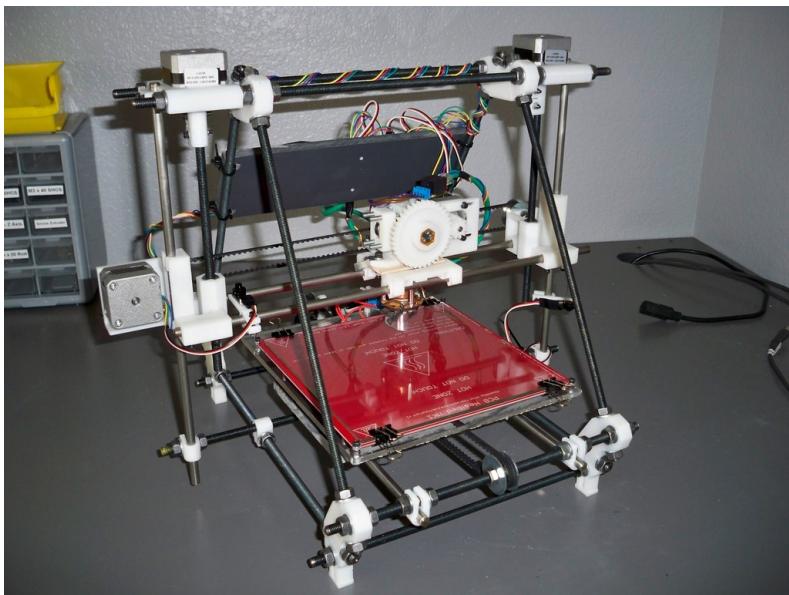


Figure 1.2: LulzBot Mars P2.

LulzBot Clonedel

Repstrap



Figure 2.1: LulzBot Clonedels.

LulzBot Clonedels were made from silicon molds purchased (PO00077) from Metrix Createspace on February 23, 2011. Eleven or more units were made, starting with “Mars P4”. The Clonedels printed the subsequent LulzBot Prusas. Units through “P64” had some Clonedel parts.

2.1 LulzBot Clonedel Molds

The LulzBot Clonedel parts themselves were primarily poured from silicon molds.

2.2 LulzBot Clonedel Mars P4

LulzBot Clonedel Mars P4.

2.3 LulzBot Clonedel Mars P5

LulzBot Clonedel Mars P5.

2.3. LULZBOT CLONEDEL MARS P5



Figure 2.2: LulzBot Clonedel production ping pong table.



Figure 2.3: LulzBot Clonedel gears in the silicon mold.

LulzBot Clonedel



Figure 2.4: LulzBot Clonedel molded parts.



Figure 2.5: LulzBot Clonedel molded gears.

2.3. LULZBOT CLONEDEL MARS P5

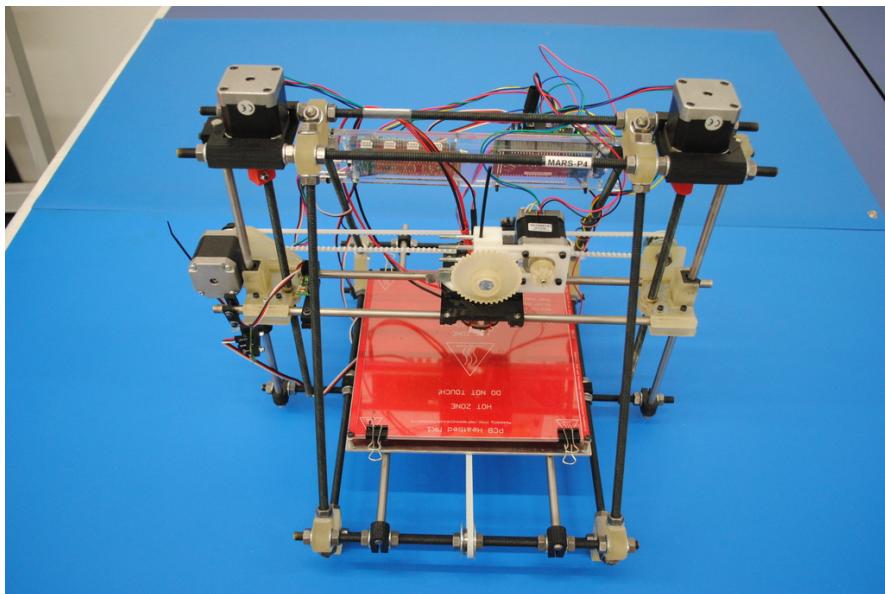


Figure 2.6: LulzBot Clonedel Mars P4 Front.

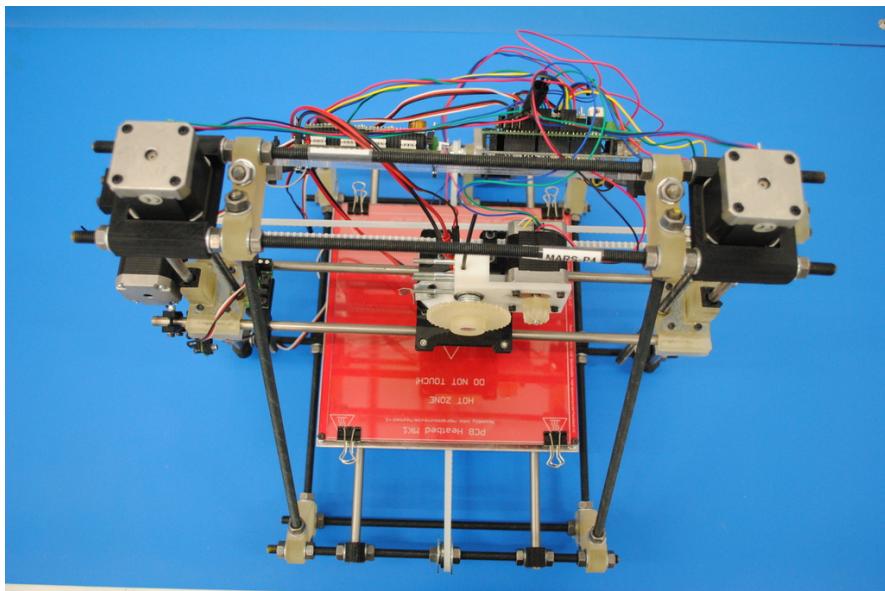


Figure 2.7: LulzBot Clonedel Mars P4 Top.

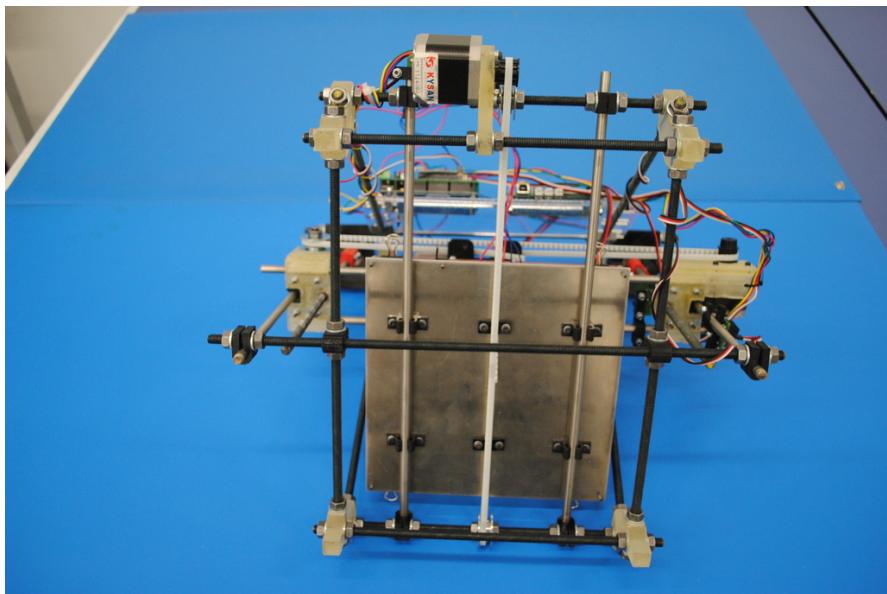


Figure 2.8: LulzBot Clonedel Mars P4 Bottom.

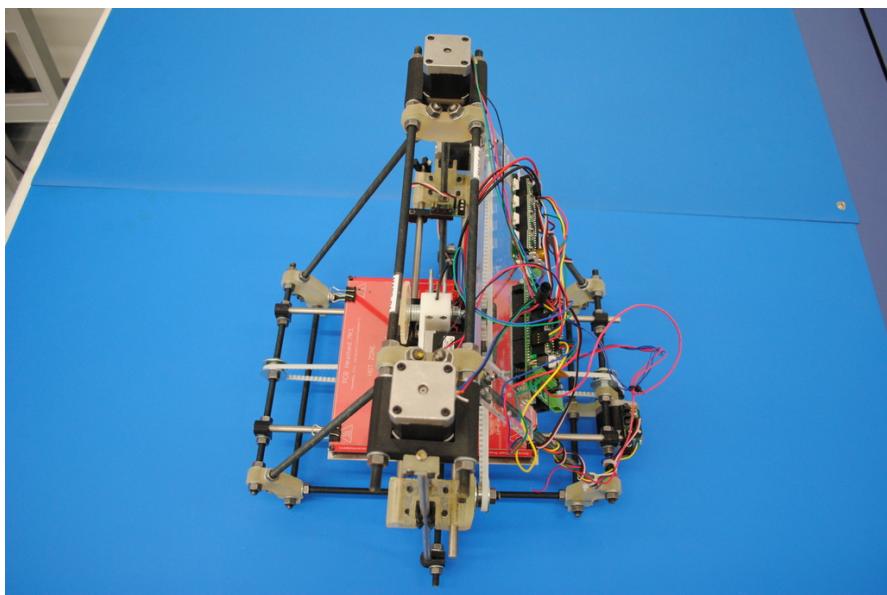


Figure 2.9: LulzBot Clonedel Mars P4 Top Right.

2.3. LULZBOT CLONEDEL MARS P5

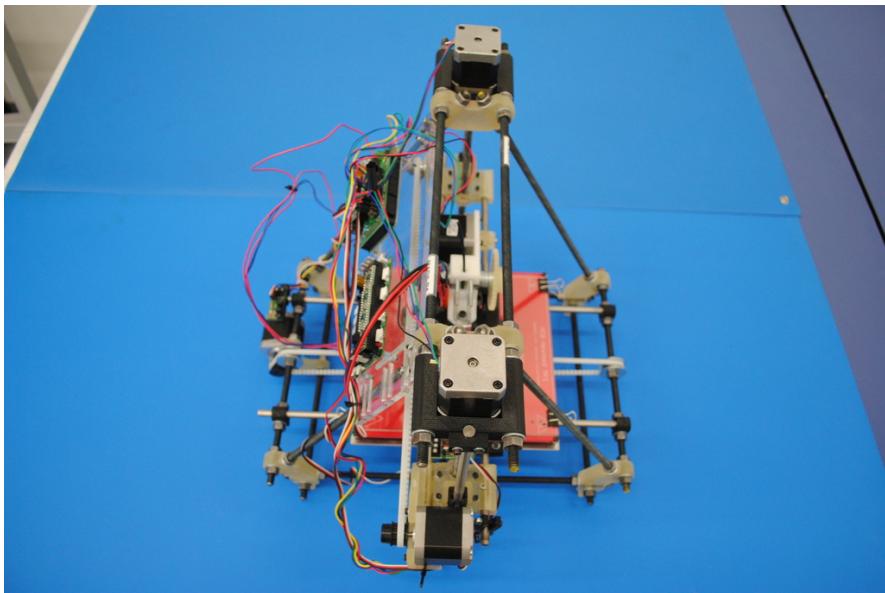


Figure 2.10: LulzBot Clonedel Mars P4 Top Left.

