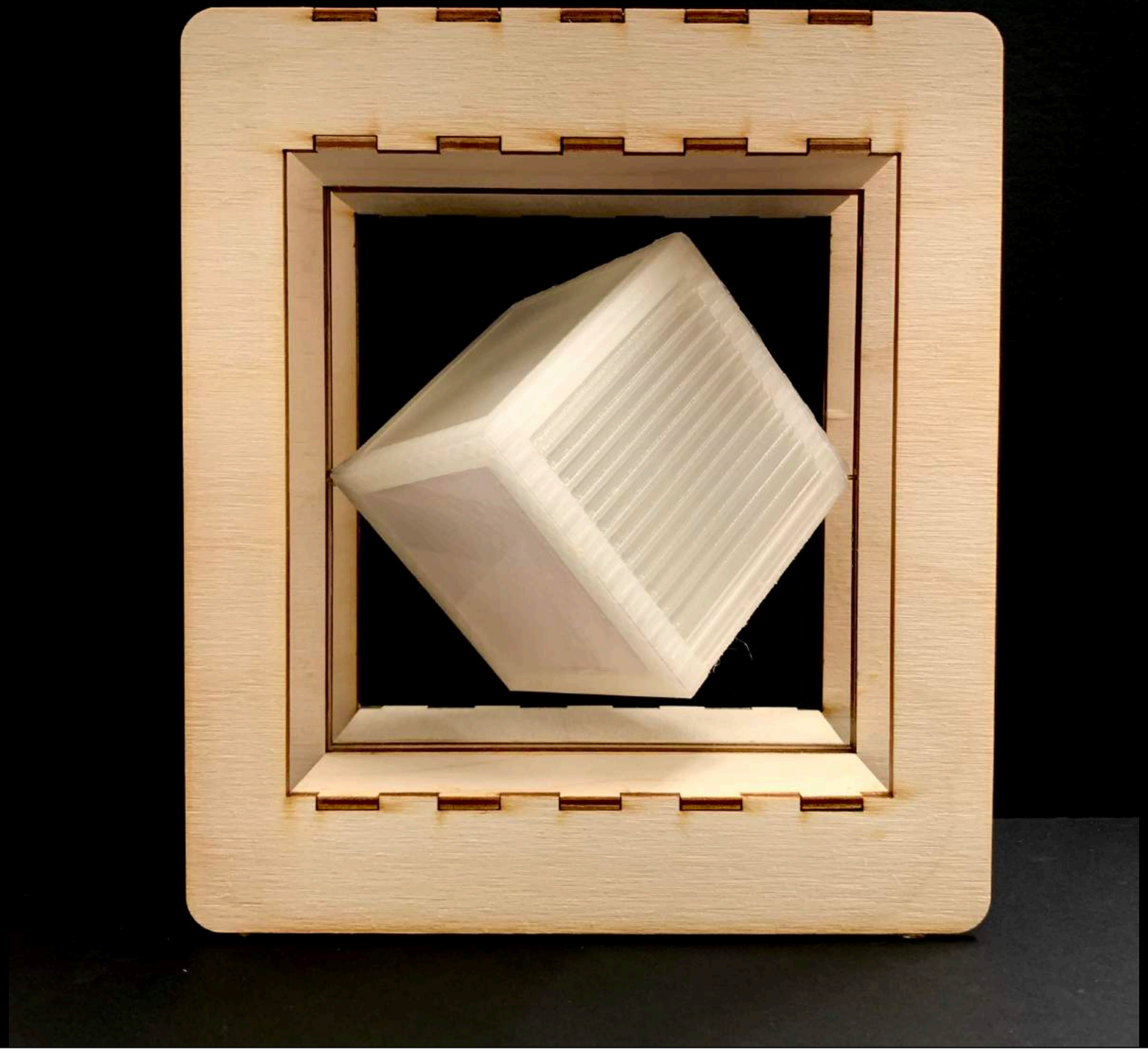


Illum

Julie Xu

Project Brief

Lamp — to make something that embodies light. There is not much constraint.

Research

After making a timeline of the development of lamps, I wanted to make a vintage lamp that is similar to the ones from De Stijl or Art Nouveau period.

LAMPS

Oil lamps: flame, control the flow of air and fuels

4500 BC oil lamps

125000 BC early humans were able to control fire

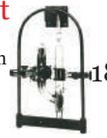
TECHNOLOGY

1780 Aimé Argand, central draught fixed oil lamp (Argand lamp)

3000 BC candles

1792 William Murdoch gas light

Fluorescent light (Arc Lamps): electrical current will flow through an "arc" of vaporizing carbon creating an intense white light.



1867 A. E. Becquerel fluorescent lamp

1878 incandescent light bulb, Joseph Swan and Thomas Edison

1901 Peter Cooper Hewitt mercury-vapor lamp

1903 Frank Lloyd Wright table lamps for the Susan Lawrence Dana House (Modernism)

1900-06 Lamp, Osiris series by Friedrich Adler ((Art Nouveau)

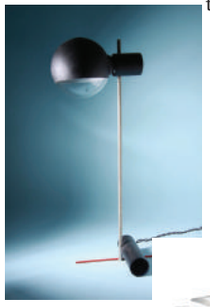
ART MOVEMENTS

1924 ME1 model lamp Wilhelm Wagenfeld (Bauhaus)

FORM & FUNCTION

1910 Georges Claude neon lighting

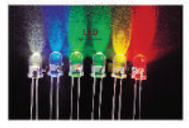
Halogen Lights: an improved type of incandescent lamp, the heated filament then radiates light

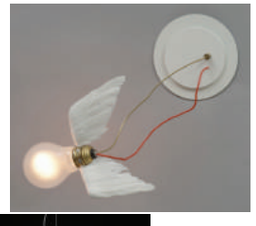


1925 Table lamp, Gerrit Rietveld (De Stijl)

LED (Light-emitting diode): the P-N junction emits light when electrical energy is applied to it (electroluminescence)

