

# LULZBOT MINI DEVELOPER'S GUIDE



**LulzBot Mini Developer's Guide**  
by Aleph Objects, Inc.  
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## Introduction

### Welcome Aboard

**Audience**

This is a developer's guide to hacking on the LulzBot Mini 3D Printer. It is meant for developers, not users, of the printer.

**Open Source Hardware, Free Software**

Aleph Objects, Inc. is a Loveland, Colorado, USA company that manufactures Open Source Hardware using Free Software.

For more info, visit <http://www.alephobjects.com>.

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## LulzBot Mini Developer Overview

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**1.1 LulzBot Mini**

The LulzBot Mini is a 3D Printer currently under development. The abbreviated name is mini-dev.

The source files are available here:  
<http://devel.lulzbot.com/mini/>

**1.2 Versions**

Each new version of the mini-dev has a new name, with the next letter in the alphabet.

- Azalea - First Prototype
- Begonia - Second Prototype, being built now
- Camellia - Third Prototype
- Daffodil - First Production batch

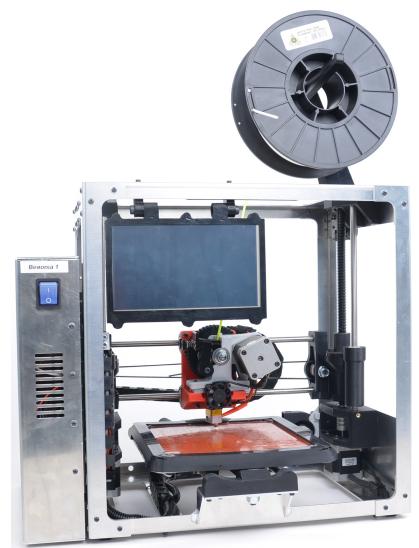
**1.3 Begonia Photos**

Figure 1.1: Begonia Front Photo

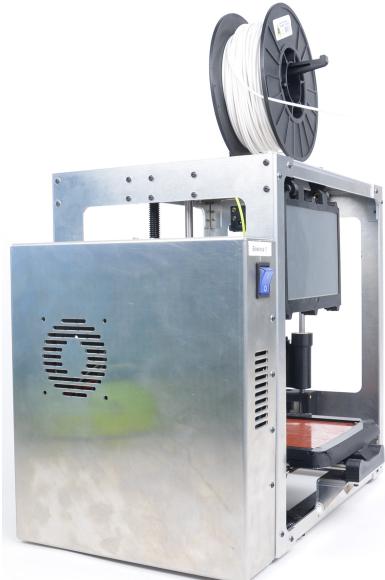


Figure 1.2: Begonia Left Photo

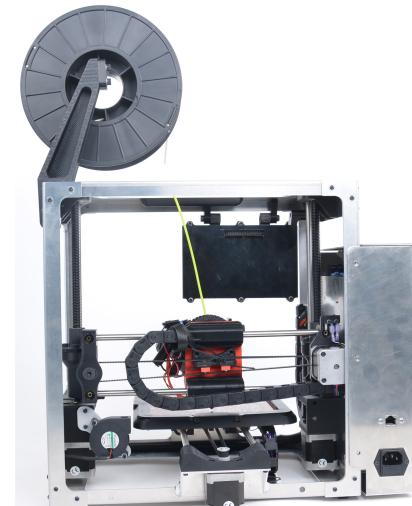


Figure 1.3: Begonia Back Photo



Figure 1.4: Begonia Right Photo

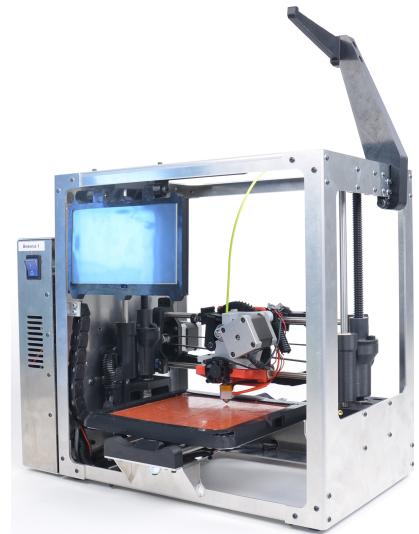


Figure 1.5: Begonia Spool Arm Up Photo

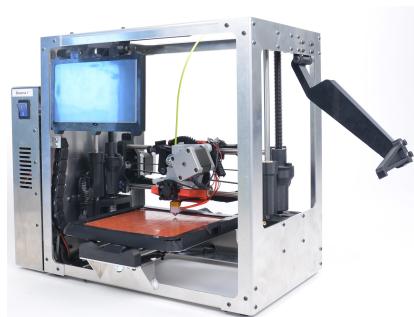


Figure 1.6: Begonia Spool Arm Down Photo



Figure 1.7: Begonia Green Color Scheme Photo

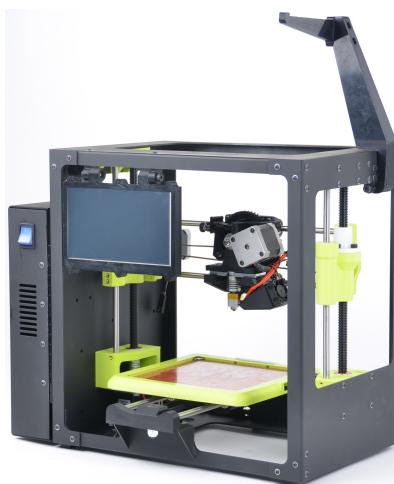


Figure 1.8: Begonia Black Green Color Scheme Photo

#### 1.4 Schedule

The schedule is updated weekly. It is in Libre Office spreadsheet format. The latest version is available here:

[http://devel.lulzbot.com/mini/program\\_management/](http://devel.lulzbot.com/mini/program_management/)

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### Mechanical

#### Cartesian Bot in X, Y, Z

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##### 2.1 Intro

Mechanical hardware specs and parts are in these subdirectories:  
<http://devel.lulzbot.com/mini/>