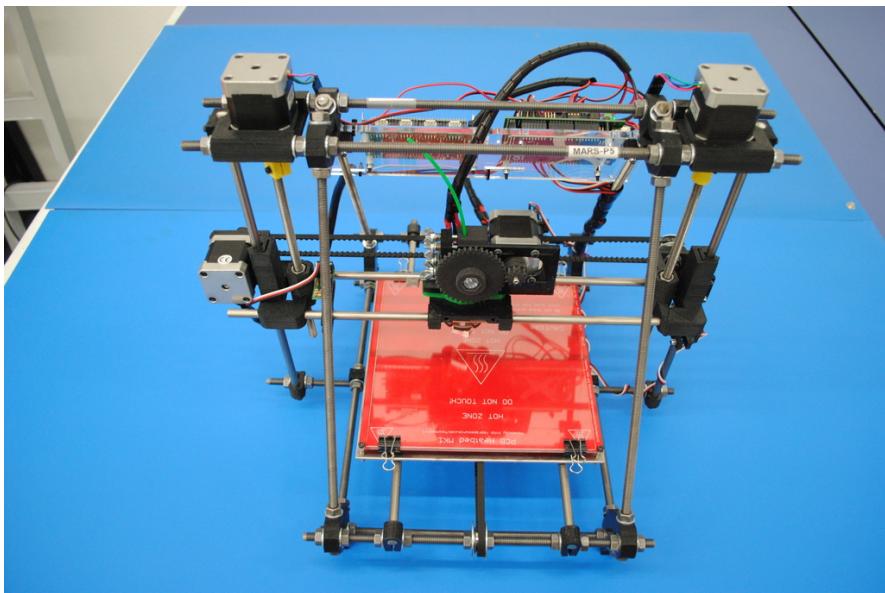


Figure 2.11: LulzBot Clonedel Mars P5 Front.

2.4 LulzBot Clonedel Mars P6

LulzBot Clonedel Mars P6.

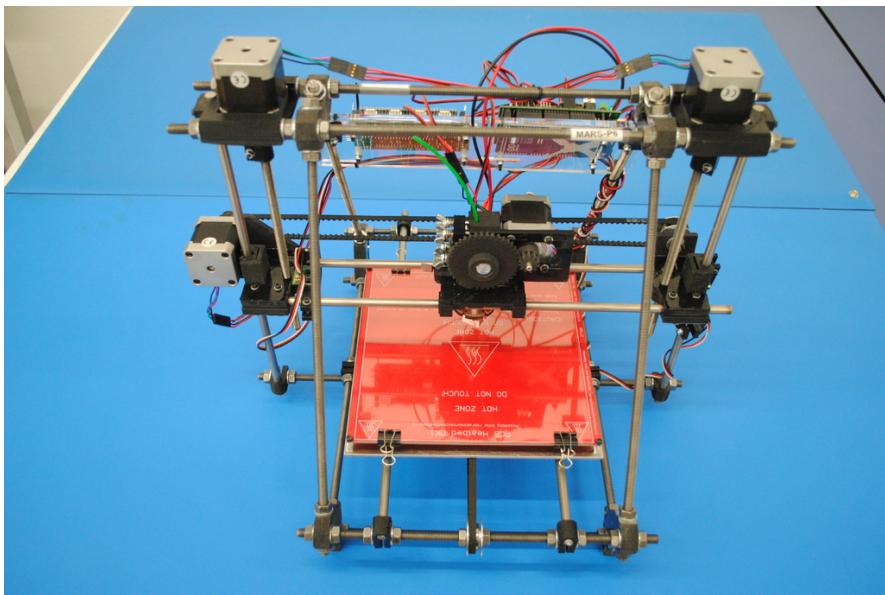


Figure 2.12: LulzBot Clonedel Mars P6 Front.

2.5 LulzBot Clonedel Mars P7

LulzBot Clonedel Mars P7.

2.6 LulzBot Clonedel Mars P8

LulzBot Clonedel Mars P8.

2.7 LulzBot Clonedel Mars P9

LulzBot Clonedel Mars P9.

2.7. LULZBOT CLONEDEL MARS P9

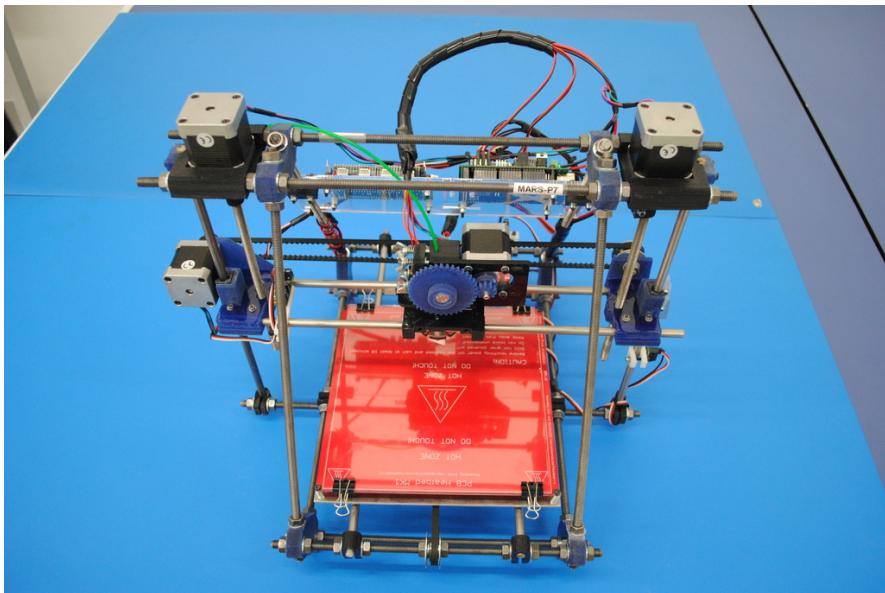


Figure 2.13: LulzBot Clonedel Mars P7 Front.

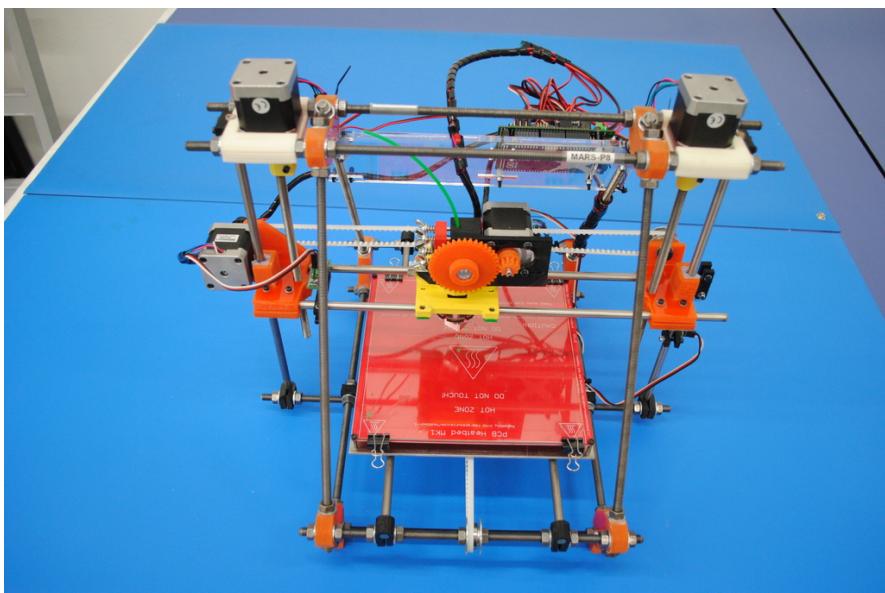


Figure 2.14: LulzBot Clonedel Mars P8 Front.

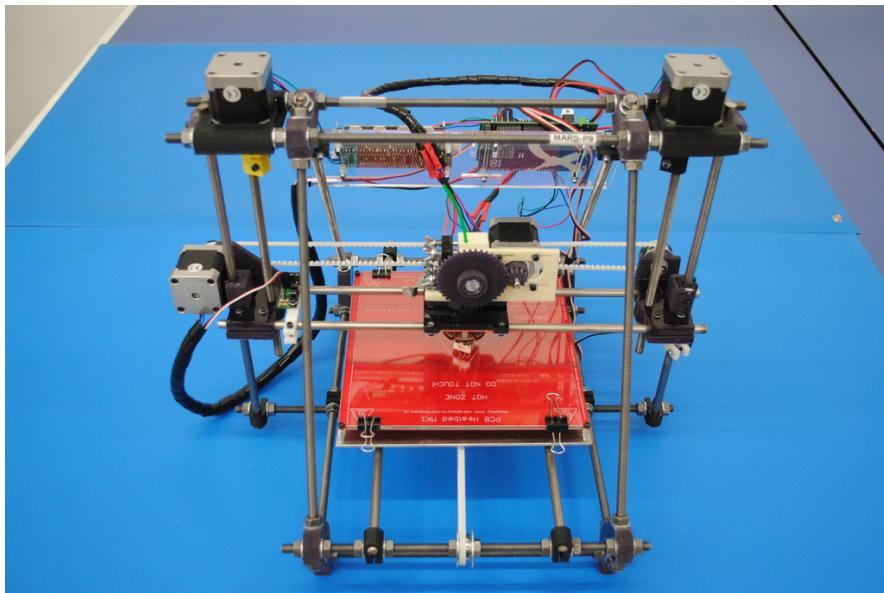


Figure 2.15: LulzBot Clonedel Mars P9 Front.

2.8 LulzBot Clonedel Mars P10

LulzBot Clonedel Mars P10.

2.9 LulzBot Clonedel Mars P11

LulzBot Clonedel Mars P11.

2.10 LulzBot Clonedel Mars P12

LulzBot Clonedel Mars P12.

2.11 LulzBot Clonedel Mars P13

LulzBot Clonedel Mars P13.

2.11. LULZBOT CLONEDEL MARS P13

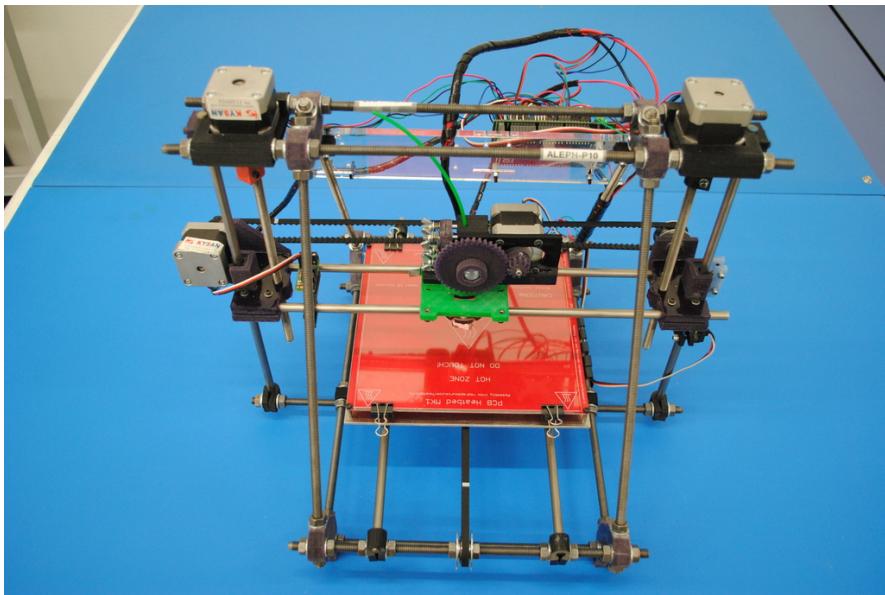


Figure 2.16: LulzBot Clonedel Mars P10 Front.

