

Gabe's Chocolate Factory

Preliminary Design Review

Development Methods

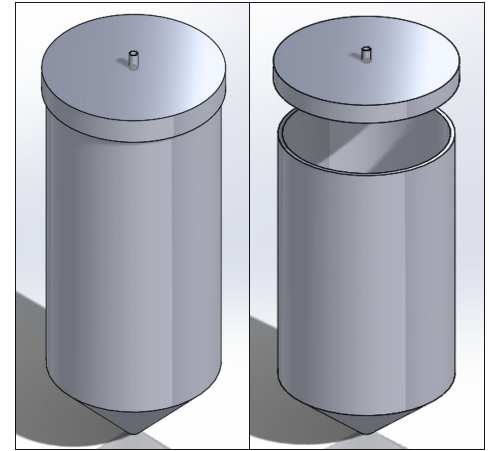
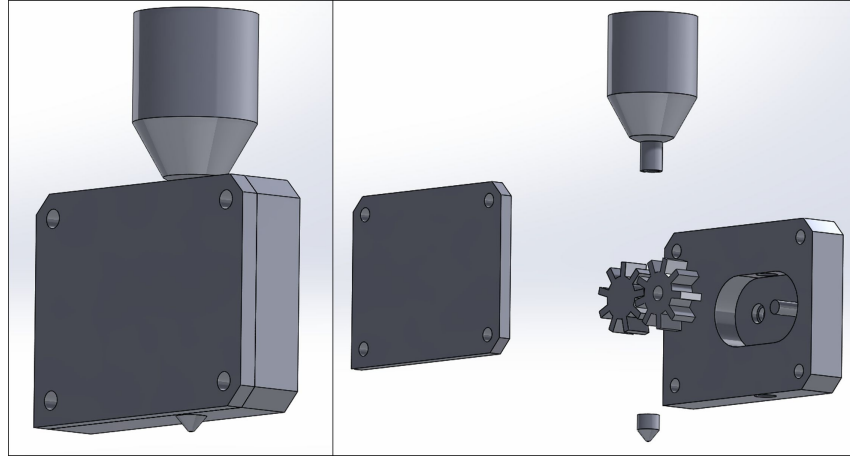
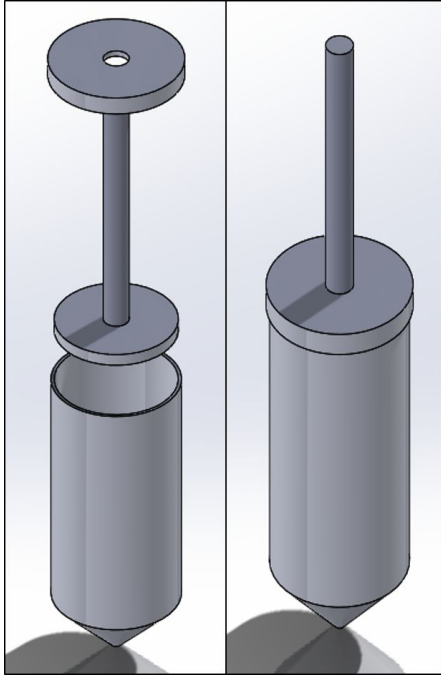
Research of existing methods

Expert engineer input

Client requirements

<https://www.instructables.com/id/Chocolate-Extruder-for-Ultimaker/>

Principle Concepts Extruder



Principle Concept Drive Circuit



MYSWEETY
Board+RAM
Professional
by **MYSWEETY**
★★★★★

Price: **\$60.89**

Coupon Save

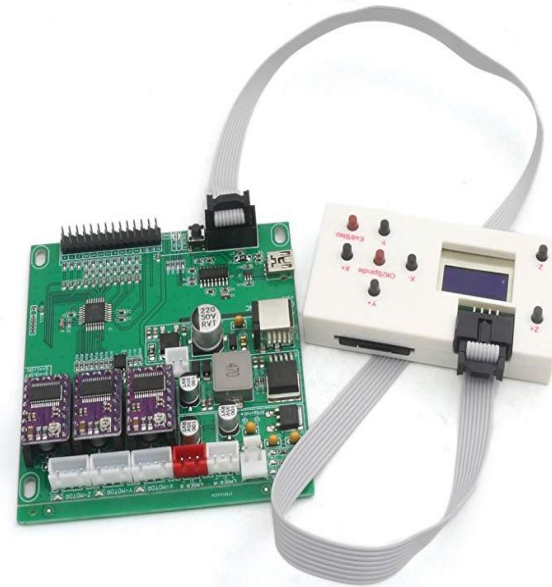
Size: **CNC Kit**

40Ncm
\$45.89

CNC
\$60.

