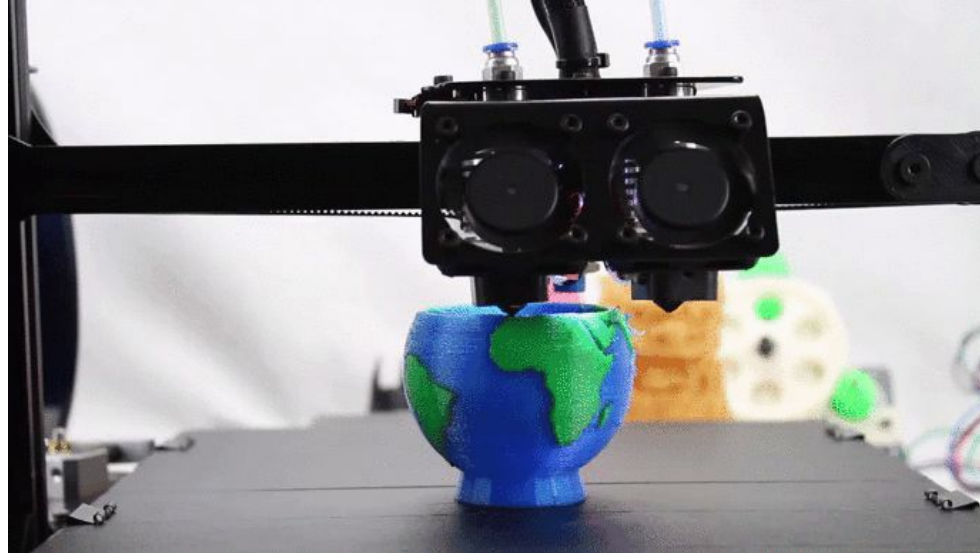


Computer-aided Design (CAD) and Fused Deposition Modeling (FDM) for Rapid Manufacturing



An Introduction to 3D printing
BUGGS Course





Background



Dan Fucich, Co-founder

PhD Candidate, MEES Program at IMET

Research focuses on algae

Makerbot Educator

1000+ downloads thingiverse.com



Kelsey Abernathy , Co-founder

Ratcliffe Environmental Entrepreneurial Fellows
(REEF)

Consulted for local biotech companies

Contact me! dfucich@umces.edu

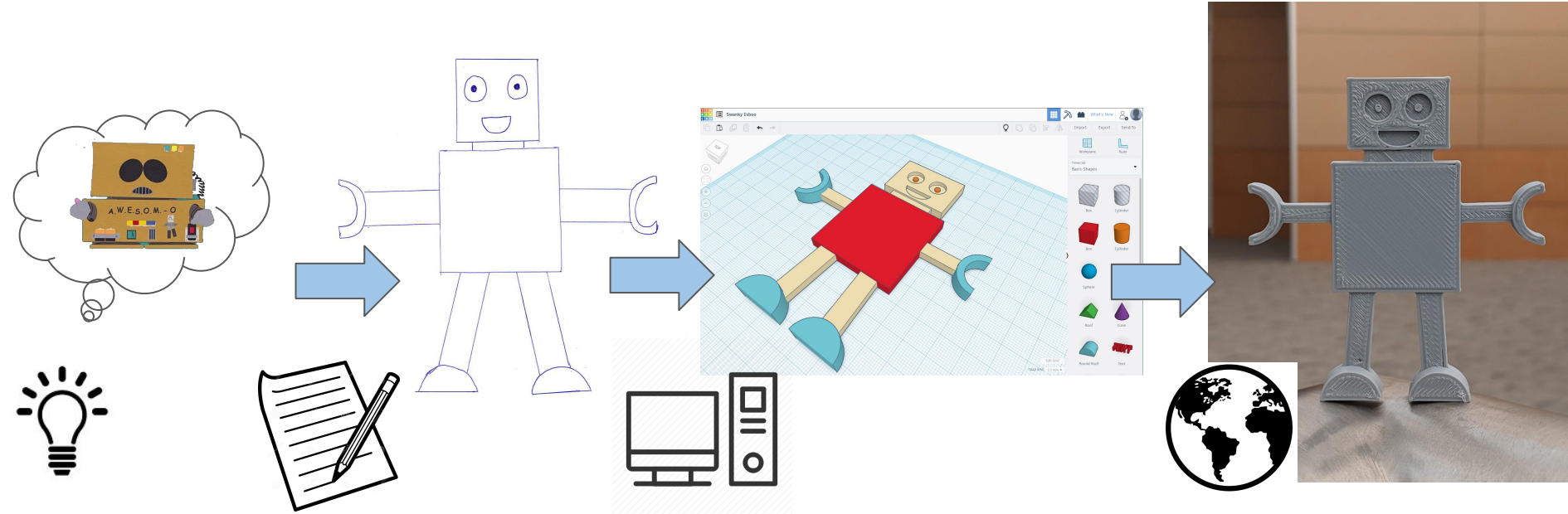
Progress...