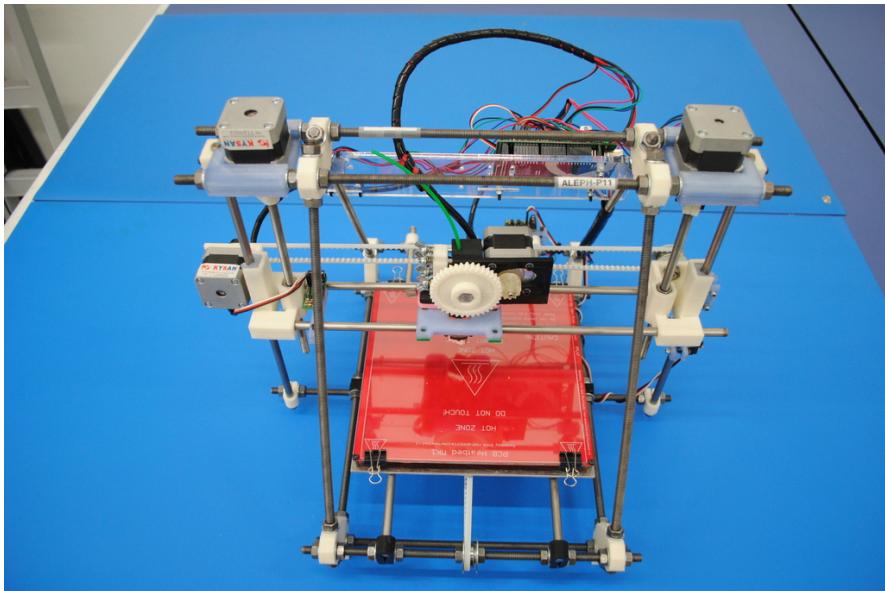


Figure 2.17: LulzBot Clonedel Mars P11 Front.

LulzBot Clonedel

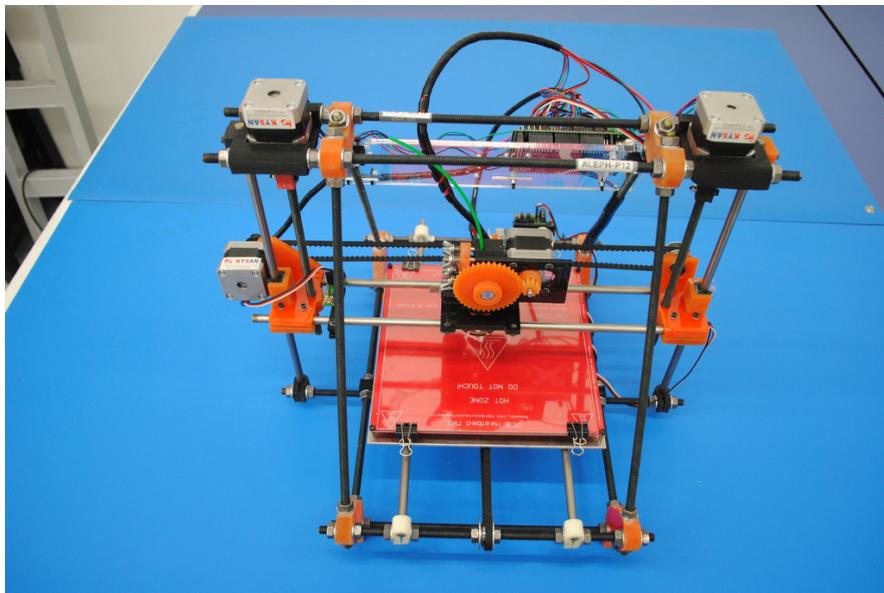


Figure 2.18: LulzBot Clonedel Mars P12 Front.

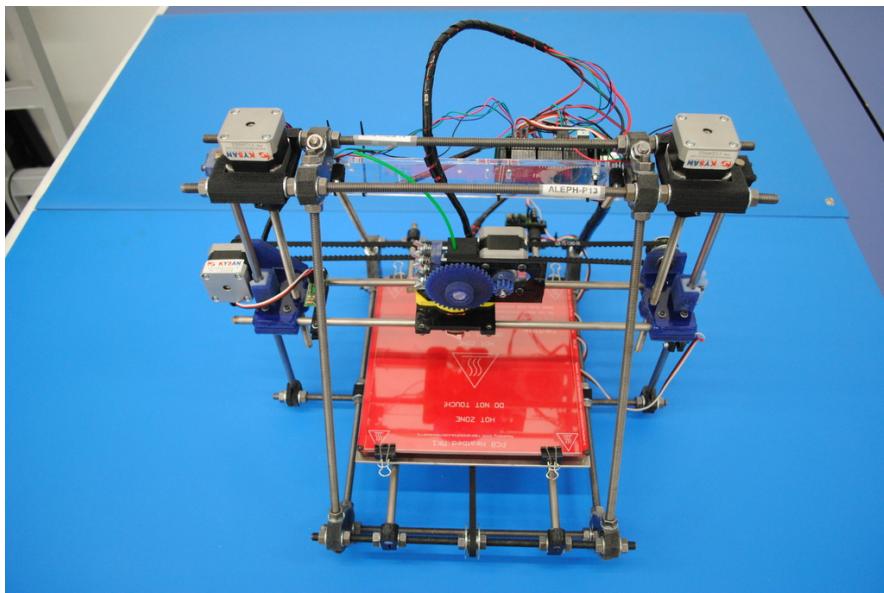


Figure 2.19: LulzBot Clonedel Mars P13 Front.

2.12 LulzBot Clonedel Mars P14

LulzBot Clonedel Mars P14.

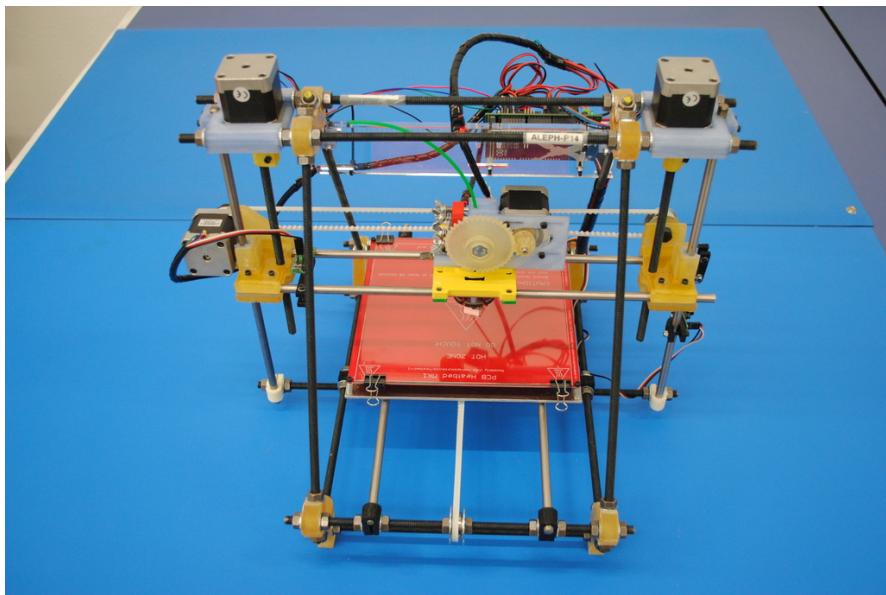


Figure 2.20: LulzBot Clonedel Mars P14 Front.

LulzBot Prusa 1.0, 2.0

Mustaches, Monocles, & Other

Sundry Items



Figure 3.1: LulzBot Prusas.

The LulzBot Prusas were based on the Prusa Mendel design. The Prusas printed more Prusas and they printed the LulzBot AO-100s. Approximately 128 Prusas were built. Prusa Version 1.0 production started in the first quarter of 2011. Version 2.0 production started in the second quarter of 2011.

3.1 LulzBot Prusa 1.0

LulzBot Prusa 1.0.

3.2 LulzBot Prusa 2.0

LulzBot Prusa 2.0.

3.2. LULZBOT PRUSA 2.0

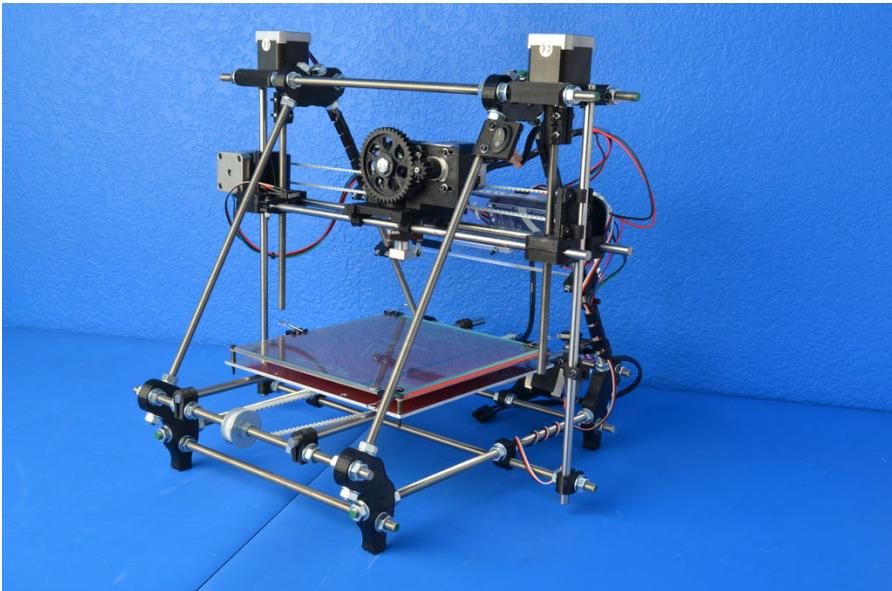


Figure 3.2: LulzBot Prusa 1.0 Front.

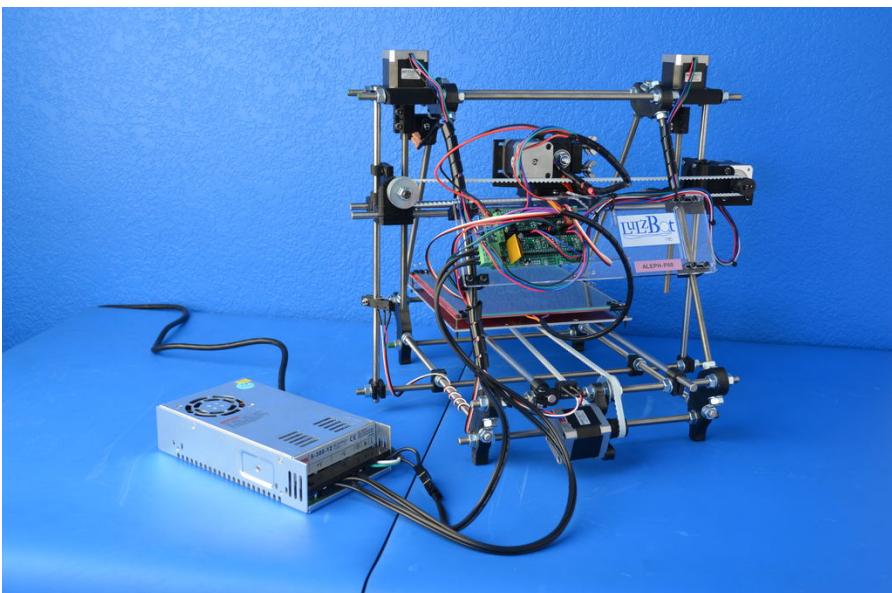


Figure 3.3: LulzBot Prusa 1.0 Back.

LulzBot Prusa 1.0, 2.0

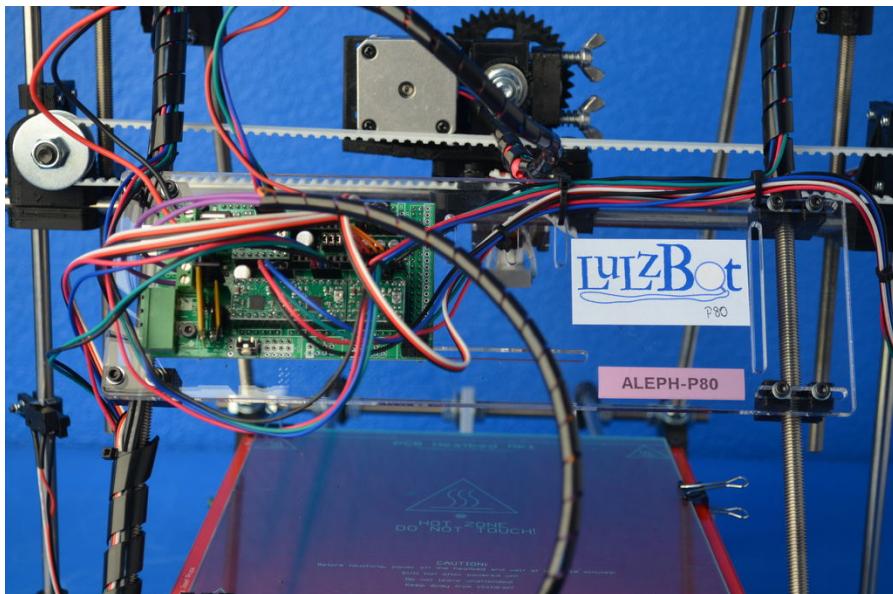


Figure 3.4: LulzBot Prusa 1.0 Electronics.