- High Quality—E-simple and the s
- NEMA 17 Stepper Bracket and 12p
- CNC Shield V3.0
- UNO R3 Board—miss it.
- 3D printer CNC

Product Specificati



3 Axis 0.9J U!
Hand GRBL C
Machine Woc
by RATTM Motor
6 answered question

Price: **\$58.00** & FR

- Name:GRBL 1.1 U!
 - Input voltage: 12-
 - Stepper motor dri
 - Support stepper n
 - heat. (Any stepper
 - Master chip: atmel
 - standard capacity
- › See more product c

Compare with similar

New (2) from \$58.00

prime student

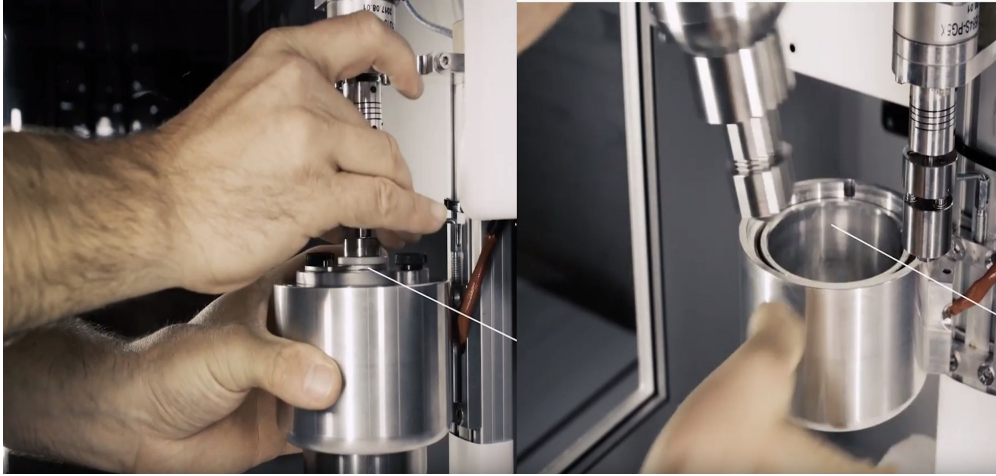
RUIANSHISUIKAN

Made of 6t
Alloy CNC

› Shop now

Ad feedback

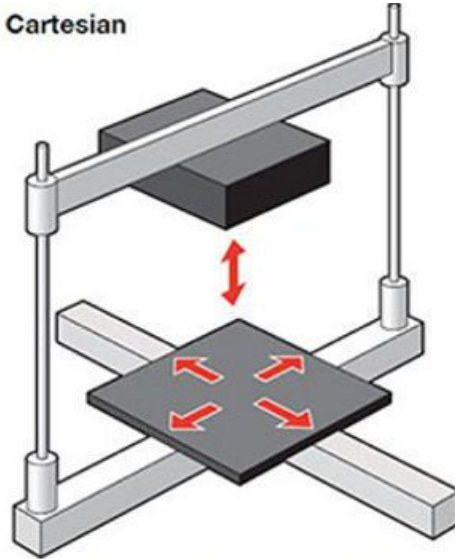
Principle Concept Z Axis Control



Principle Concept Axis Drive

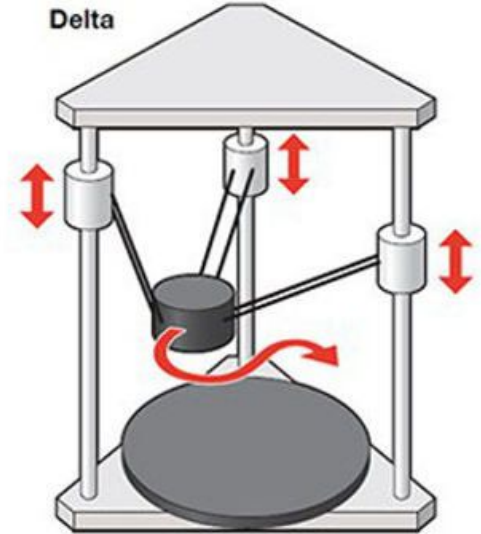


Cartesian



Each element moves only in one direction.