##### 2.2 Begonia Renders

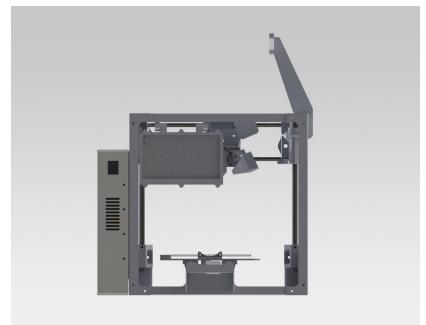


Figure 2.1: Begonia Front Render

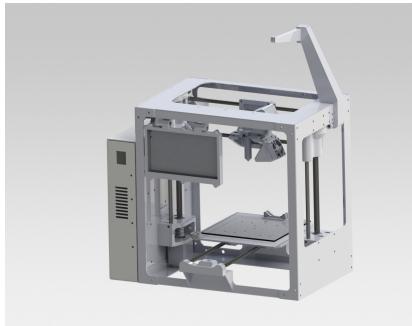


Figure 2.2: Begonia ISO Render

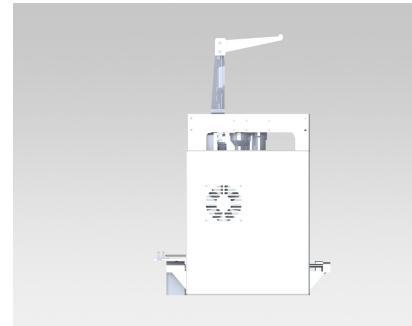


Figure 2.3: Begonia Left Render

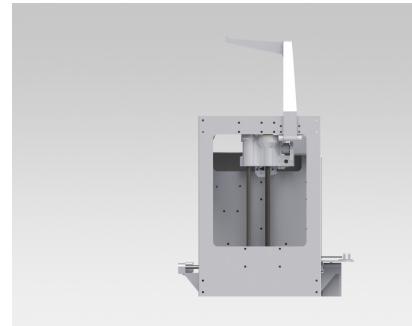


Figure 2.4: Begonia Right Render

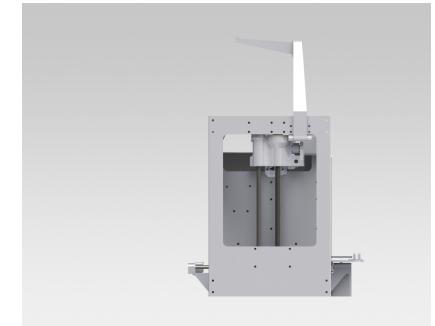


Figure 2.5: Begonia Right Render

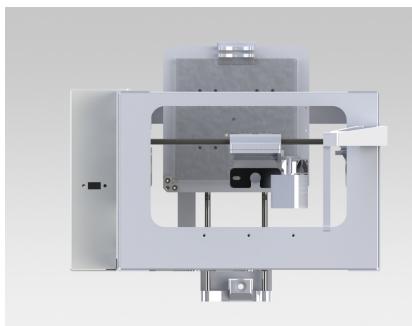


Figure 2.6: Begonia Top Render

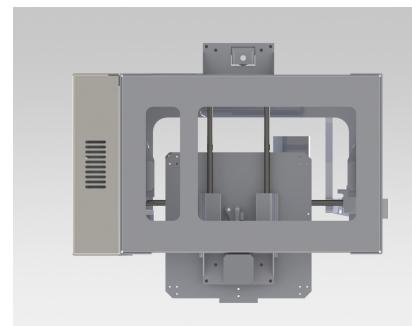


Figure 2.7: Begonia Bottom Render

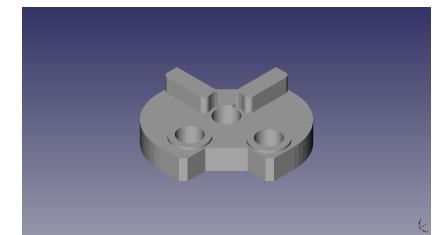


Figure 2.8: Begonia 3D Printed Bed Corner Render

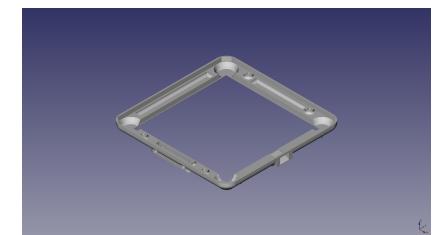


Figure 2.9: Begonia 3D Printed Bed Cover Render

## 2.5 Begonia Extruder



Figure 2.10: Begonia 3D Printed Bed Fan Mount Render

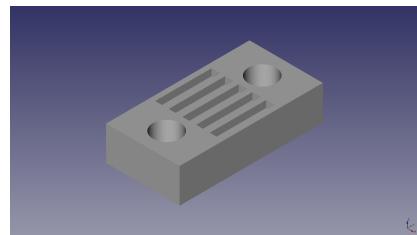


Figure 2.11: Begonia 3D Printed Belt Clamp Render

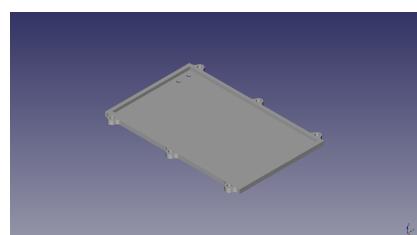


Figure 2.14: Begonia 3D Printed LCD Back Cover Render

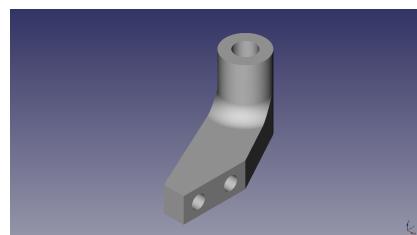


Figure 2.15: Begonia 3D Printed LCD Catch Render

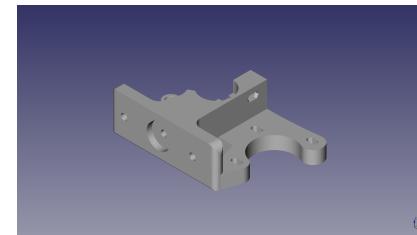


Figure 2.12: Begonia 3D Printed Extruder Body Hex Render



Figure 2.13: Begonia 3D Printed Extruder Mount Render