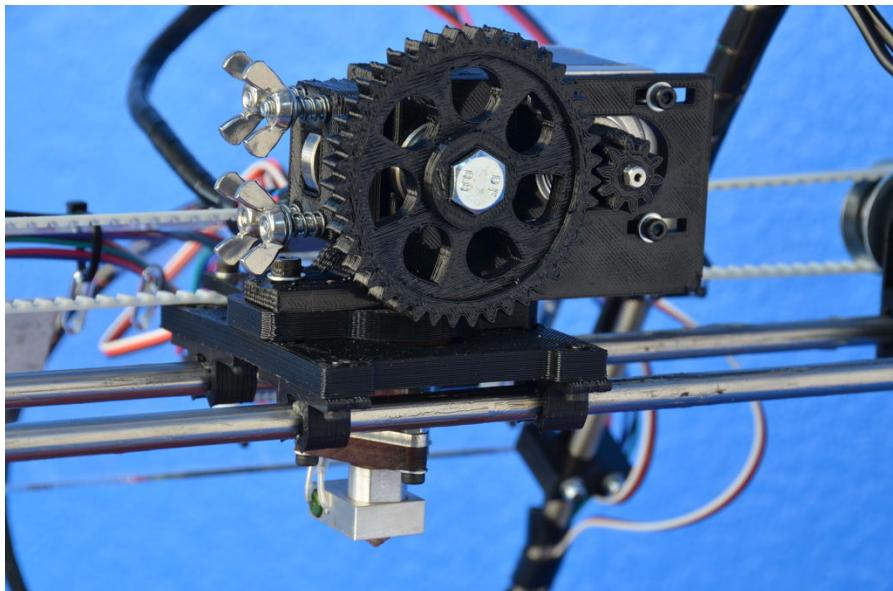


Figure 3.5: LulzBot Prusa 1.0 Extruder.

3.2. LULZBOT PRUSA 2.0

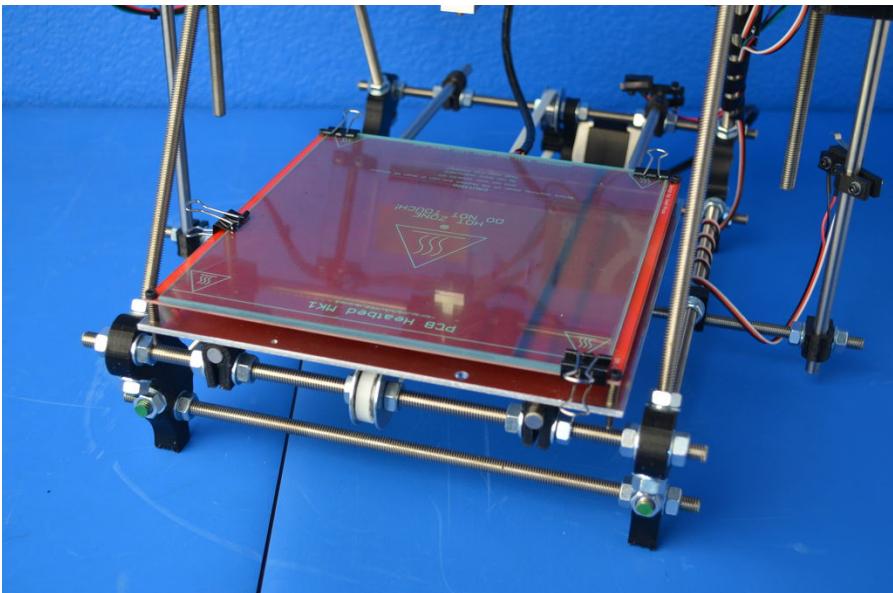


Figure 3.6: LulzBot Prusa 1.0 Heatbed.

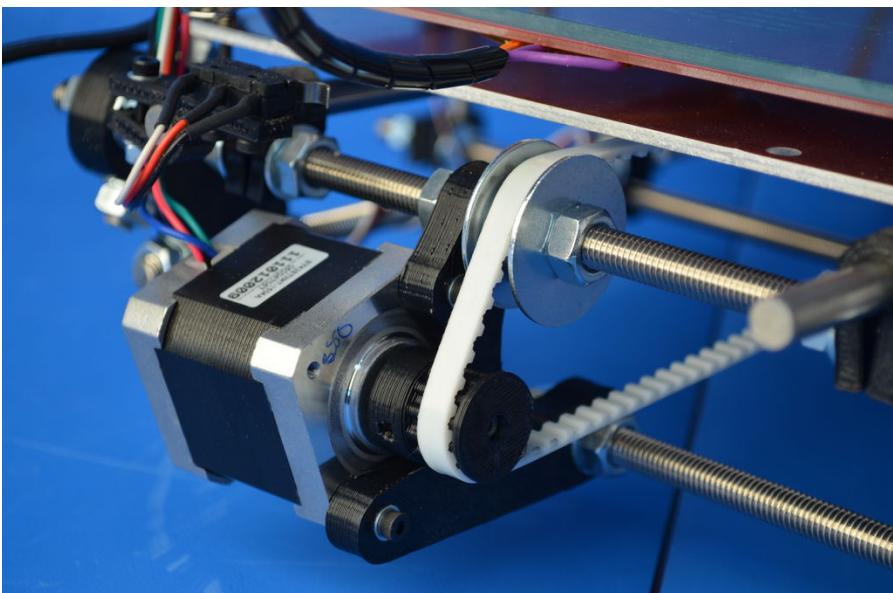


Figure 3.7: LulzBot Prusa 1.0 Y Belt.

LulzBot Prusa 1.0, 2.0

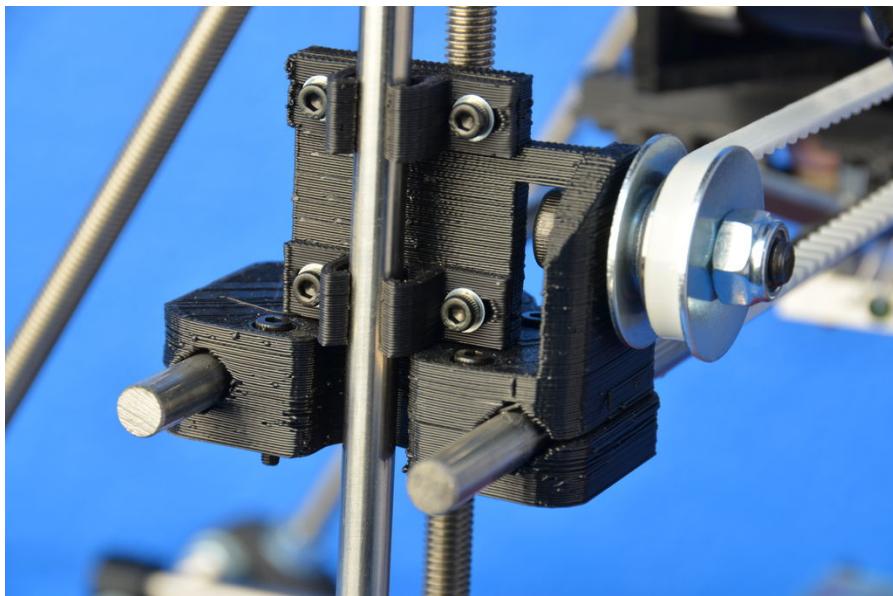


Figure 3.8: LulzBot Prusa 1.0 X End.

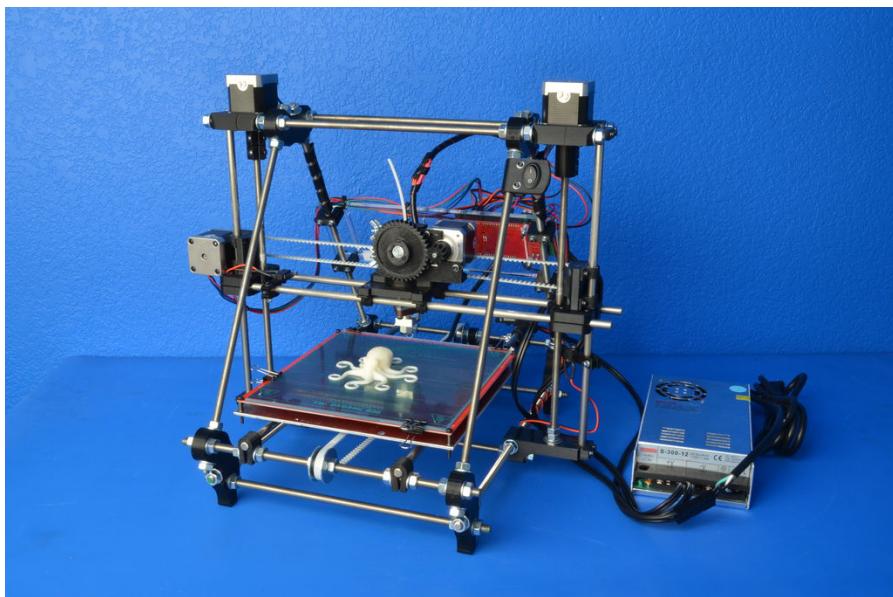


Figure 3.9: LulzBot Prusa 2.0 Front with Octopus.

3.2. LULZBOT PRUSA 2.0

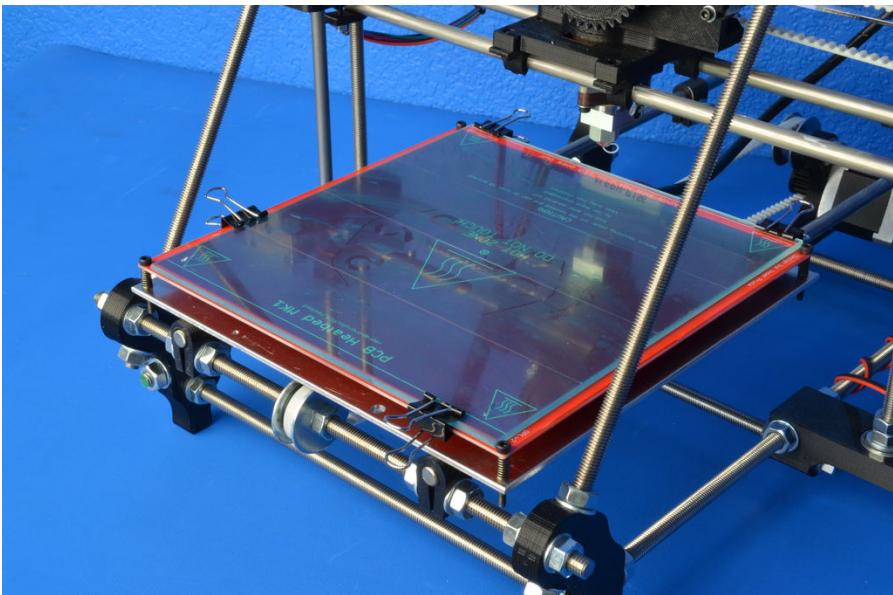


Figure 3.10: LulzBot Prusa 2.0 Bed.