Delta



Printer head can move in any direction quickly.

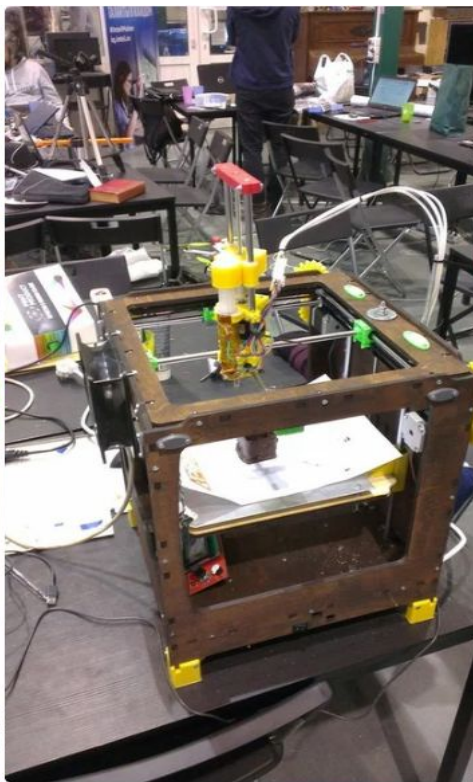
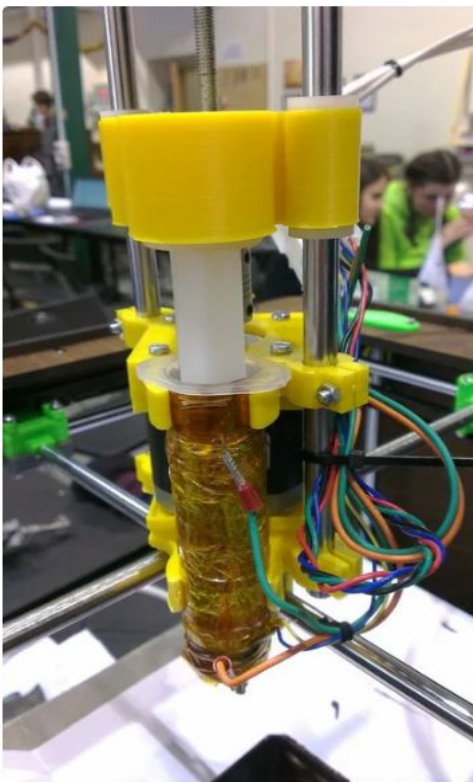
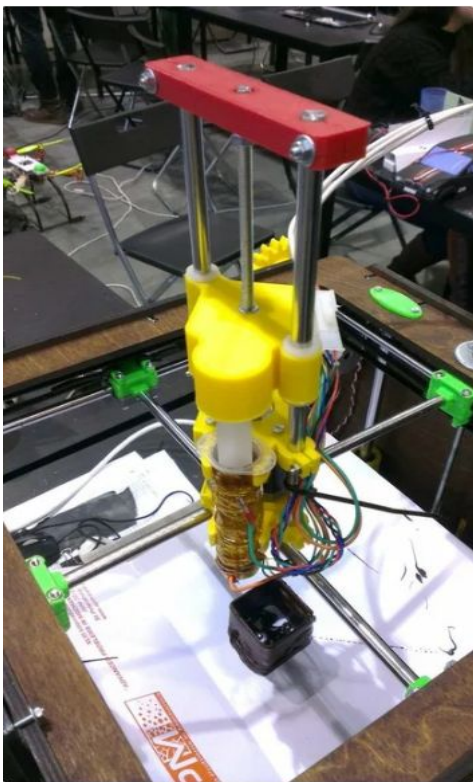
Weighted Requirements - Head