aerium

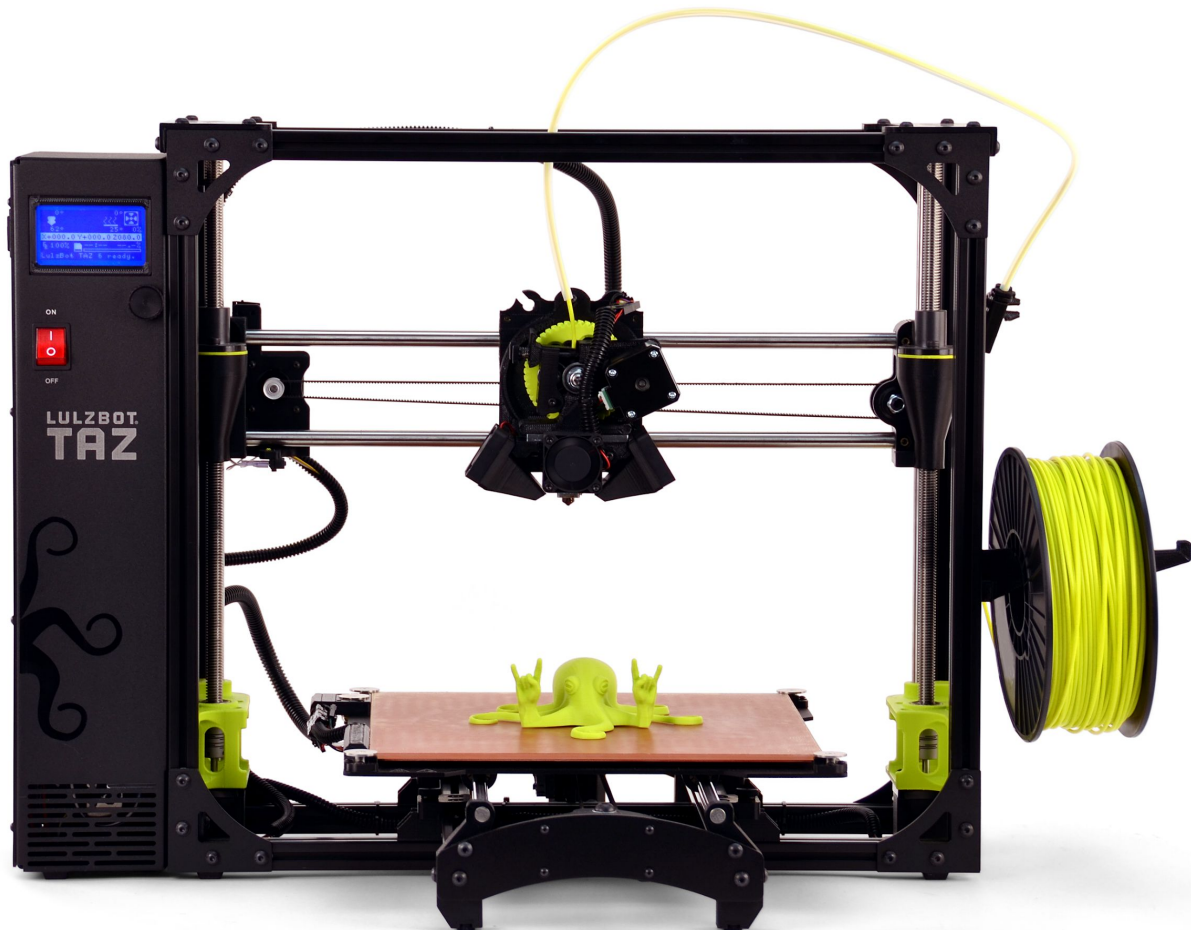


Solving the problem with rapid manufacturing

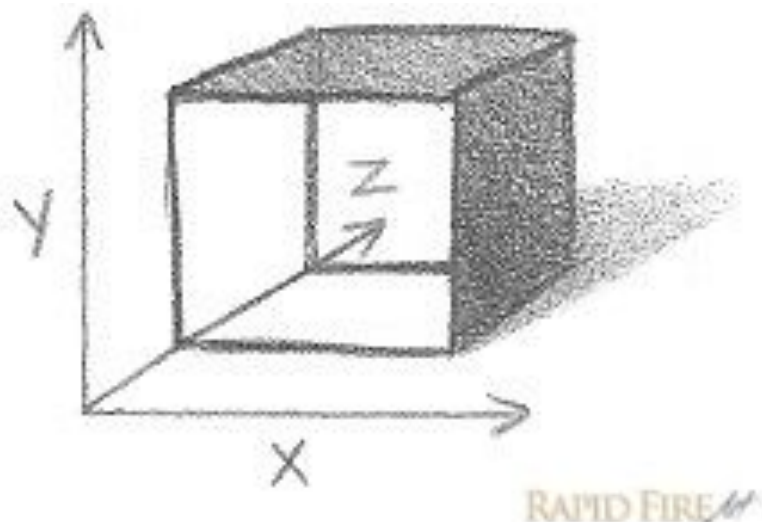
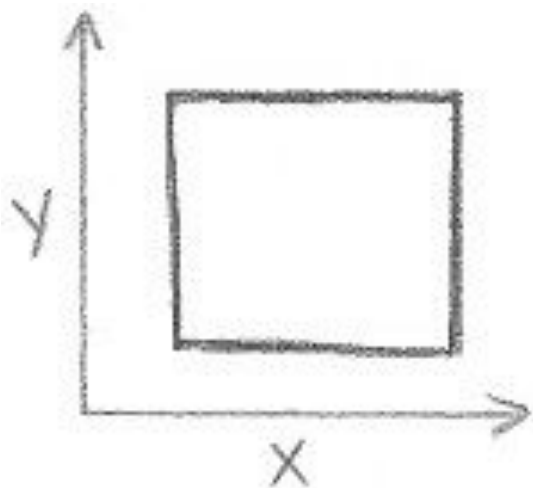