1927 Oleg Losev LED (light-emitting diode)





1992, Lucellino Wall Lamp, Ingo Maurer

1958 Poul Henningsen, PH Artichoke

2003 The Castore LED lamp, Michele De Lucchi

1962 ARCO Lamp, Pier Giacomo Castiglioni

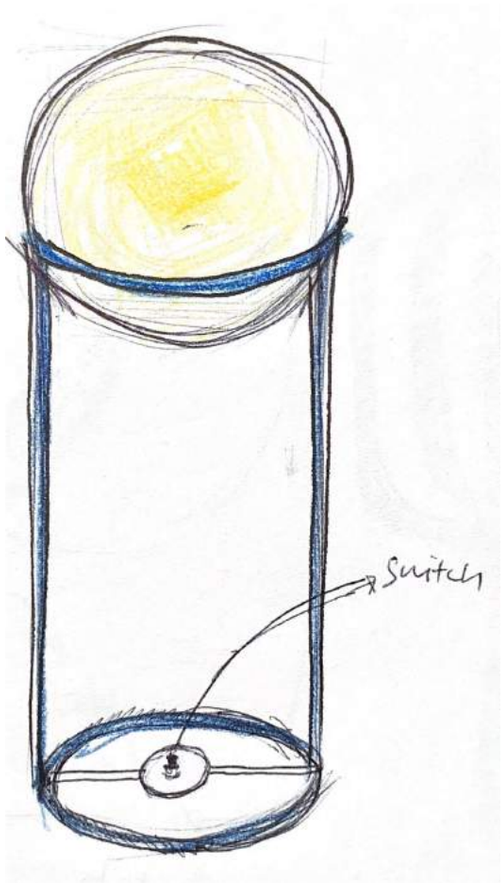
ENERGY & CONTROL

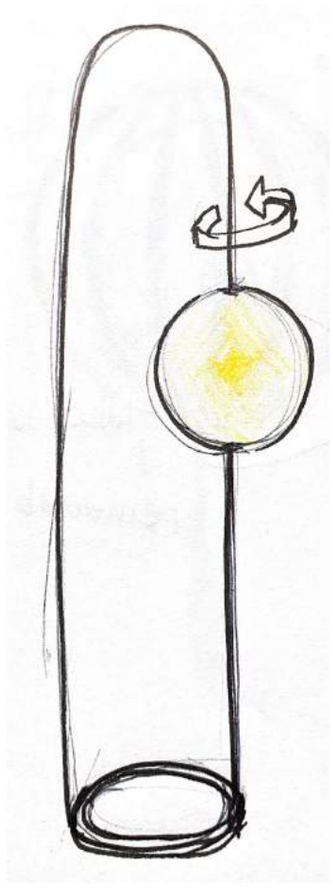
2011 IKEA, SUNNAN LED table lamp, solar-powered

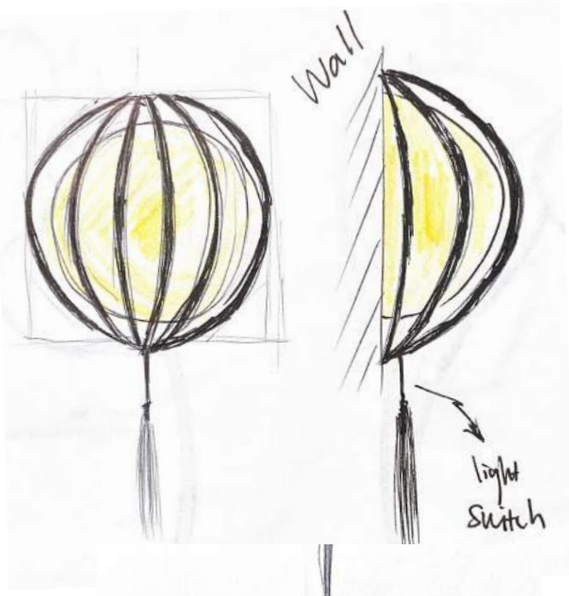
REFERENCES
HTTPS://EN.WIKIPEDIA.ORG/WIKI/TIMELINE_OF_LIGHTING_TECHNOLOGY
HTTPS://WWW.POOKY.COM/INSPIRATION/LIGHT-AND-SHADE/THE-HISTORY-OF-DESIGN-IN-TABLE-LAMPS-1-THOMAS-EDISON-TO-ART-NOUVEAU
HTTPS://WWW.POOKY.COM/INSPIRATION/LIGHT-AND-SHADE/THE-HISTORY-OF-DESIGN-IN-TABLE-LAMPS-2-THE-BIRTH-OF-MODERNISM
HTTPS://WWW.THOUGHTCO.COM/HISTORY-OF-LIGHTING-AND-LAMPS-1992089
HTTPS://WWW.FESTIVE-LIGHTS.COM/BLOG/INTERIORS/WHEN-WERE-SOLAR-POWERED-LIGHTS-INVENTED/

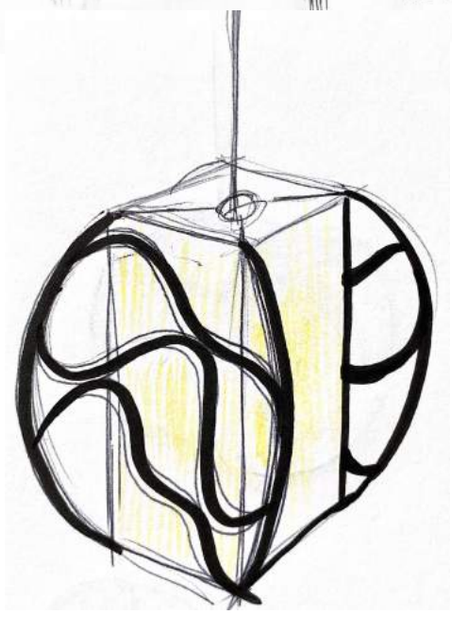
Sketches

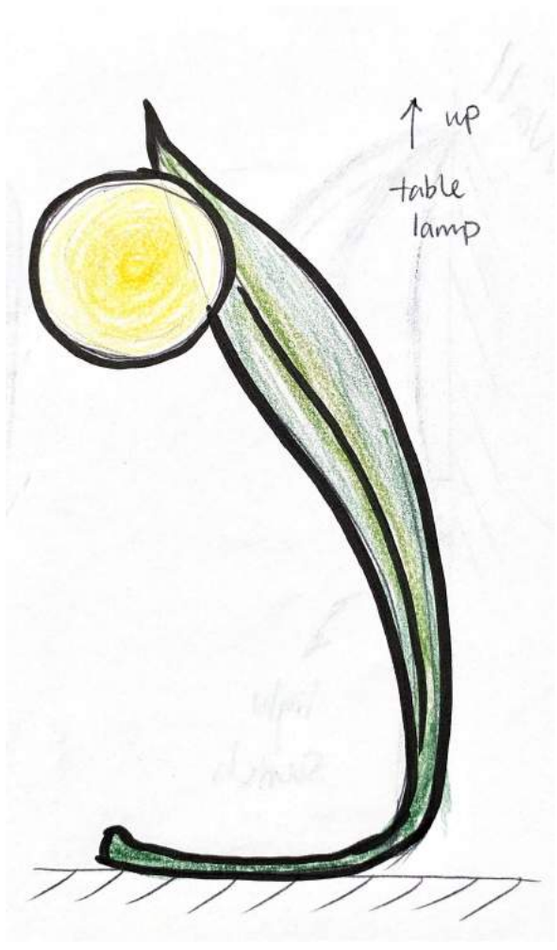
After many sketches, I did not feel committed to any of them.