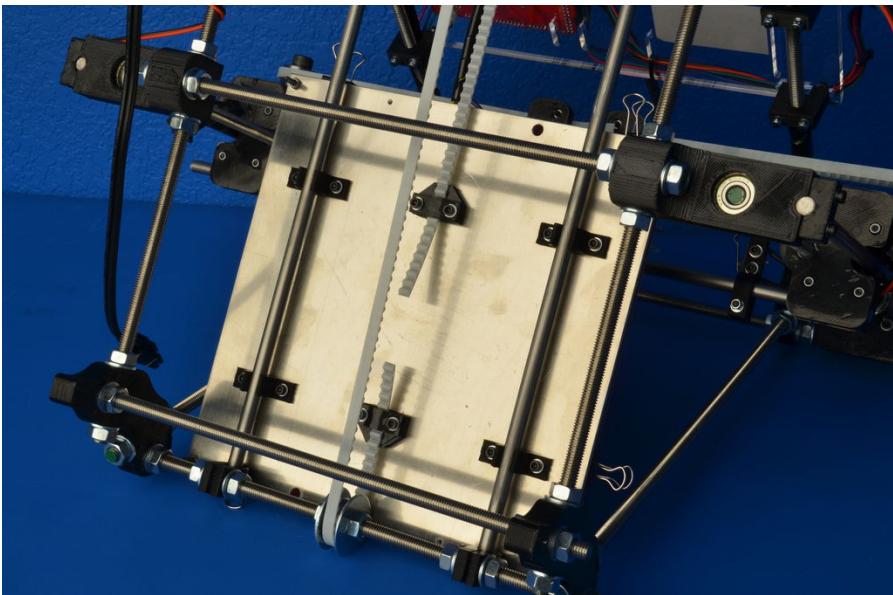


Figure 3.11: LulzBot Prusa 2.0 Bottom.

LulzBot Prusa 1.0, 2.0

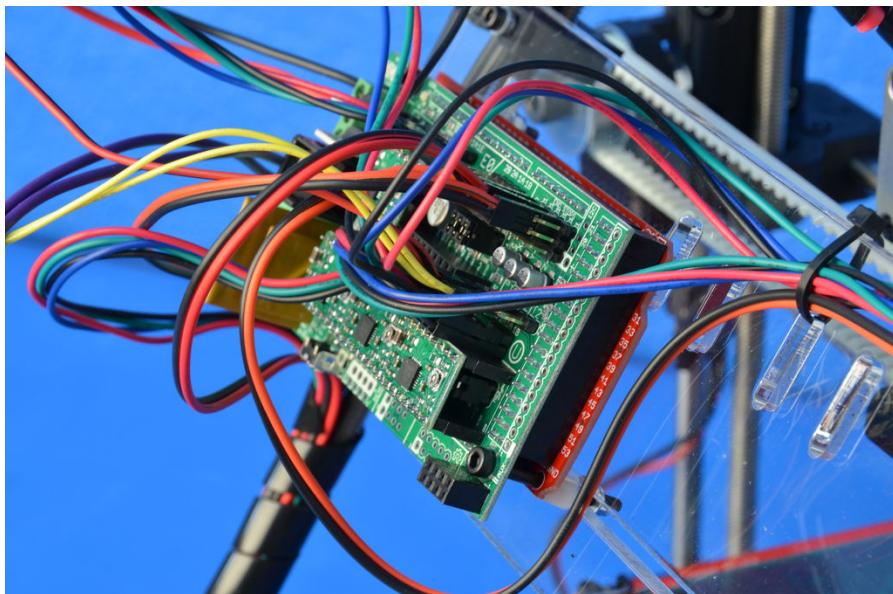


Figure 3.12: LulzBot Prusa 2.0 Electronics.

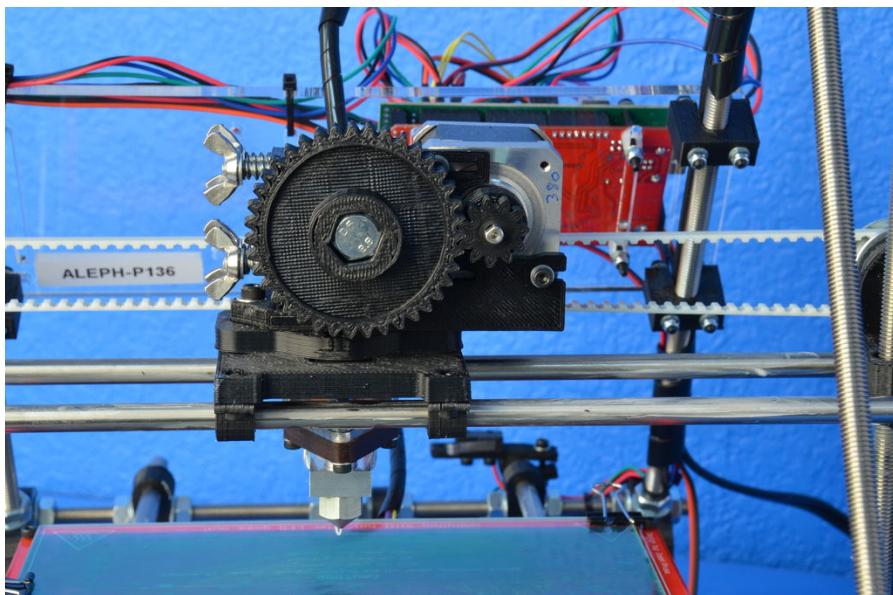


Figure 3.13: LulzBot Prusa 2.0 Extruder.

3.2. LULZBOT PRUSA 2.0

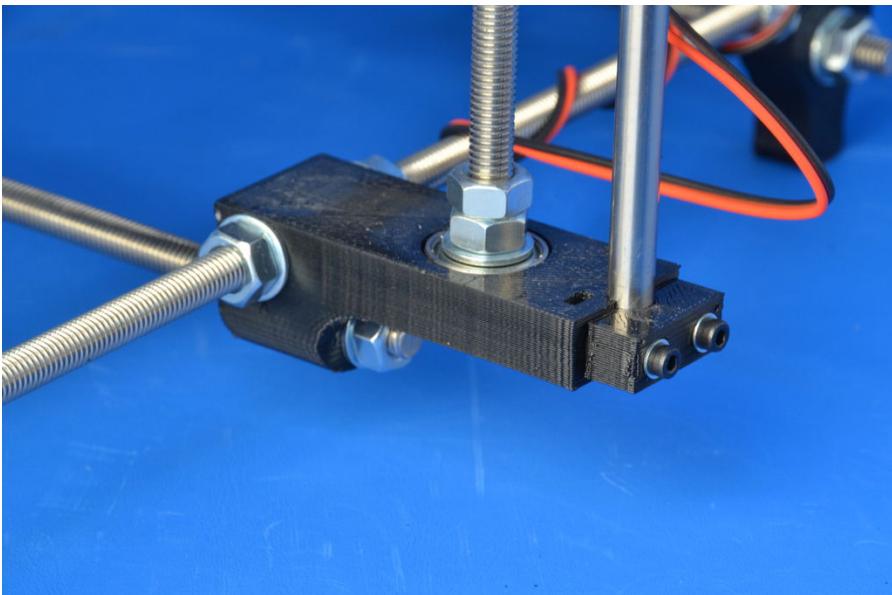


Figure 3.14: LulzBot Prusa 2.0 Mount.

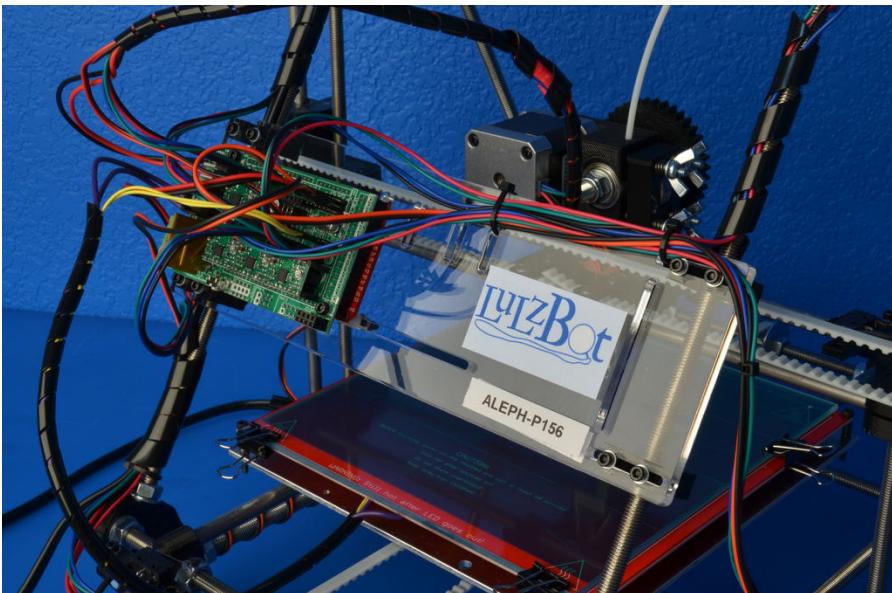


Figure 3.15: LulzBot Prusa 2.0 Panel.

LulzBot AO-100, AO-101

Print More

The LulzBot AO-100 and AO-101s were based on the MendelMax design. The AOs printed more AOs and they printed the LulzBot TAZ. Approximately 750 AOs were built. The AO-100 production started in the first quarter of 2012.

4.1 LulzBot AO-100

LulzBot AO-100.

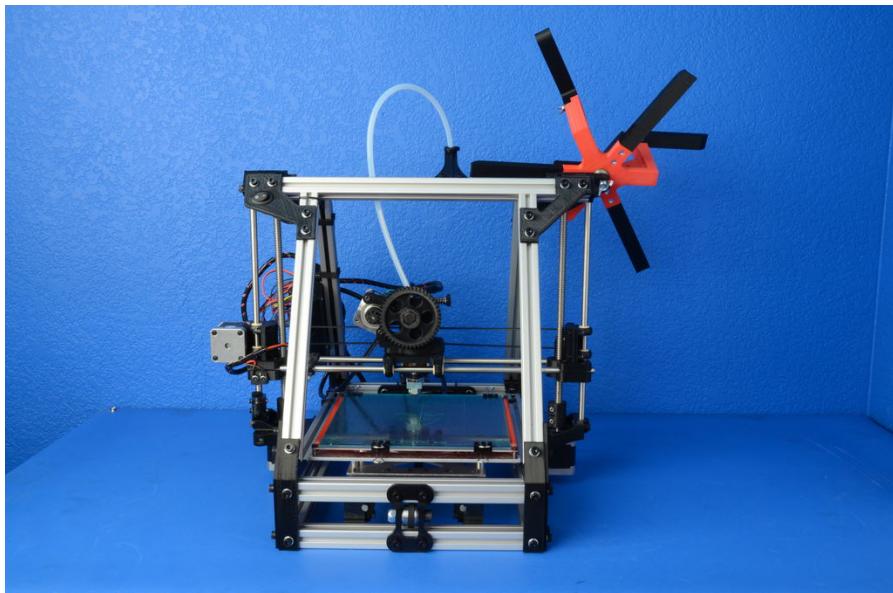


Figure 4.1: LulzBot AO-100 Front.

4.2 LulzBot AO-101

LulzBot AO-101.

4.2. LULZBOT AO-101

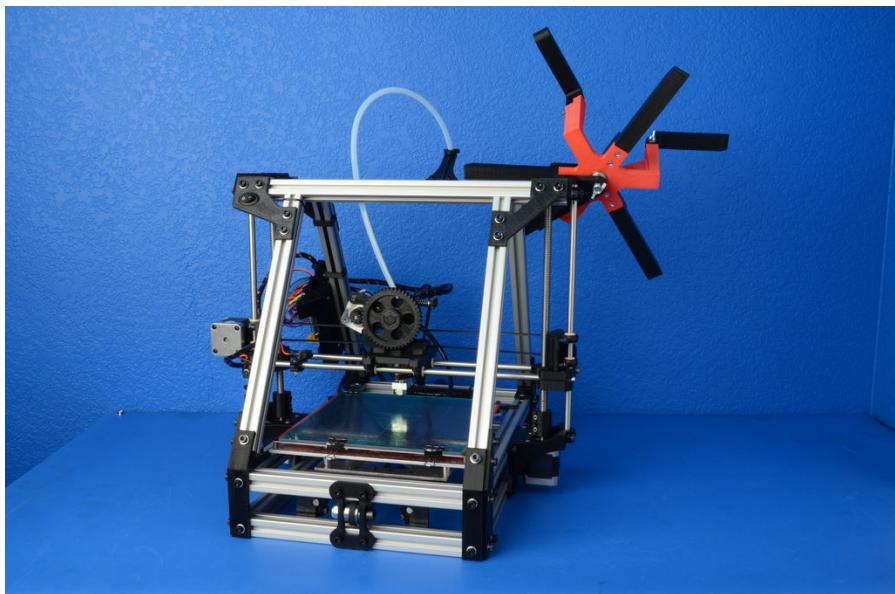


Figure 4.2: LulzBot AO-100 Front Left.