Idea → Drawing → CAD → Object

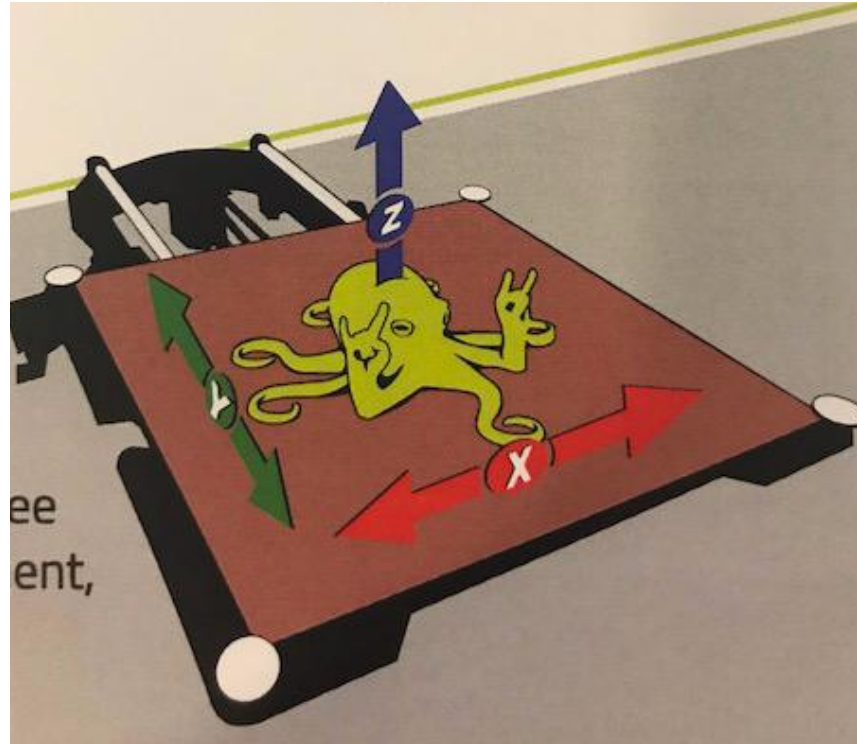




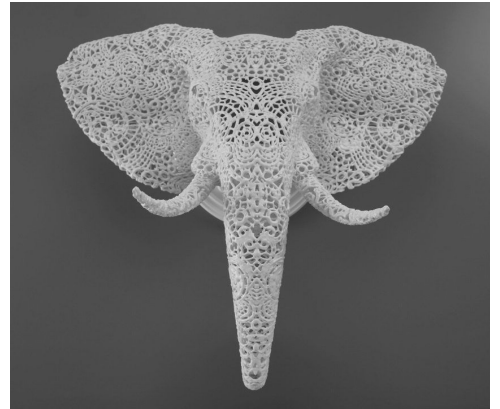
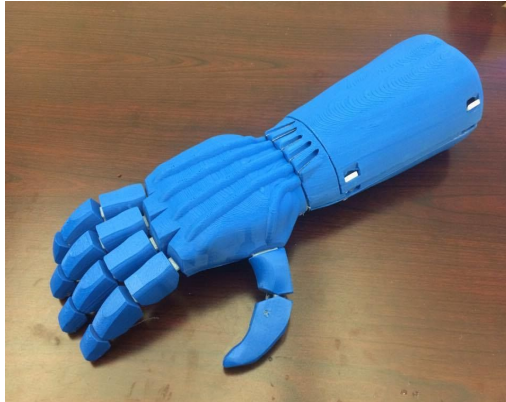
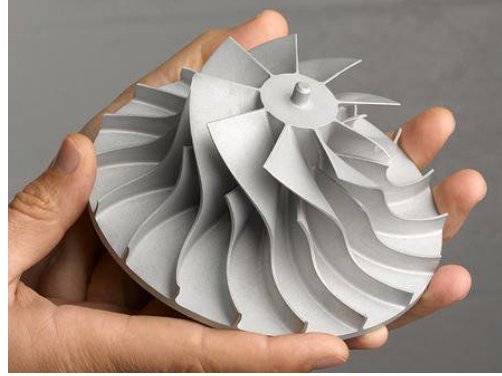
2D vs 3D