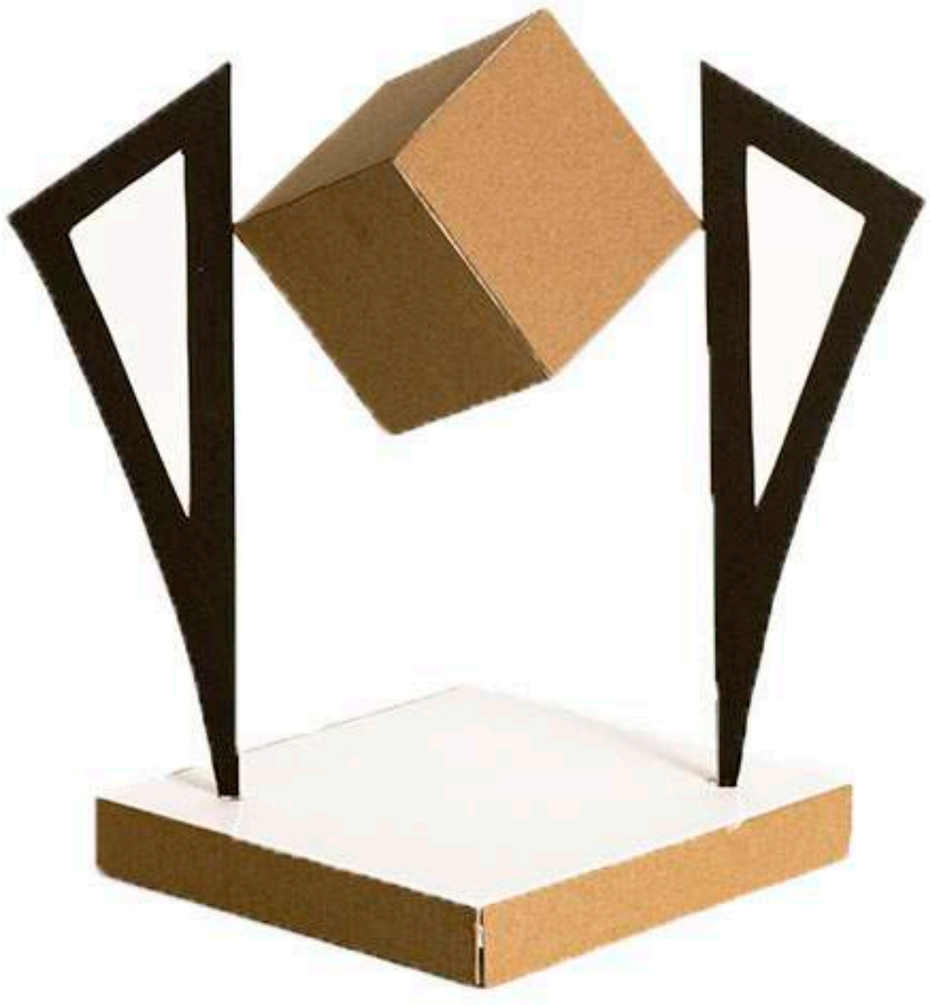


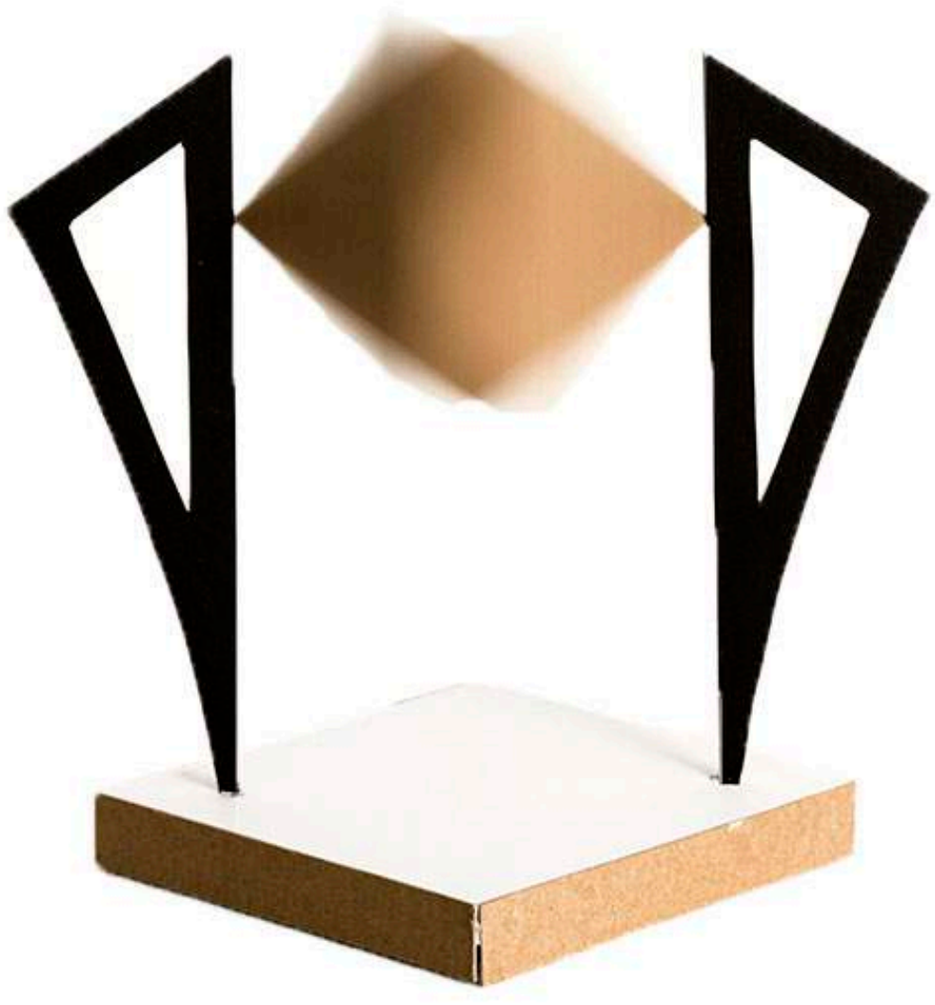




Old Idea

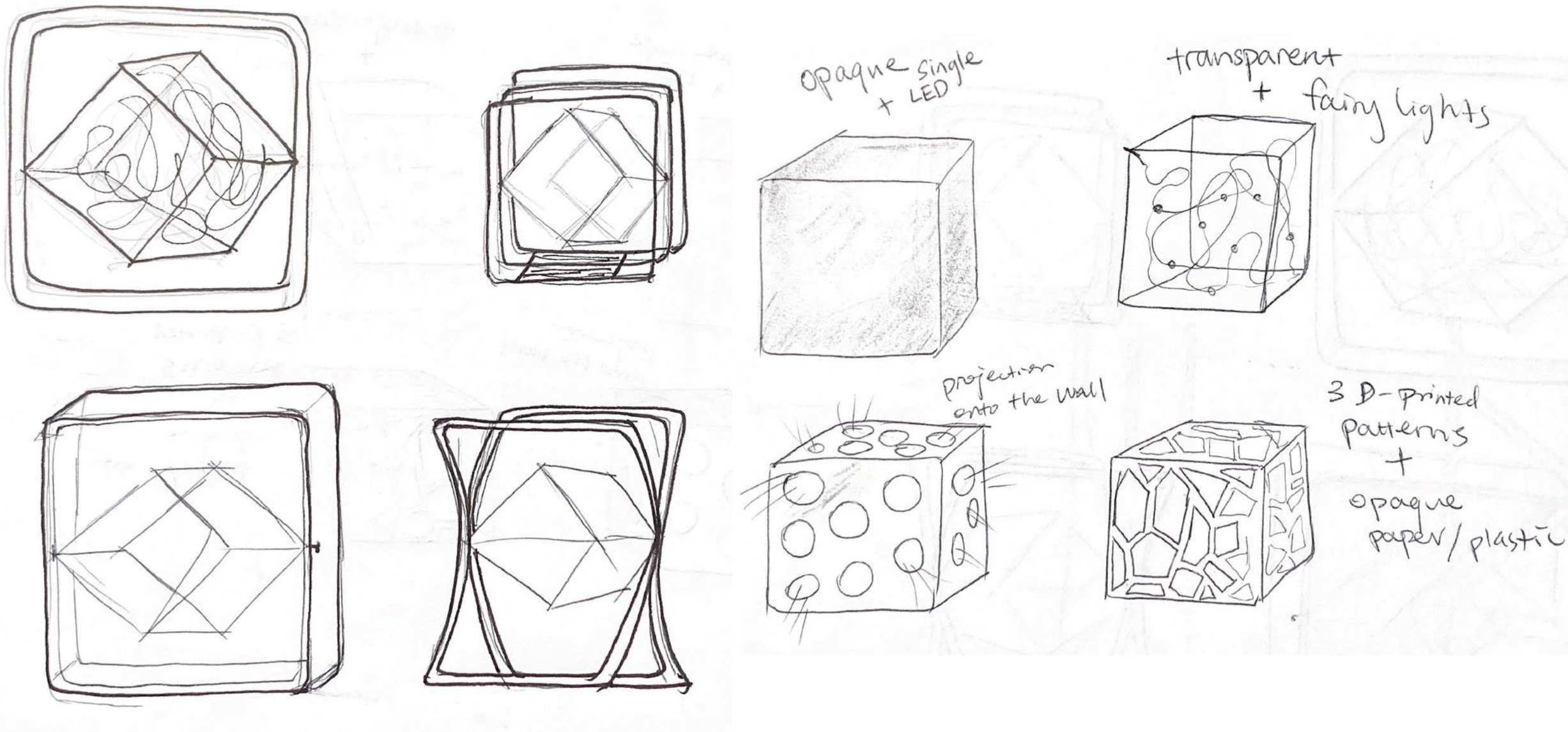
I turned my attention to a project that I did for another design class, thinking that more can be explored with the same concept.