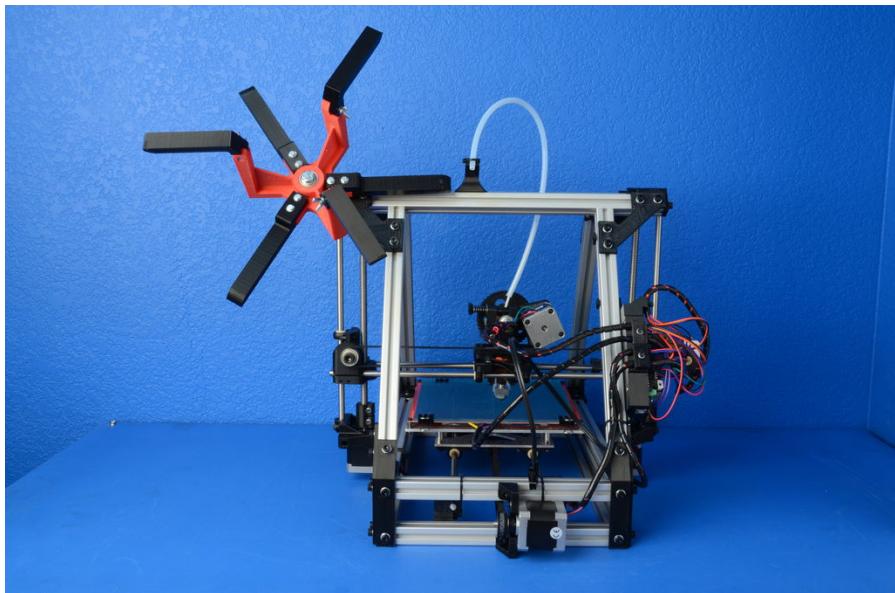


Figure 4.3: LulzBot AO-100 Back.

LulzBot AO-100, AO-101

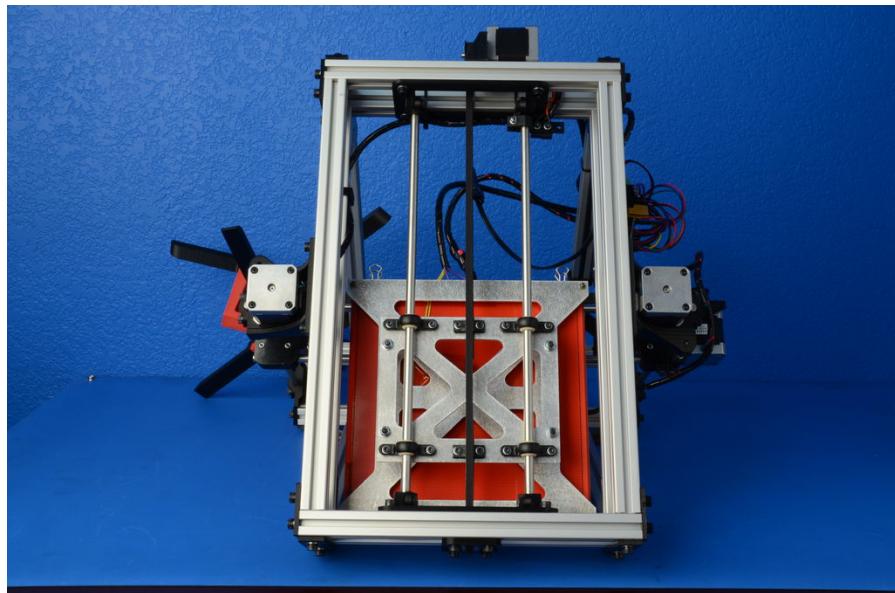


Figure 4.4: LulzBot AO-100 Bottom.

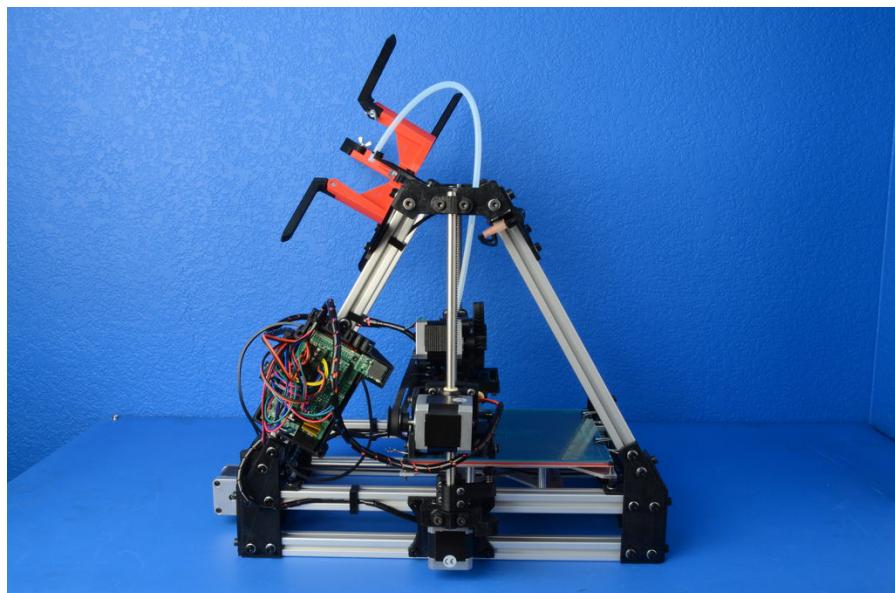


Figure 4.5: LulzBot AO-100 Front Left.

4.2. LULZBOT AO-101

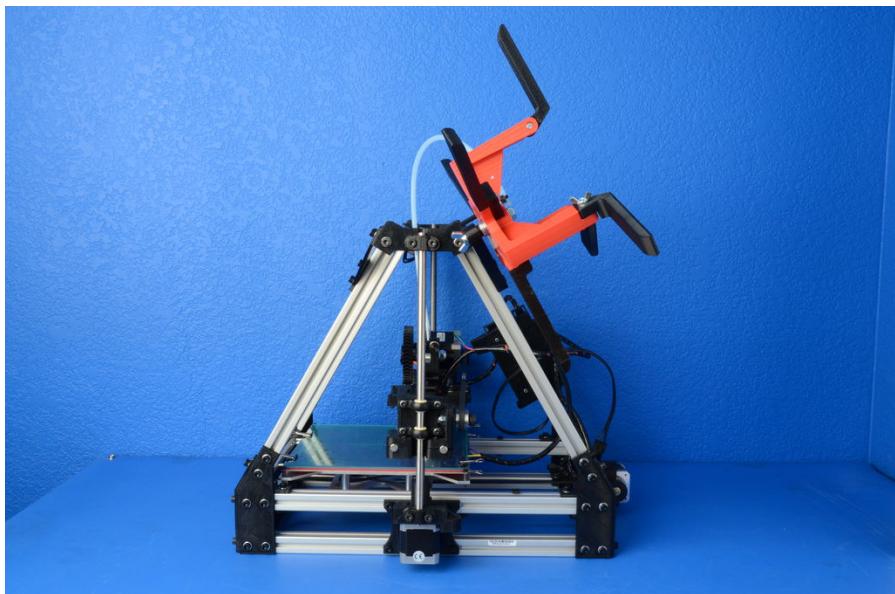


Figure 4.6: LulzBot AO-100 Front Right.

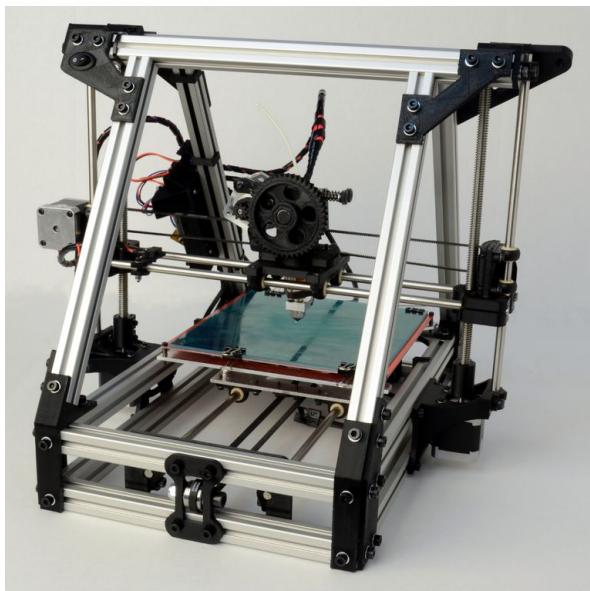


Figure 4.7: LulzBot AO-100.

LulzBot AO-100, AO-101

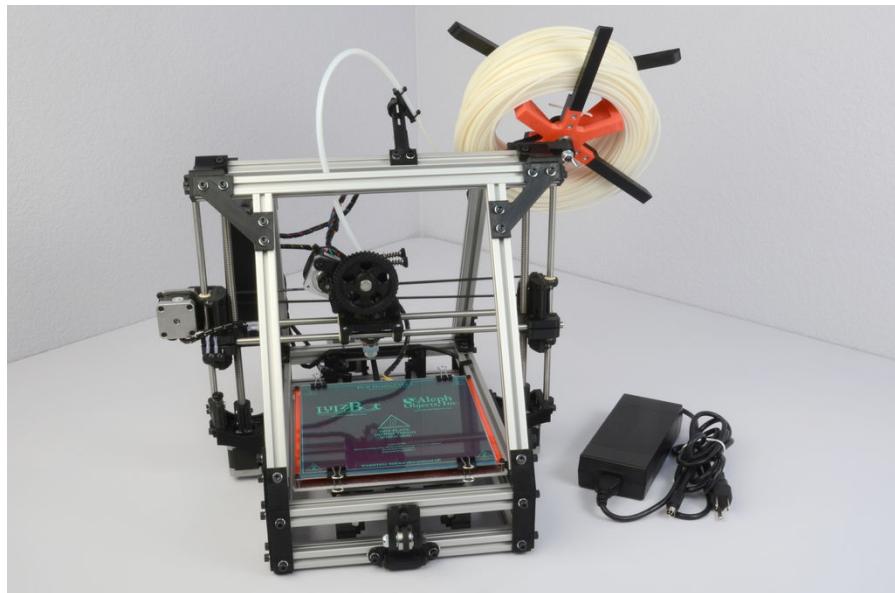


Figure 4.8: LulzBot AO-101.



Figure 4.9: LulzBot AO-101 Front.

4.2. LULZBOT AO-101

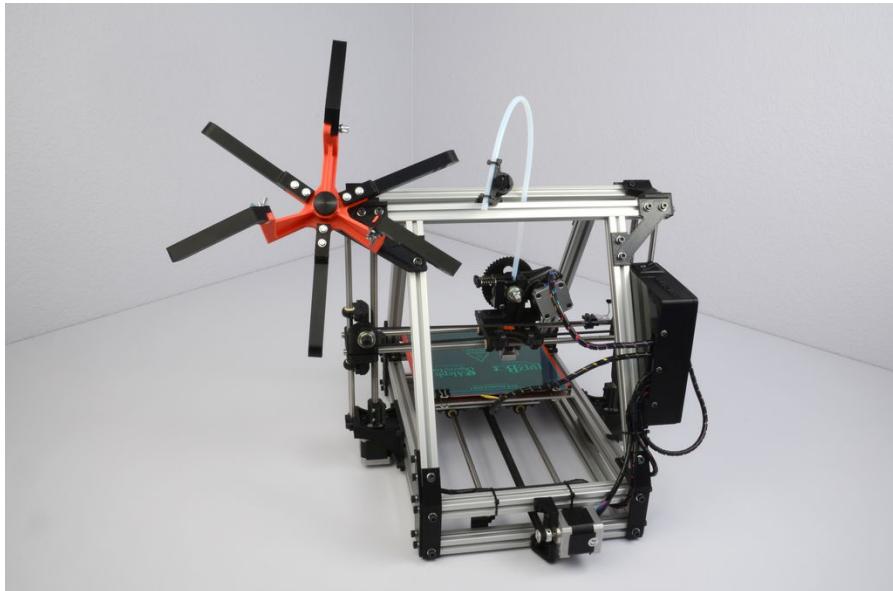


Figure 4.10: LulzBot AO-101 Back.