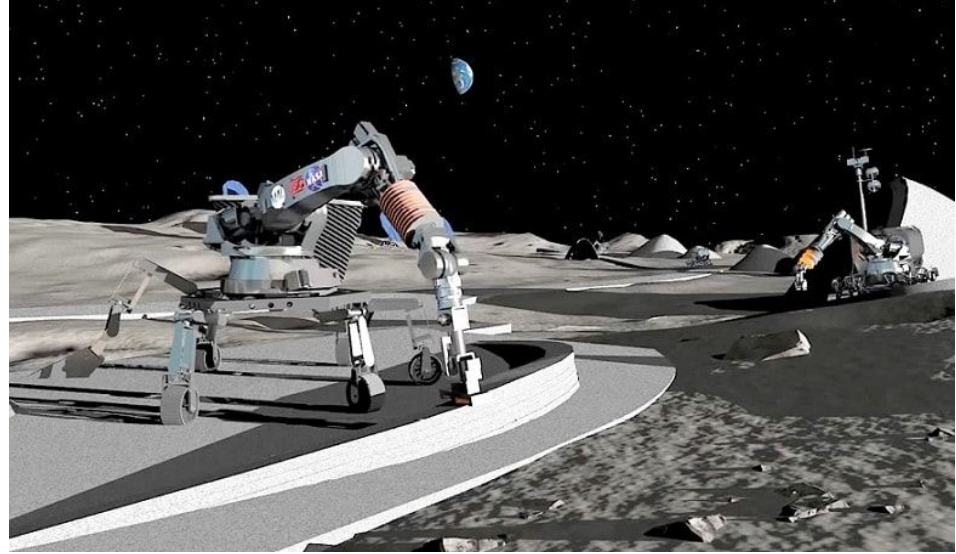
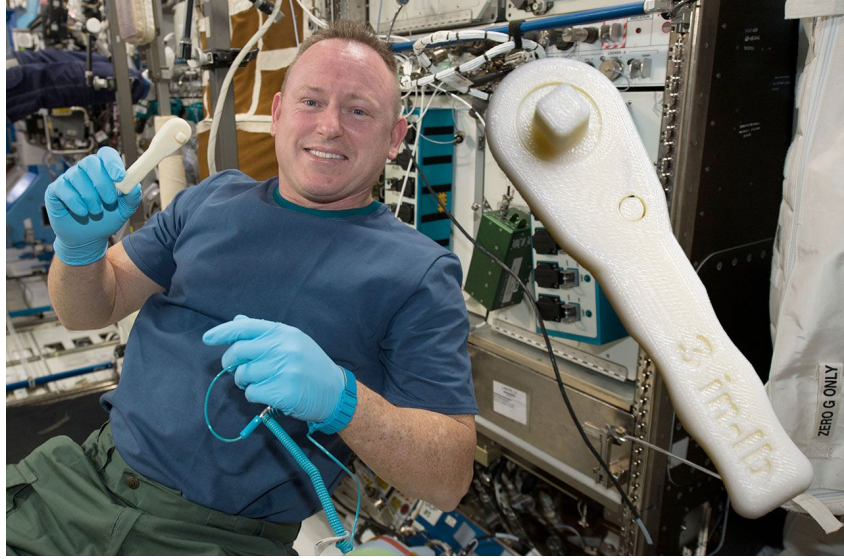


3D Workplane- X, Y, Z



What is 3D printing for?