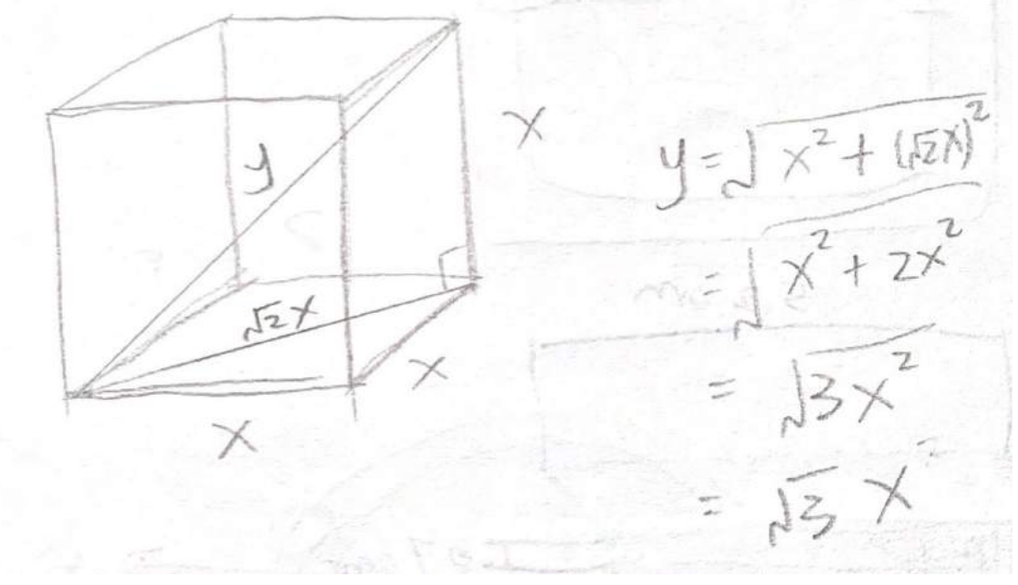
Sketches

It will be a bedside lamp with a spin-able cube. I want to create an illusion of a cube floating in midair, and I want users to wonder how it is made when they see it for the first time.