## 2.7 Begonia Spool

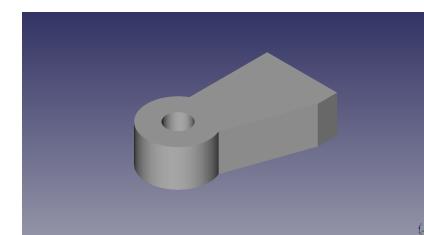


Figure 2.16: Begonia 3D Printed LCD Hinge Render



Figure 2.18: Begonia 3D Printed Spool Arm Render

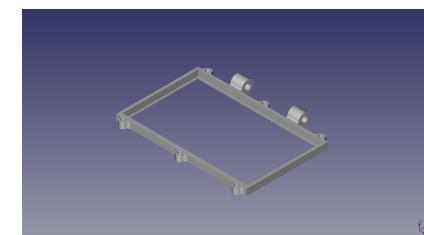


Figure 2.17: Begonia 3D Printed LCD Mount Render

## 2.8 Begonia X



Figure 2.20: Begonia 3D Printed Spool Mount Render

## 2.9 Begonia Y

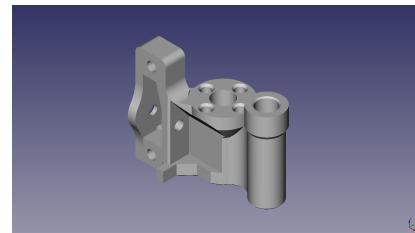


Figure 2.21: Begonia 3D Printed X End Idler Render

## 2.10 Begonia Z

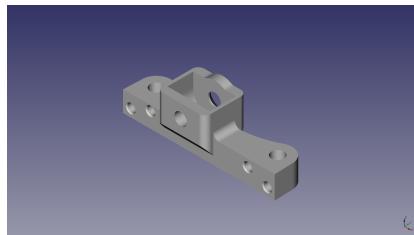


Figure 2.23: Begonia 3D Printed Y End Idler Render

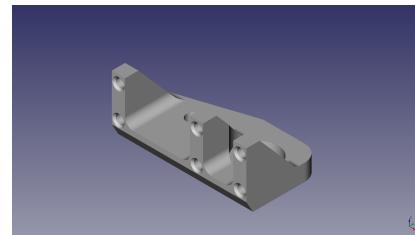


Figure 2.25: Begonia 3D Printed Upper Z Left Render

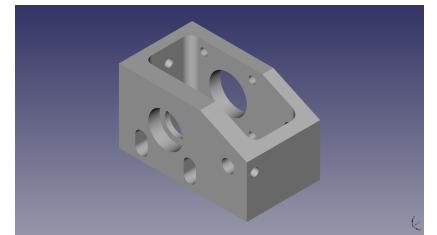


Figure 2.27: Begonia 3D Printed Lower Z Left Render

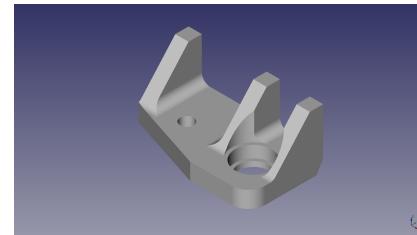
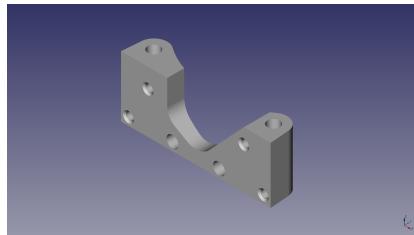


Figure 2.26: Begonia 3D Printed Upper Z Right Render

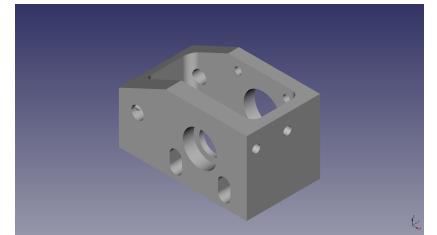


Figure 2.28: Begonia 3D Printed Lower Z Right Render

## 2.11 Begonia Misc



Figure 2.29: Begonia 3D Printed Double Bearing Holder Render

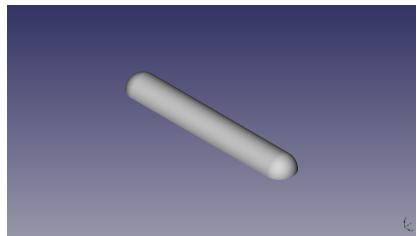


Figure 2.31: Begonia 3D Printed Handle Bar Render

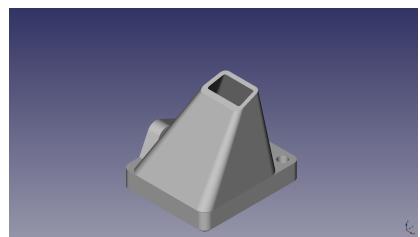


Figure 2.30: Begonia 3D Printed Fan Mount Render

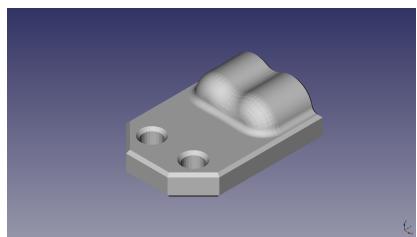