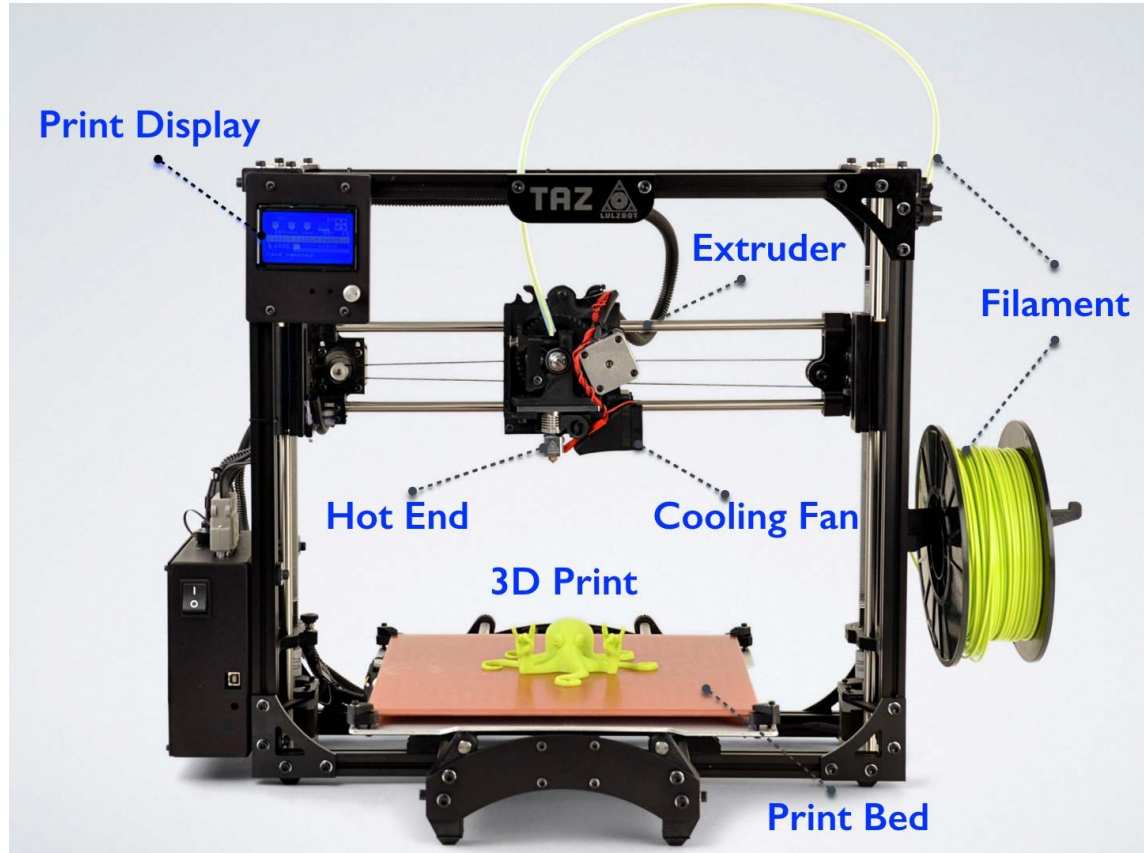




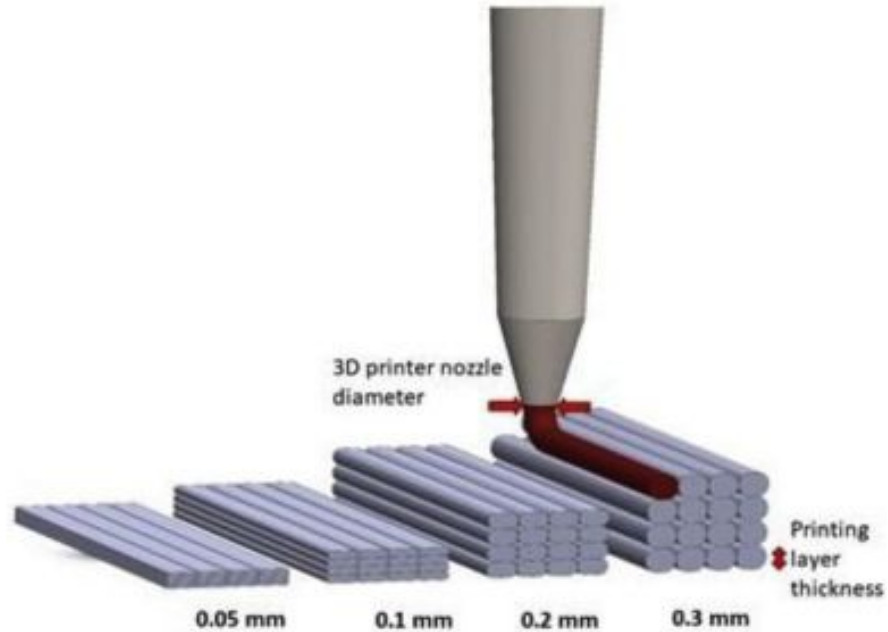
Computer Aided Design (CAD) Software



Parts of a 3D printer



Printing layer by layer



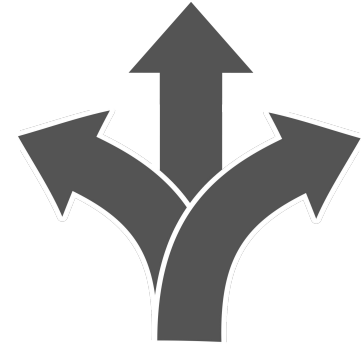
Benefits of FDM prototyping



Speed



Cost-effective



Flexible



Sustainable



Consistent



Tangible design, testable



Stable Smartphone, Tablets, iPad, iPhone X XS Max XR (4-8 inch)
★★★★☆ 271
\$9.69 ✓prime
1 used and new from \$9.69



Stable Smartphone, Tablets, iPad, iPhone X XS Max XR (4-8 inch)
★★★★☆ 230
\$9.99 ✓prime
1 used and new from \$9.99



Stable Smartphone, Tablets, iPad, iPhone X XS Max XR (4-8 inch)
★★★★☆ 23
\$14.95 ✓prime
1 used and new from \$14.95

Cell Phones & Accessories > Accessories > Mounts & Stands > Stands



VIDEO

Stable



Charge&Earphone



Landscape mode



Easy to use HOME key



Roll over image to zoom in

Stable



Landscape mode

Buy new: \$14.99

FREE Shipping on orders over \$25.00 shipped by Amazon or get **Fast, Free Shipping with Amazon Prime & FREE Returns**

Want it Wednesday, Nov. 13?
Order within **6 hrs 28 mins** and choose **Two-Day Shipping** at checkout. [Details](#)

Only 14 left in stock - order soon.

Qty: 1

Add to Cart

Buy Now

Sold by ROTTO US and Fulfilled by Amazon.