Extruder Heads	Weight	Gear Extruder	Plunger Extruder	Compressed Air
Cleanliness	0.5	0	1	0
Ease of Use	0.2	1	0	-1
Cost	0.2	-1	0	1
Novelty/Aesthetics	0.1	0	0	1
Total		0	0.5	0.1

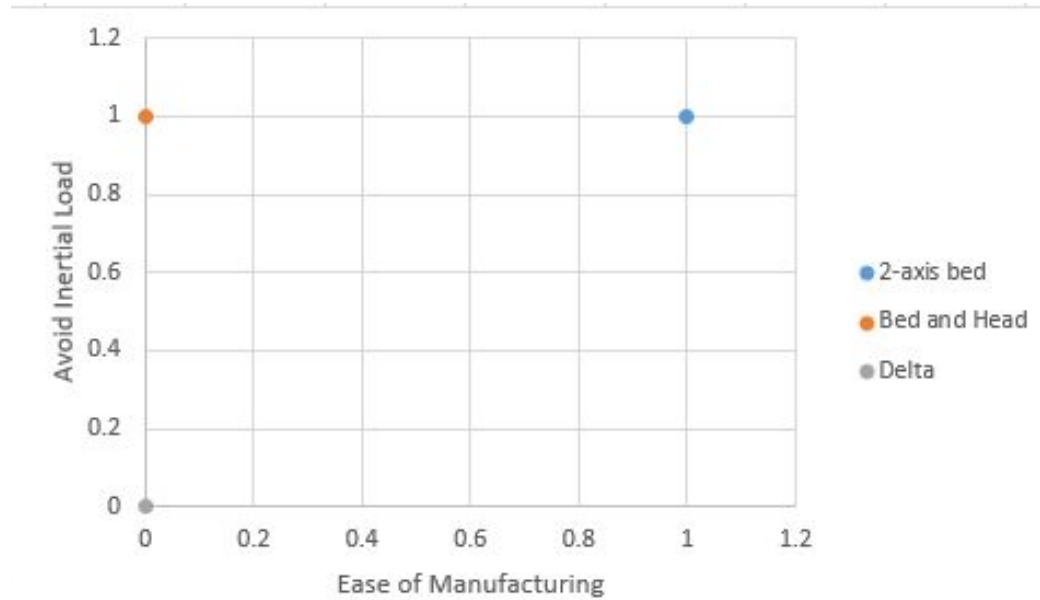
Weighted Requirements - From Customer

Extruder Heads	Weight	Gear Extruder	Plunger Extruder	Compressed Air
Cleanliness	15%	0	1	0
Ease of Use	10%	1	0	-1
Cost	50%	-1	0	0
Novelty/Aesthetics	25%	0	0	1
Total		-0.4	0.15	0.15

Selected Methods

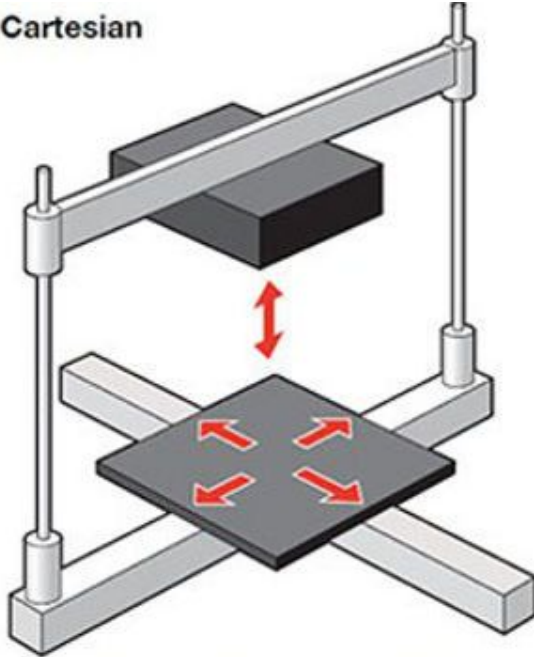


Selected Methods - Bed



Selected Methods - Bed

Cartesian



Each element moves only in one direction.