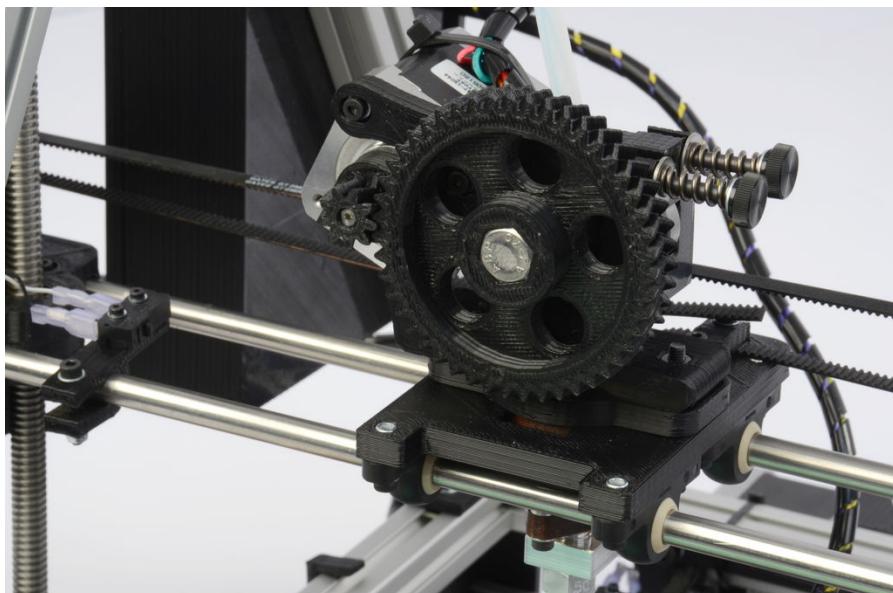


Figure 4.11: LulzBot AO-101 Extruder.

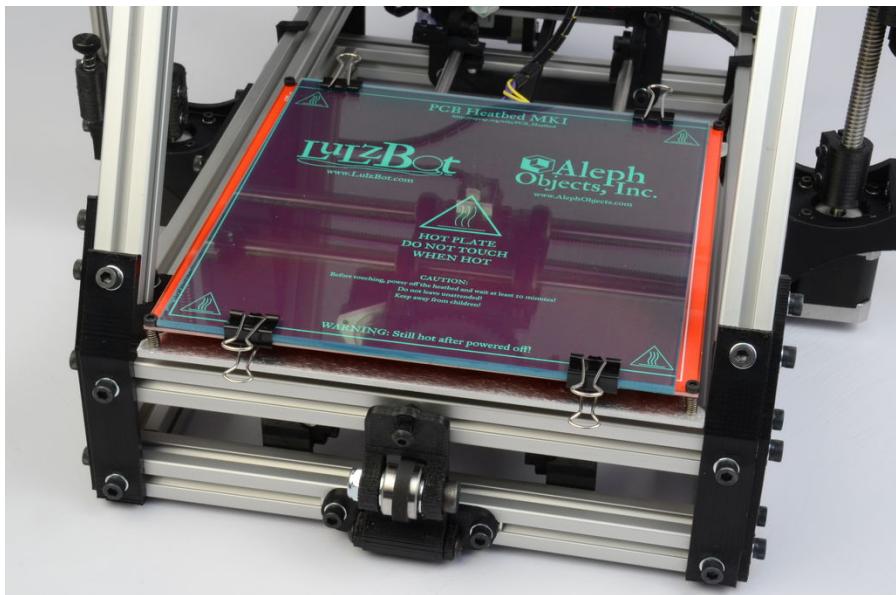


Figure 4.12: LulzBot AO-101 Heatbed.

LulzBot TAZ 1, 2, 3, 4, 5

Print Big

The LulzBot TAZ brought a new platform, and greatly increased print size. TAZ production started in quarter two of 2013 and is currently under production as of quarter two of 2015.

5.1 LulzBot TAZ 1.0

LulzBot TAZ 1.0.



Figure 5.1: LulzBot TAZ 1.0 with Cat.

5.2 LulzBot TAZ 2.0

LulzBot TAZ 2.0.

5.3 LulzBot TAZ 2.1

LulzBot TAZ 2.1.

5.3. LULZBOT TAZ 2.1



Figure 5.2: LulzBot TAZ 1.0.

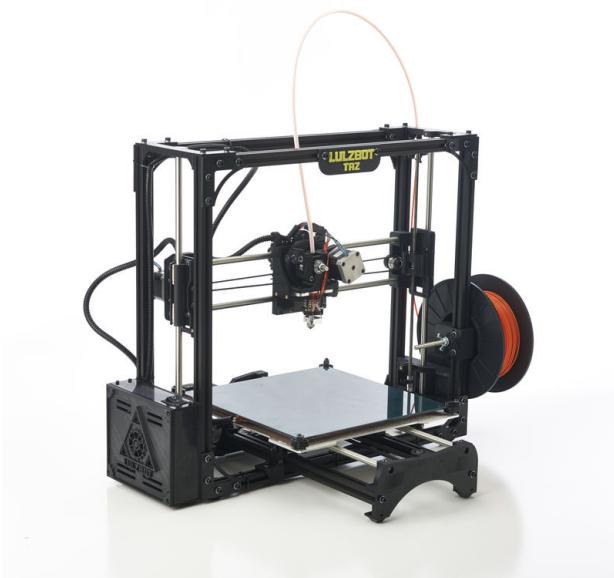


Figure 5.3: LulzBot TAZ 1.0 Front Left.

LulzBot TAZ 1, 2, 3, 4, 5



Figure 5.4: LulzBot TAZ 1.0 with Vase.



Figure 5.5: LulzBot TAZ 1.0 with Octopus.

5.3. LULZBOT TAZ 2.1



Figure 5.6: LulzBot TAZ 1.0 Max Build Volume.

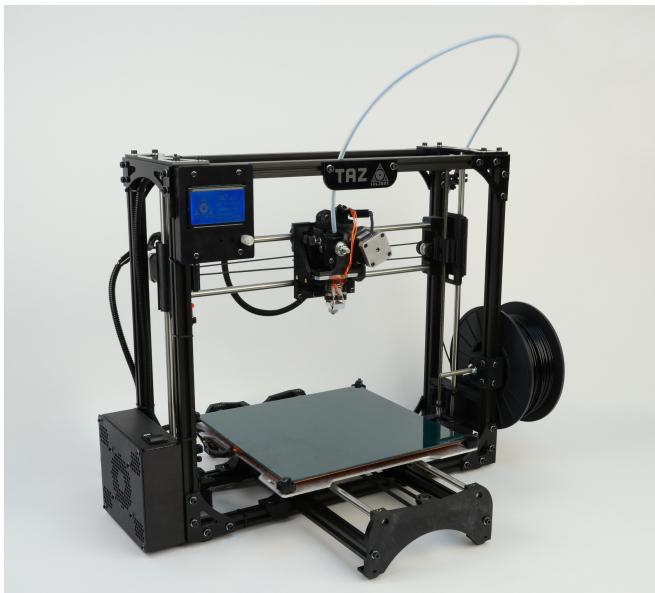


Figure 5.7: LulzBot TAZ 2.0.

LulzBot TAZ 1, 2, 3, 4, 5

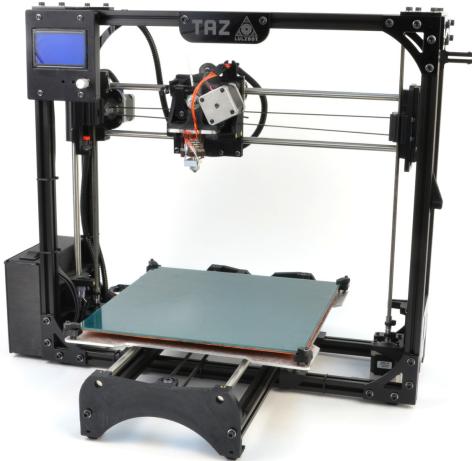


Figure 5.8: LulzBot TAZ 2.1.

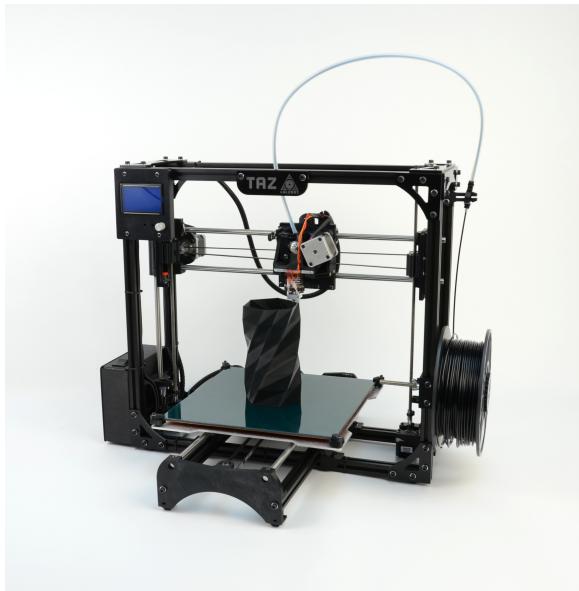


Figure 5.9: LulzBot TAZ 2.1 with Vase.

5.4. LULZBOT TAZ 3.0

5.4 LulzBot TAZ 3.0

LulzBot TAZ 3.0 was produced in quarter four of 2013.

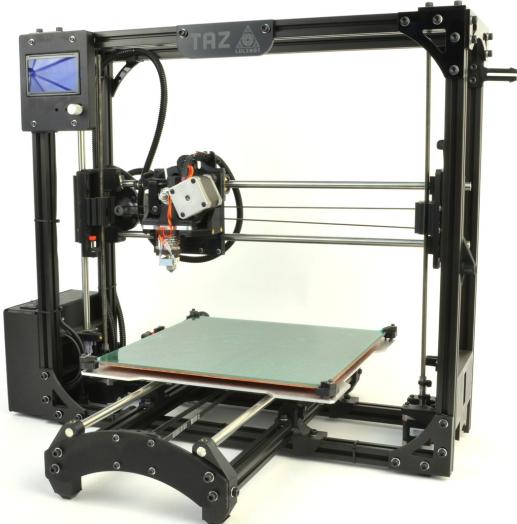


Figure 5.10: LulzBot TAZ 3.0.

5.5 LulzBot TAZ 4.0

LulzBot TAZ 4.0 was produced in quarter two of 2014.

5.6 LulzBot TAZ 5.0

LulzBot TAZ 5.0 was produced in quarter three of 2014.

LulzBot TAZ 1, 2, 3, 4, 5

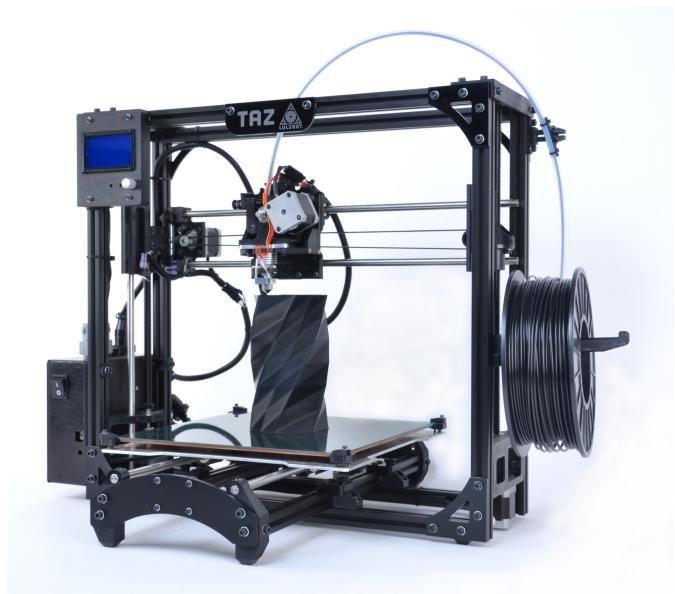


Figure 5.11: LulzBot TAZ 4.0.