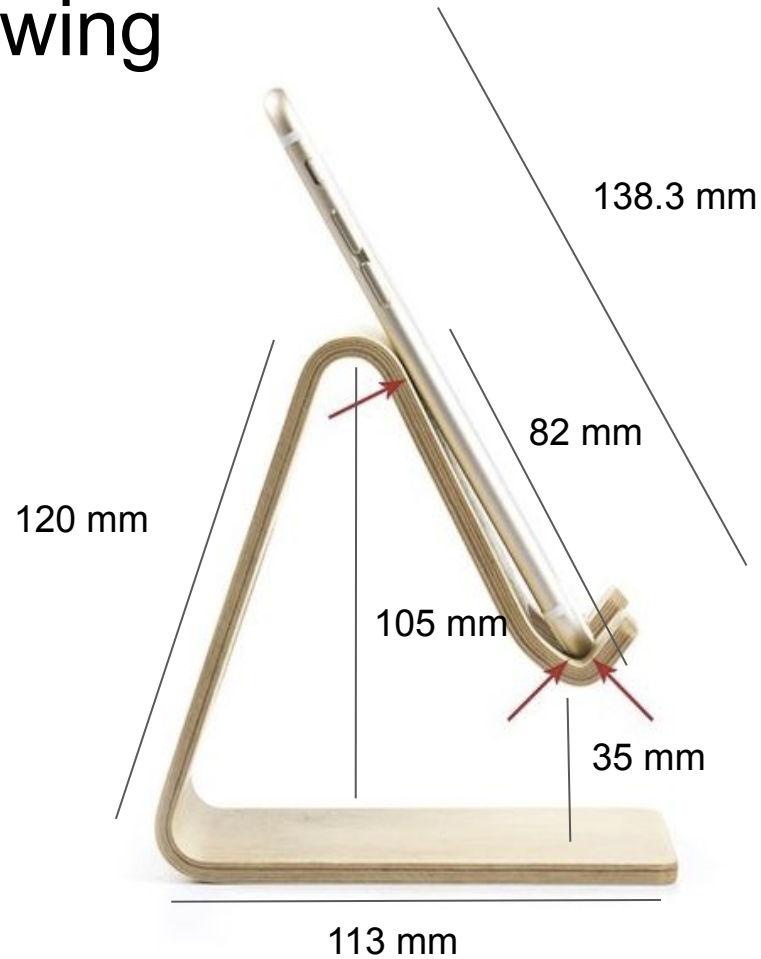
Add gift options

Deliver to Baltimore 21250

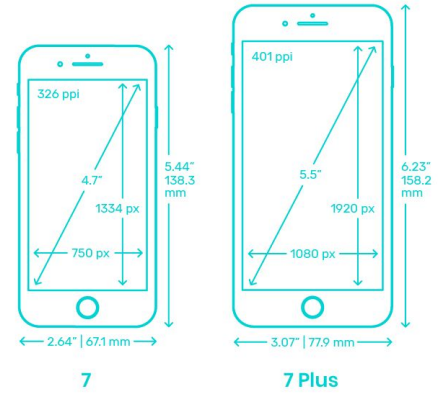
Buy used: \$11.99

Add to List

Drawing

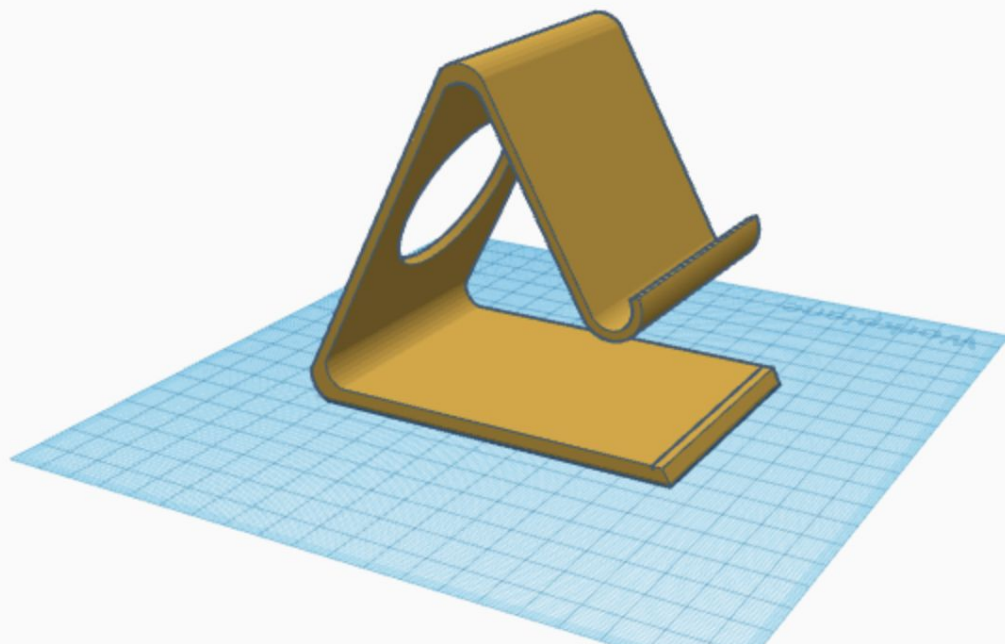