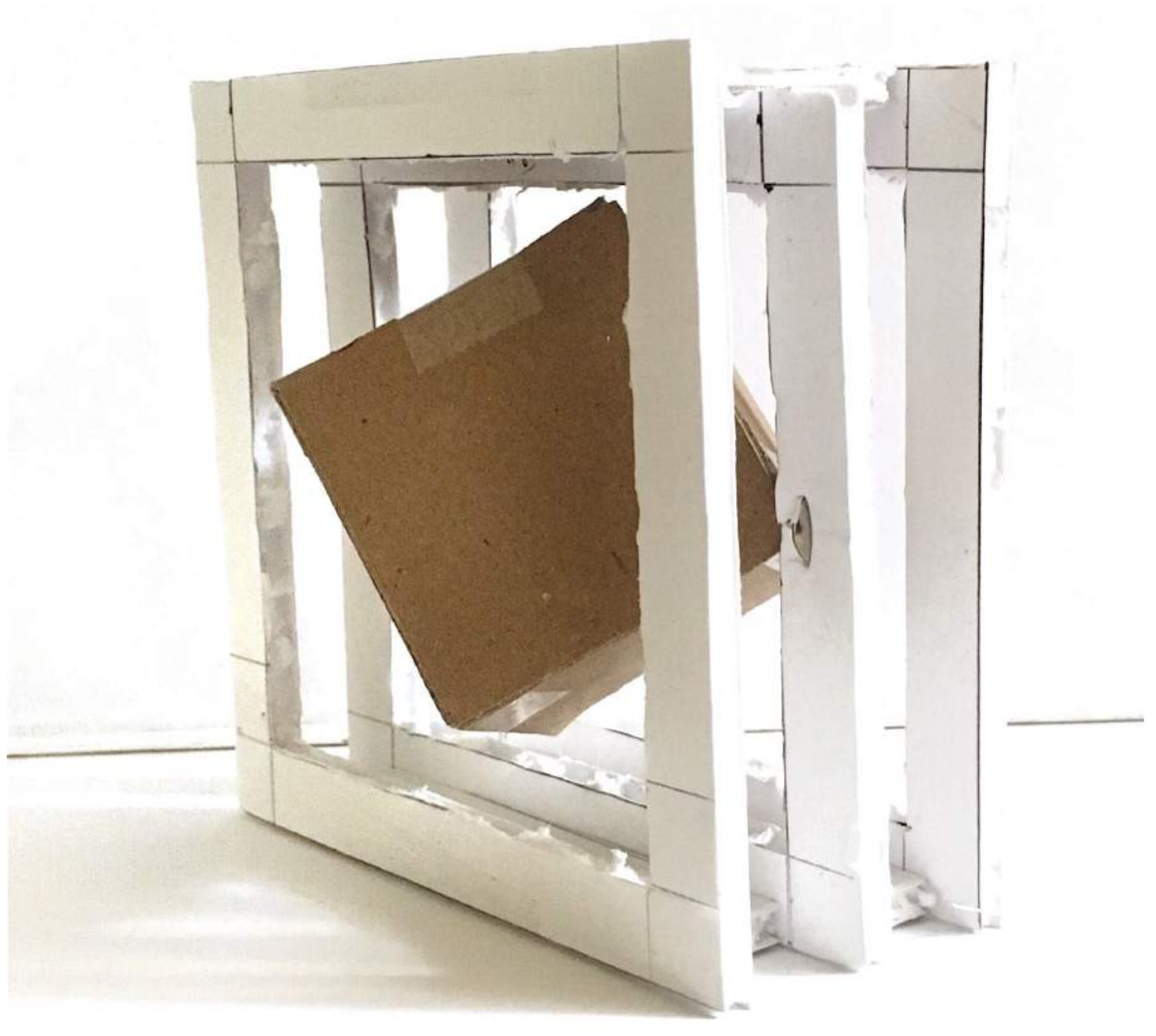


Calculations & Prototype

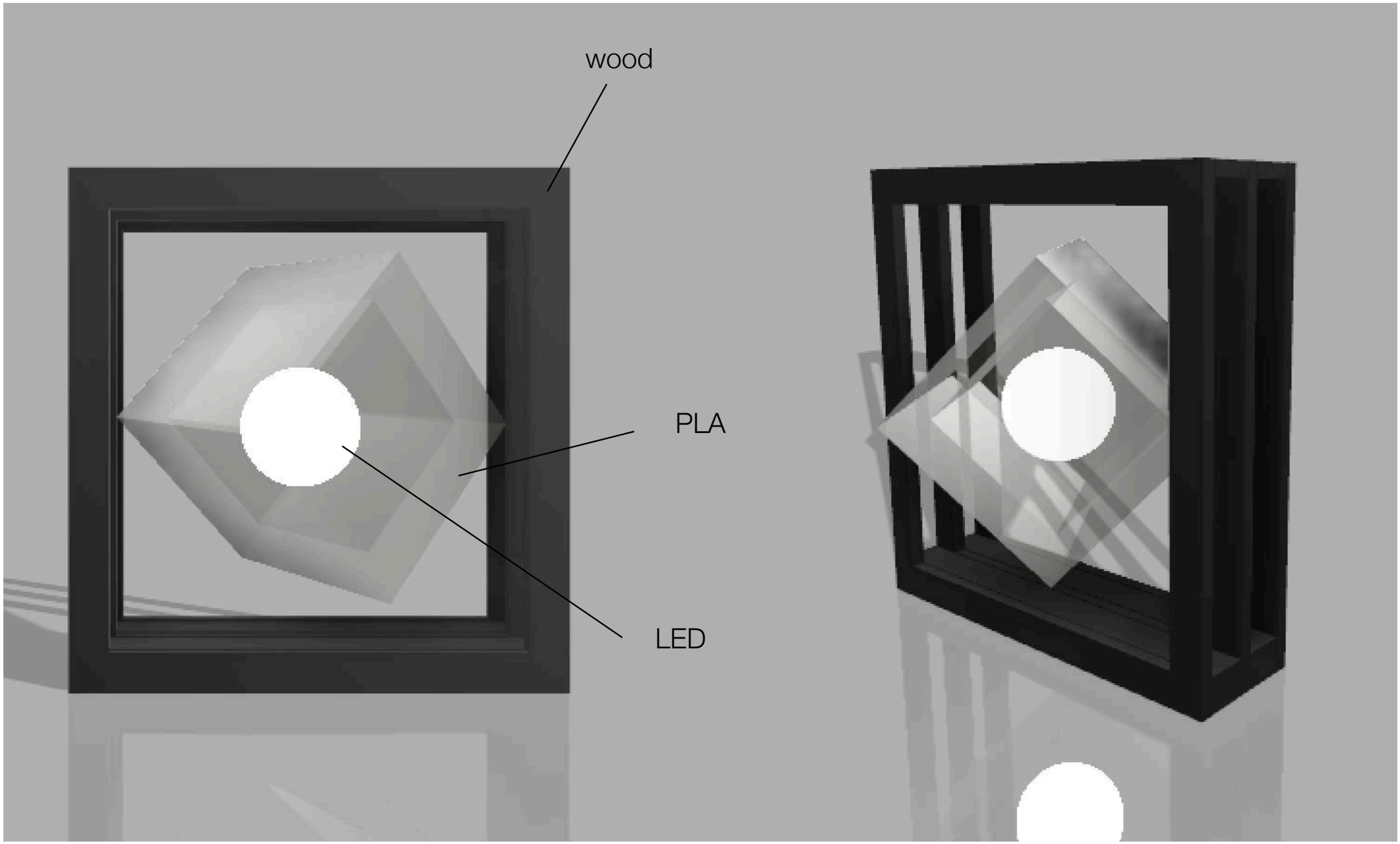
The length of space diagonal in relation to the length of a side



Rough prototype made from foam core, card-stock and pins.



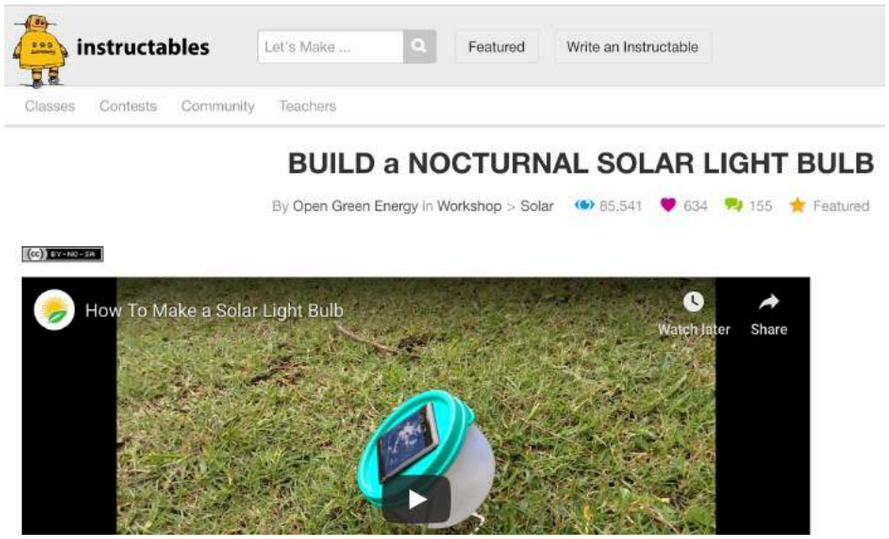
3D Render in Fusion 360



Solar Power

I also researched how to implement a solar panel and a battery inside so that the lamp can be freed from cables. Realizing that buying individual components takes too long, I decided to buy pre-made solar-powered light and take it apart.

https://www.instructables.com/id/BUILD-A-NOCTURNAL-SOLAR-LIGHT-BULB/



PARTS :

1.Solar Panel (2V,40mA or 2V 150mA or 2V,300mA)

2. 0.5W Straw Hat White LED (eBay)

3. Rechargeable AA / AAA battery (amazon)

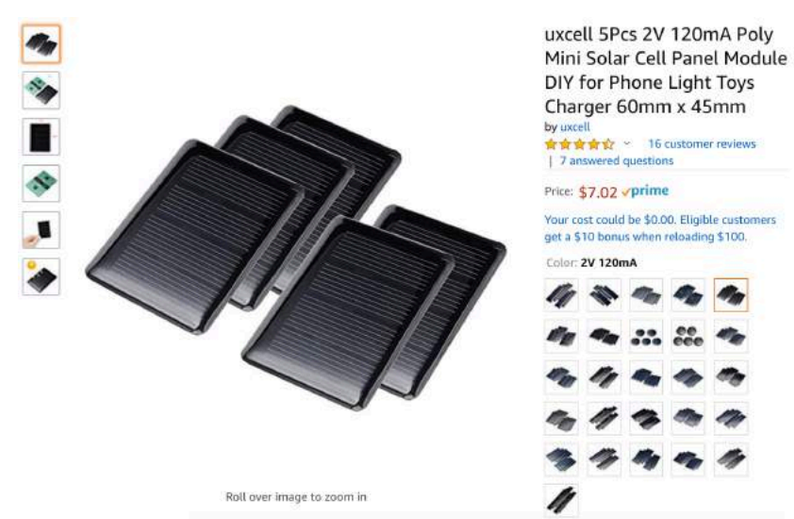
4. IC QX5252F (eBay)

5. 33uH Inductor (eBay)