Selected Method - Circuits

Factors	Complete Kit	Driving Circuit
Cost	1	0
Ease of implementation	1	0
Features	0	1

Selected Method - Circuitry



MYSWEETY
Board+RAM
Professional
by MYSWEETY
★★★★☆

Price: \$60.89

Coupon Save

Size: CNC Kit

40Ncm \$45.89	CNC \$60.
------------------	----------------------------

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Product Specificati

Weighted Requirements - Chocolate

Chocolate	Weight	Belgian Dark Chocolate	Ukrainian Chocolate	Dense Milk Chocolate
Cost	20%	0	-1	1
Cooling Rate	30%	1	0	-1
Taste	30%	1	1	0
Availability	20%	0	-1	1
Total		0.6	0.3	0.1

Belgian Dark Chocolate Option 1 ~ 5 Ounces



Trader Joe's Belgian Dark Chocolate Bars 3 Variety Pack - Total 9 Bars

by Trader Joe's

★★★★☆ 8 customer reviews

Price: **\$19.99** (\$3.81 / Ounce) **FREE Shipping** on orders over \$25.00 shipped by Amazon or get **Fast, Free Shipping**

Note: Available at a lower price from [other sellers](#) that may not offer free Prime shipping.

- Three 3-Packs of Dark Chocolate Bars (Total of 9 Bars)
- (3) Dark Chocolate bars
- (3) 72% Cacao Dark Chocolate bars
- (3) Dark Chocolate with Almonds bars
- Each Bar 4.5" x 2" x 0.4" (11.5 x 5.2 x 0.9 cm), 1.65-1.7 oz (47-50g)

7 new from **\$17.83**



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WICKEDLY PRIME

A Party In Every Bar

> [Shop now](#)



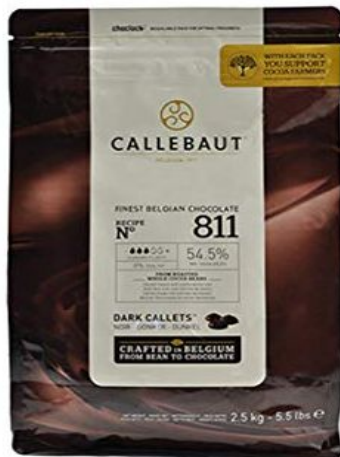
Wickedly Prime Fruit & Nut Bar,
Banana Nut, Gluten Free,
Kosher, 1.4 Ounce (Pack of 12)

★★★★☆ 571

\$11.88 ✓ **prime**

Ad feedback

Belgian Dark Chocolate Option 2 ~ 5.5 lbs



Belgian Dark Couverture Chocolate Semisweet Callets, 54.5% - 5.5 Lbs

by Callebaut

★★★★★ [97 customer reviews](#) | [39 answered questions](#)

Price: **\$49.99** (\$0.57 / Ounce) & **FREE Shipping**. [Details](#)

Note: Available at a lower price from [other sellers](#) that may not offer free Prime shipping.

Size: **1 bag, 5.5 Pound**

1 bag, 5.5 Pound
\$49.99 (\$0.57 / Ounce)

2 bags, 2x5.5 Pound
\$73.87 (\$0.42 / Ounce)

4 bags, 4x5.5 Lbs
\$147.97 (\$13.45 / Pound)

- Whole bean roasting guarantees its full taste with a solid cocoa body and fine top notes.
- Loved by chefs all over the world, the 811 54.5 is Callebaut's all around chocolate for confectionery, ganaches, mousses, and many other applications. It is simply made to help you achieve perfect end results every time
- Smooth flavor with subtle vanilla note
- Crafted in Belgium from whole roasted beans

14 new from **\$38.95**

There is a newer version of this item:



[Callebaut No 811 Finest Belgian Dark Chocolate Callets Couverture 54.5% - 2.5Kg](#)

\$45.55 (\$18.22 / kg)

In Stock.



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Concept Evaluation - Verification

- The first verification method that our group will be using will involve inspection of completed steps to ensure circuitry, and overall assembly is correct
- The second method is demonstration which is similar to our third method of testing. Each step of the process should perform a set of small tasks to ensure that each section of the project will work smoothly when put together.
- The final step is analysis in which calculations will be done when they can and then test our various mechanical or electronic components to see how well the calculated data matches the experimental.