Dimensions.Guide Apple iPhone - 7 | 7 Plus





AUTODESK[®]
TINKERCAD[™]



Working in TinkerCad

Make an account

3 Button Mouse

Navigate

Resize

Flipping

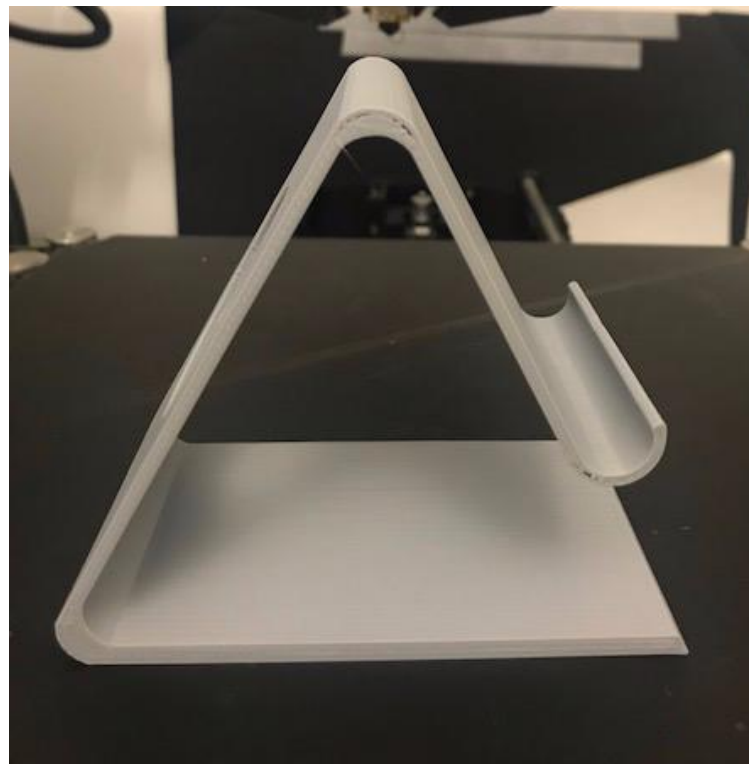
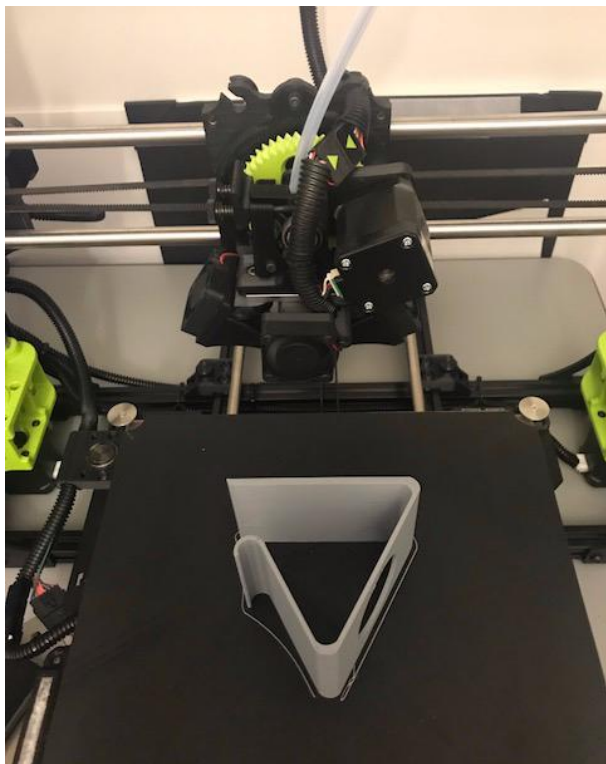
Subtracting