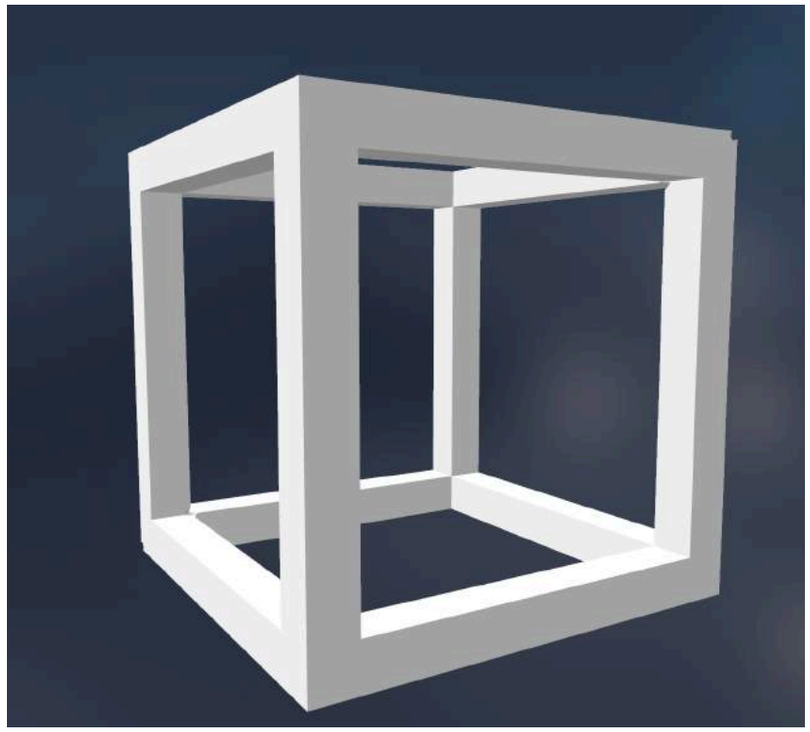
6. Switch (eBay)

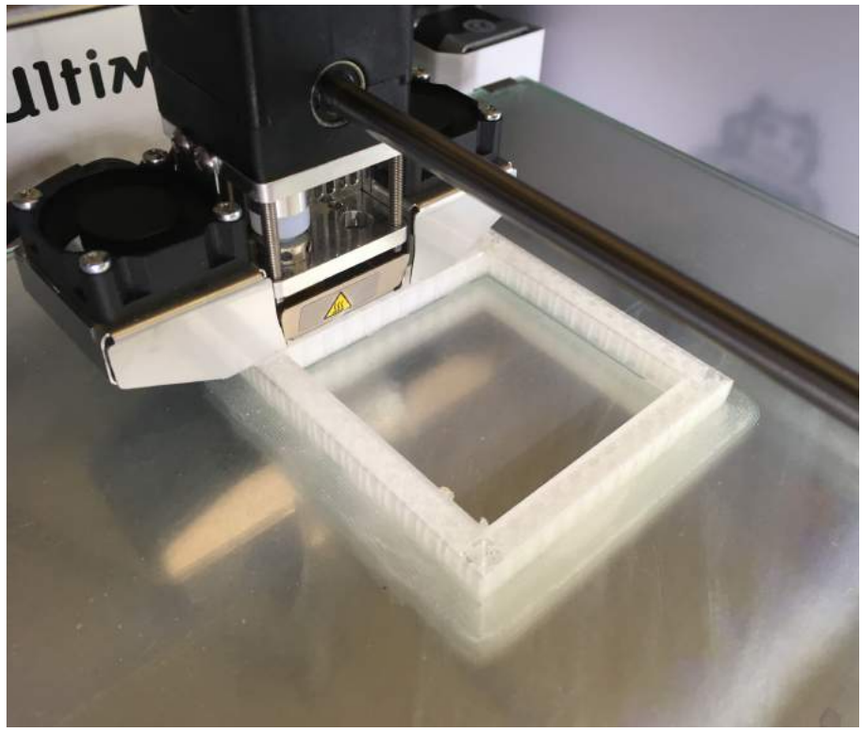
8. AA / AAA Battery Holder (eBay)