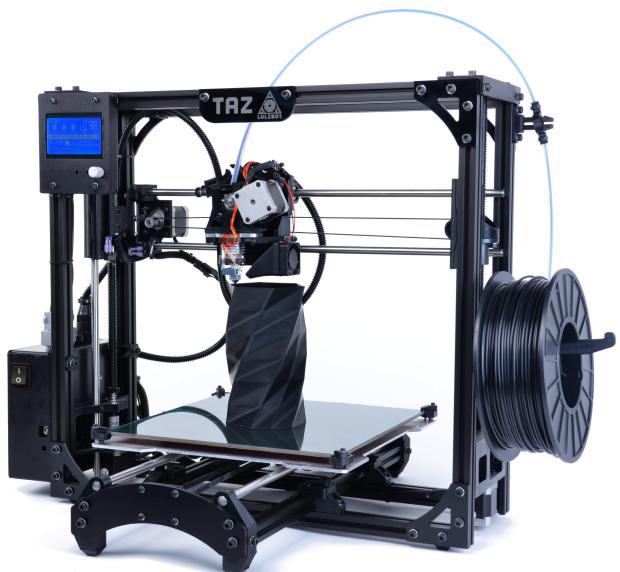


Figure 5.12: LulzBot TAZ 5.0.

LulzBot Mini

Get Easy

LulzBot Mini

The LulzBot Mini greatly increased ease of use, particularly with auto-bed leveling. Mini production started in quarter one of 2015.

6.1 LulzBot Mini

LulzBot Mini.

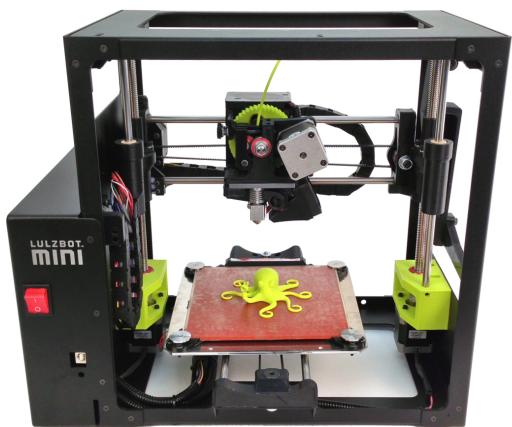


Figure 6.1: LulzBot Mini.

3D Printer Cluster

Moar Means Moar

7.1 LulzBot 3D Printer Cluster

This is the evolution of Aleph Object's LulzBot 3D Printer Cluster.



Figure 7.1: 3D Printer Cluster of 2 Mars Prusas, June, 2011.

7.1. LULZBOT 3D PRINTER CLUSTER

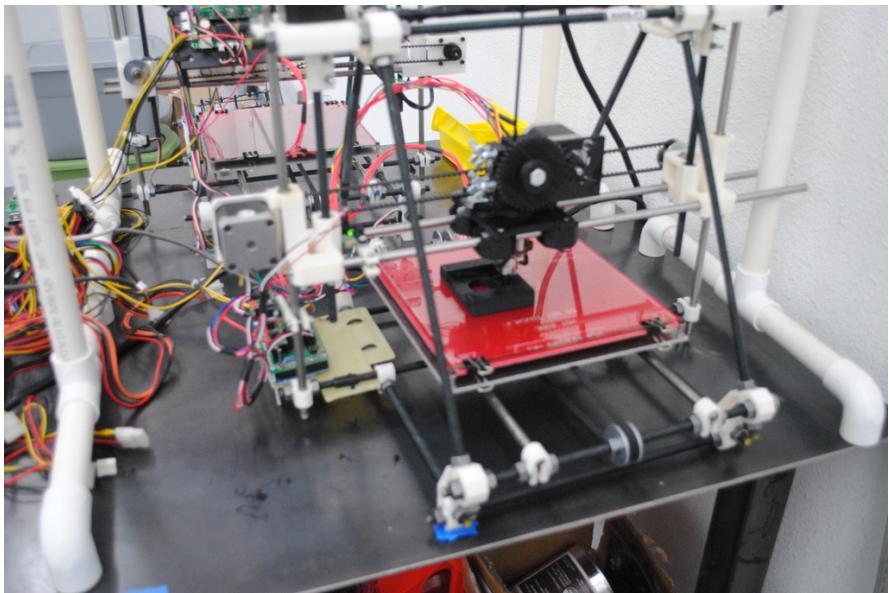


Figure 7.2: 3D Printer Cluster of 2 Mars Prusas Closeup.

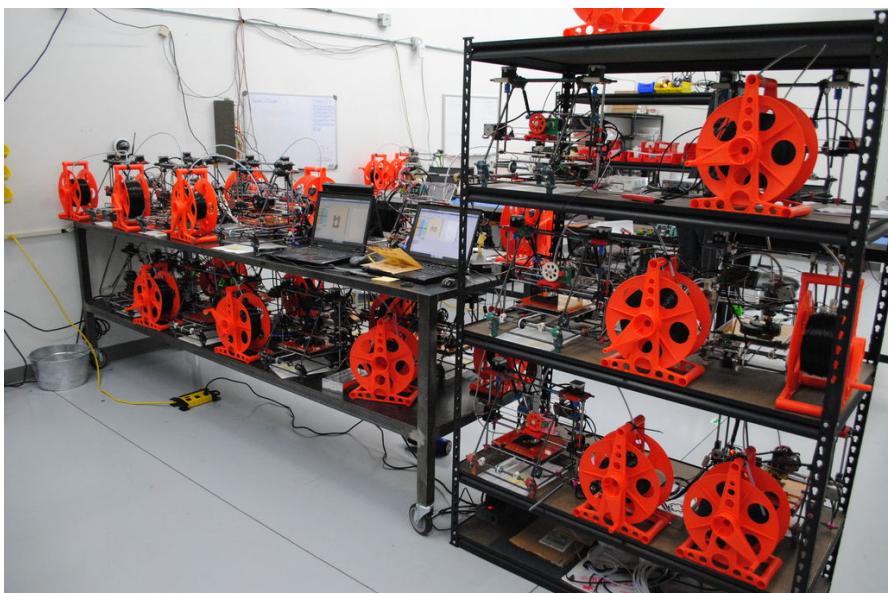


Figure 7.3: 3D Printer Cluster of 19 LulzBot Clonedels, October, 2011.

3D Printer Cluster

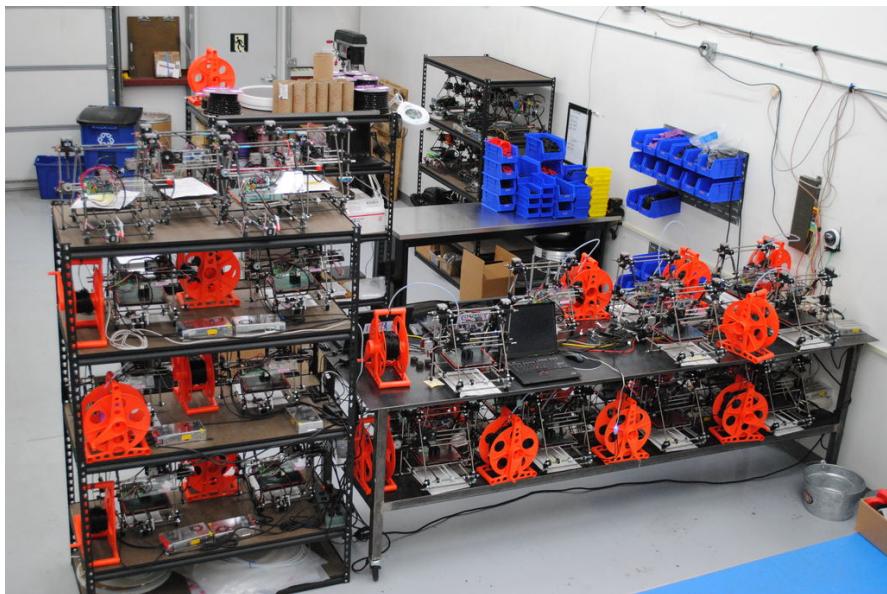


Figure 7.4: 3D Printer Cluster of 19 LulzBot Prusas, December, 2011.

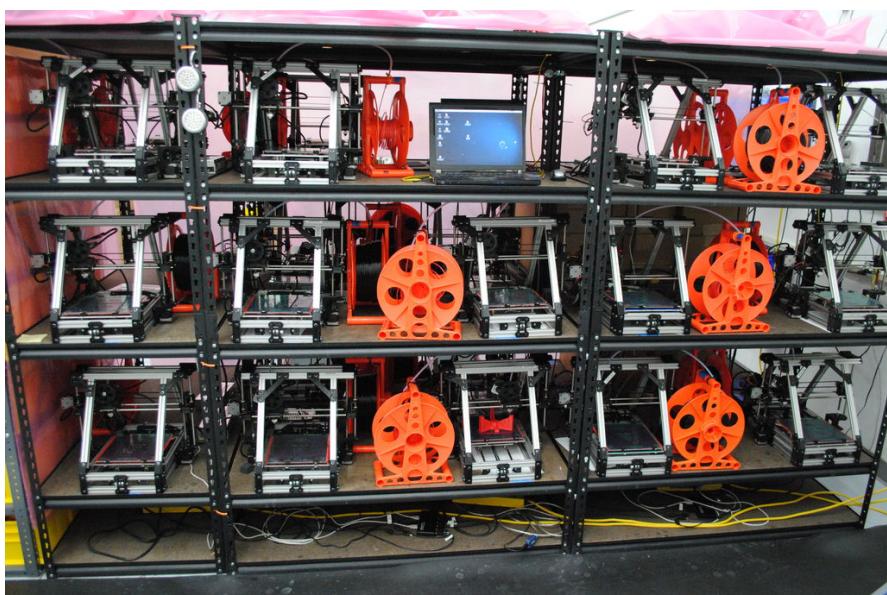


Figure 7.5: 3D Printer Cluster of 28 LulzBot AO-100s, July, 2012.

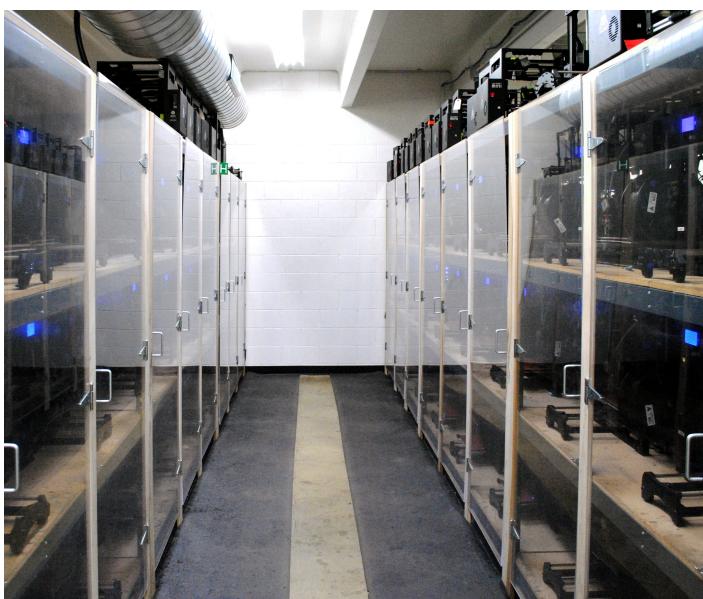


Figure 7.6: Section of 3D Printer Cluster of 135 LulzBot TAZ, April, 2015.

Contact

Phone, Email, Web, Location

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8.3 Website

Aleph Objects' LulzBot 3D Printer website.
www.lulzbot.com

Colophon

Created with 100% Free Software

GNU/Linux

LATEX Memoir