Figure 2.32: Begonia 3D Printed Cable Carrier Mount Render

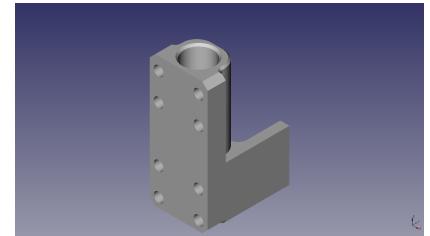


Figure 2.33: Begonia 3D Printed Extruder Mt Top Double Bearing Holder Render

## 2.12 Begonia Drawings

## 2.13 Camillia Drawings

## 3.1 Electrical Layout

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**Electrical**  
Power Supply, wiring

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**3D Printer Controller**  
**Mini-RAMBo**

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#### 4.1 Intro

The printer controller will be the RAMBo-Mini.

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**Contact**  
**Phone, Email, Web, Location**

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#### 5.1 Support

Email: [support@alephobjects.com](mailto:support@alephobjects.com)  
Phone: +1-970-377-1111 x010  
LulzBot Forum  
<http://forum.lulzbot.com>

#### 5.2 Sales

Email: [sales@alephobjects.com](mailto:sales@alephobjects.com)  
Phone: +1-970-377-1111 x600

#### 5.3 Websites

Aleph Objects, Inc.  
<http://www.alephobjects.com>  
LulzBot 3D Printers  
<http://www.lulzbot.com>

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**Colophon**

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 $\text{\LaTeX}$  Memoir

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