9.Wires

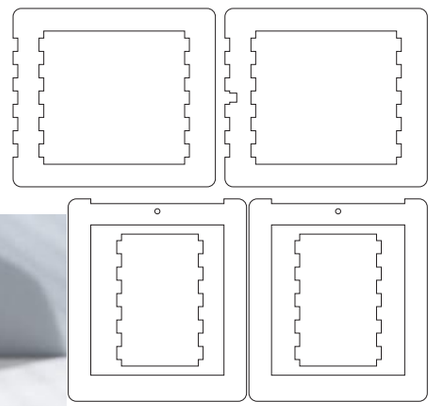


The Making

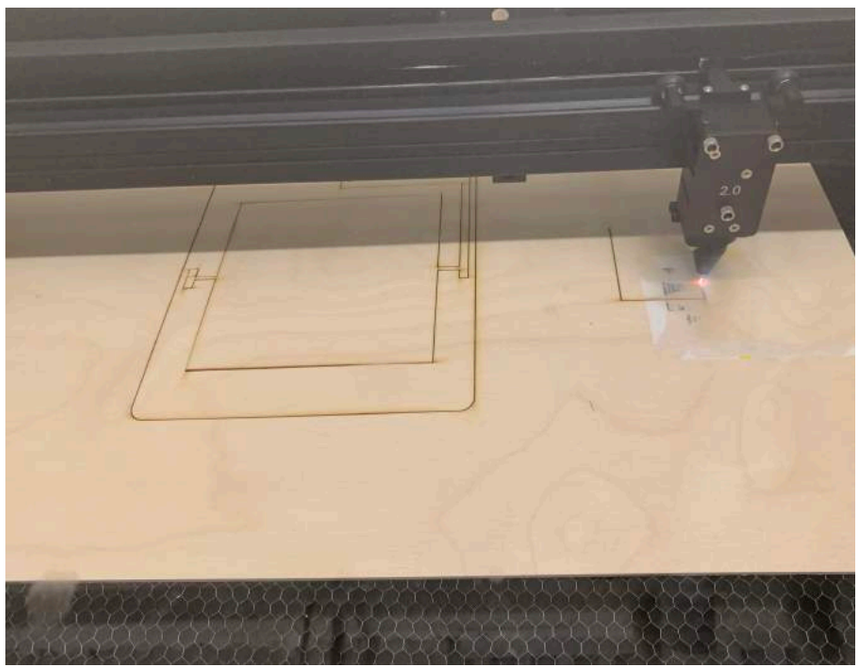




3D print the cube

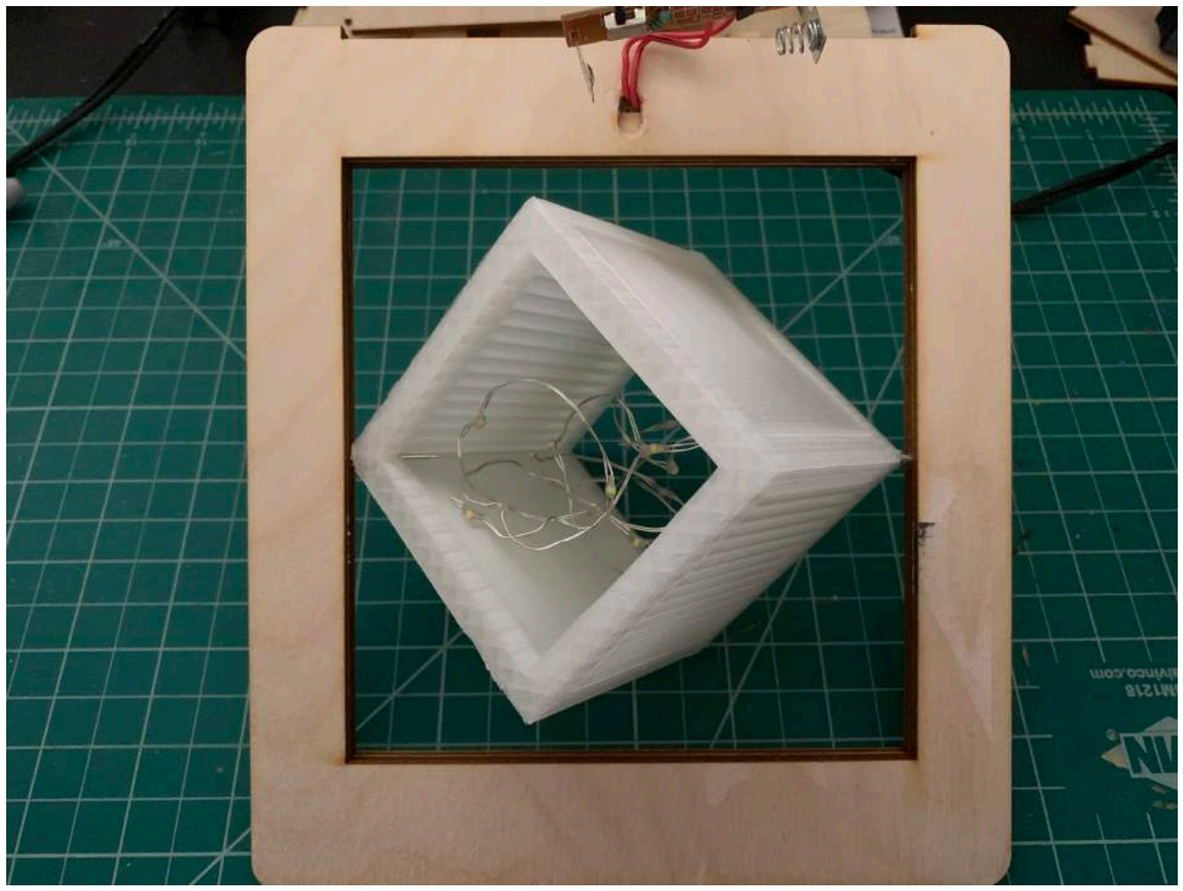


Finger joints

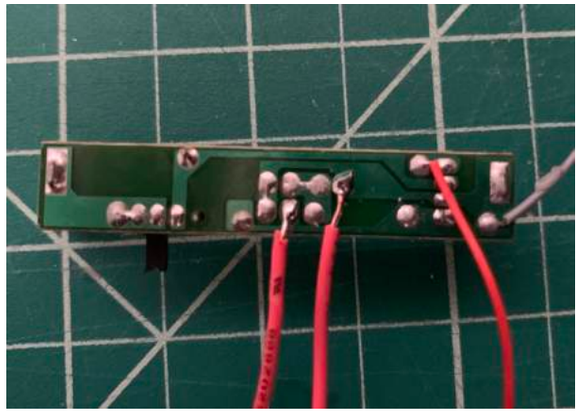


Laser cut the body

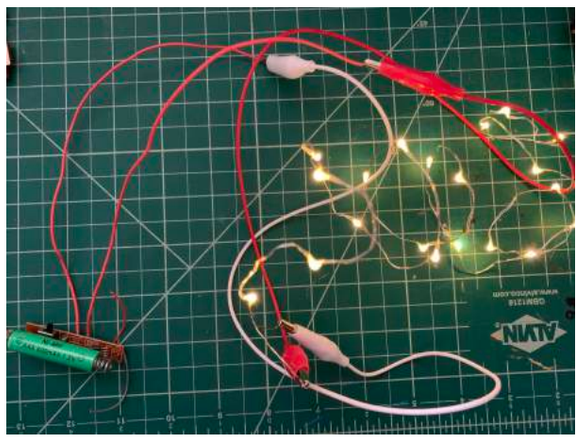
The Making



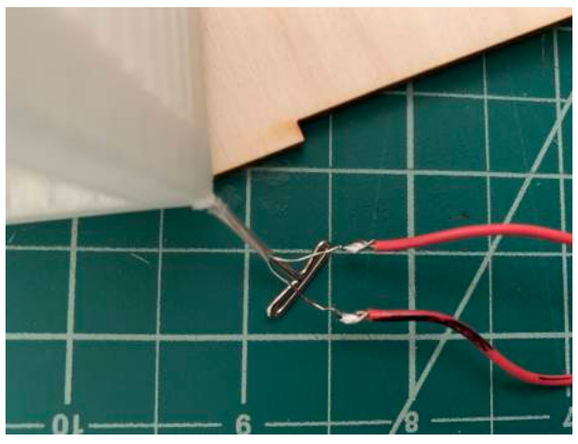
The middle frame is layered to hide the wires.