Deboss , Emboss

Calipers



Object



by [fucich13](#) February 11, 2020

Edit Thing



Download All Files

+ Collect Thing

Like →

 Comment

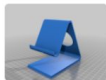
Post a Make →

 Watch

 Remix it 

 Copy Link Tip Designer

About Thingiverse® · Legal ·
Privacy Policy · Contact Us · Developers
© 2020 MakerBot Industries, LLC



Homework...

But opportunity...

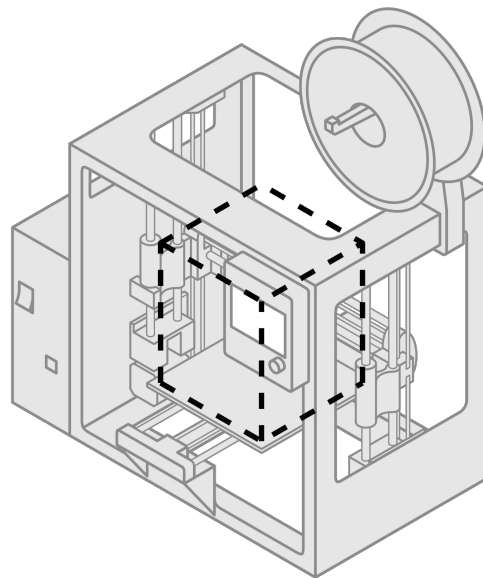
Build your own “[thing](#)”

For inspiration go to: [thingiverse.com](https://www.thingiverse.com)

Limitations: 150mm x 150 mm x 160 mm

You could even “remix” an existing design
(cc license permitting)

Print Area
160mm x 160mm x 180mm
(6.30" x 6.30" x 7.09")
Build Volume
4608cm³ (281.4"³)



experimental....

Log in to **BUGGS 2020** with:

3LXM UTKY Z3P6

Copy code

Copy [link](#)

Student instructions

Have a class link?

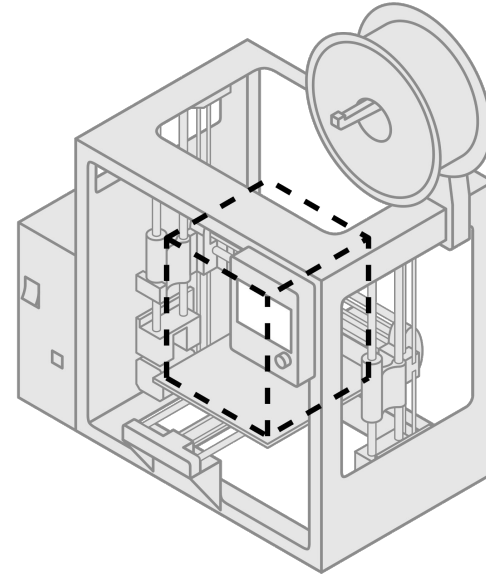
1. Go to your class at <https://www.tinkercad.com/joinclass/3LXMUTKYZ3P6>.
2. Enter the **Nickname** your teacher assigned you.

Have a class code?

1. Go to <https://www.tinkercad.com/joinclass>
2. Enter your class code: **3LXMUTKYZ3P6**

Start Designing!

Print Area
160mm x 160mm x 180mm
(6.30" x 6.30" x 7.09")
Build Volume
4608cm³ (281.4"³)



Color Options

PLA

Black

White

Dark Grey

ABS

Green

Blue

Red

Yellow