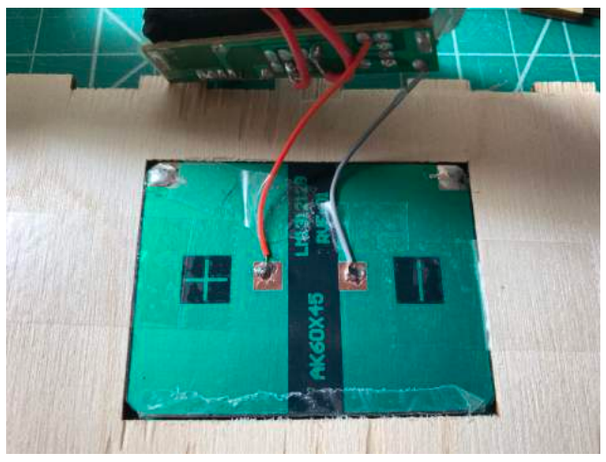


Soldering wires to the battery holder



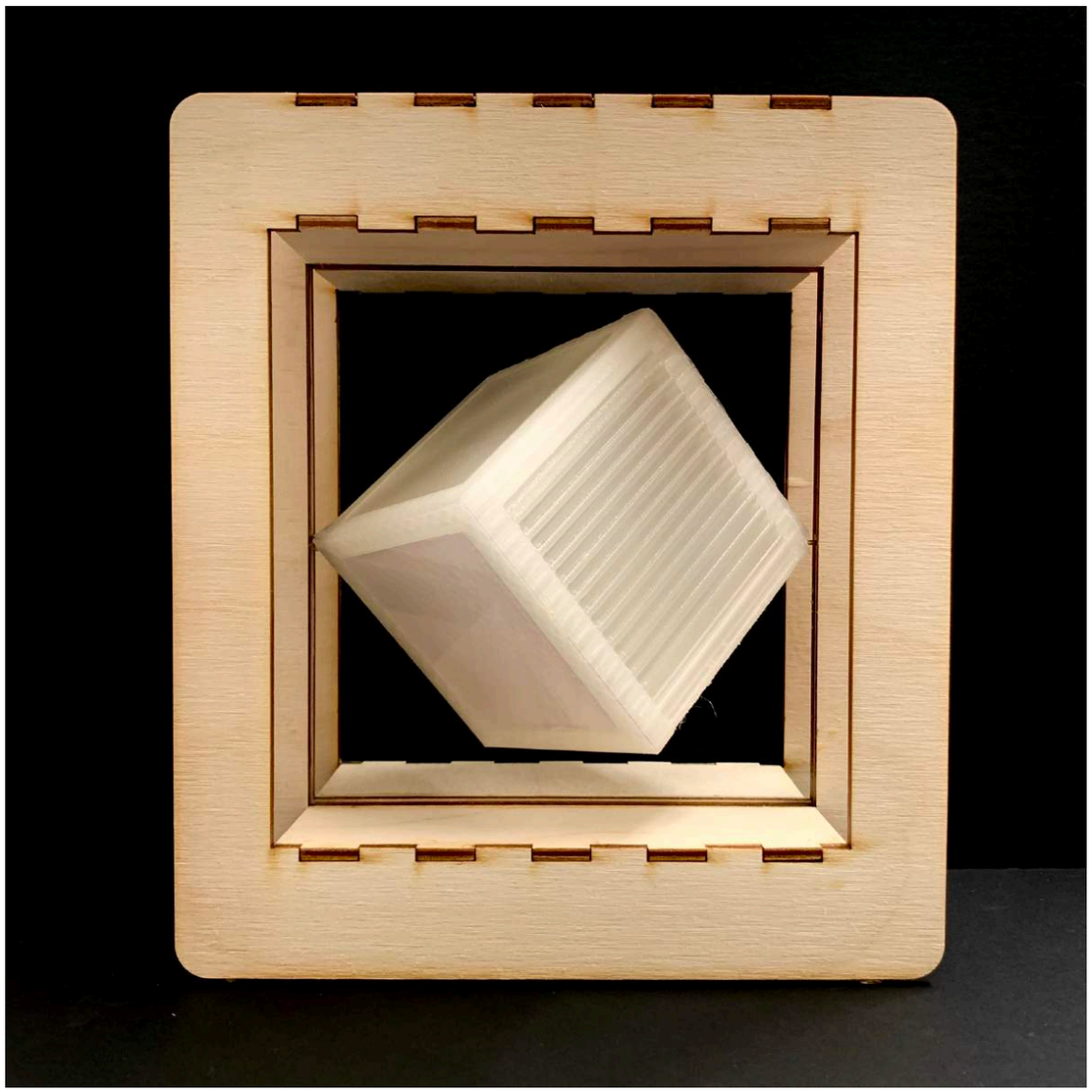
Testing out circuit with alligator clips

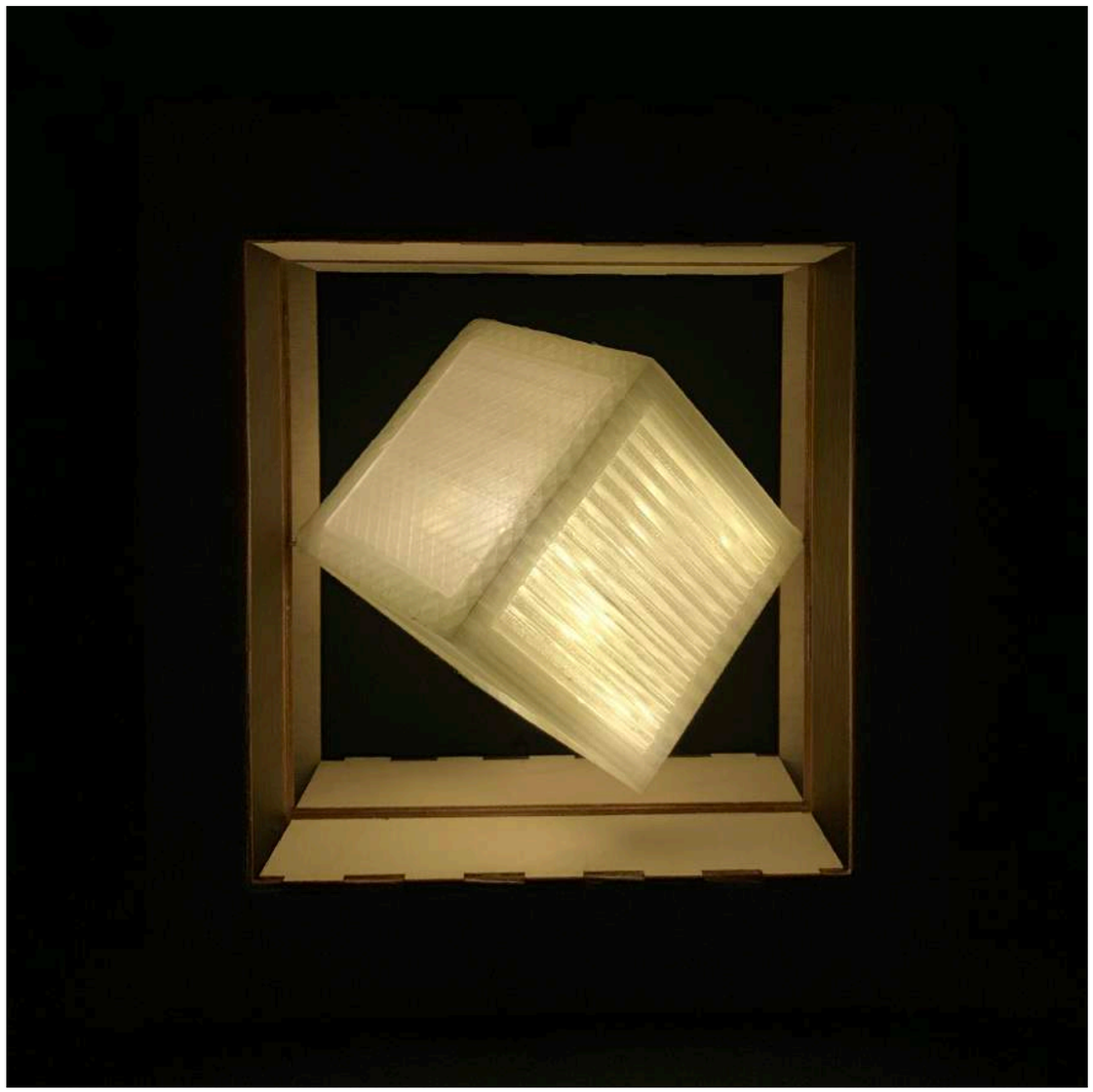




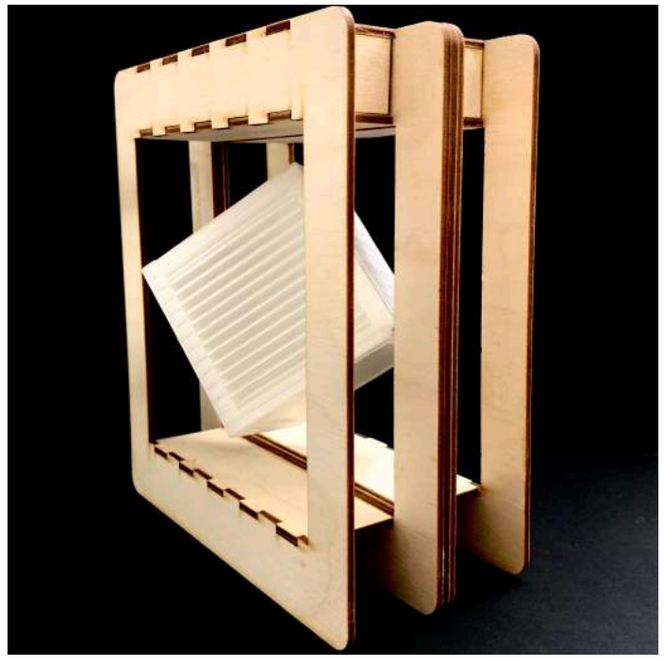
Soldering wires to the solar panel

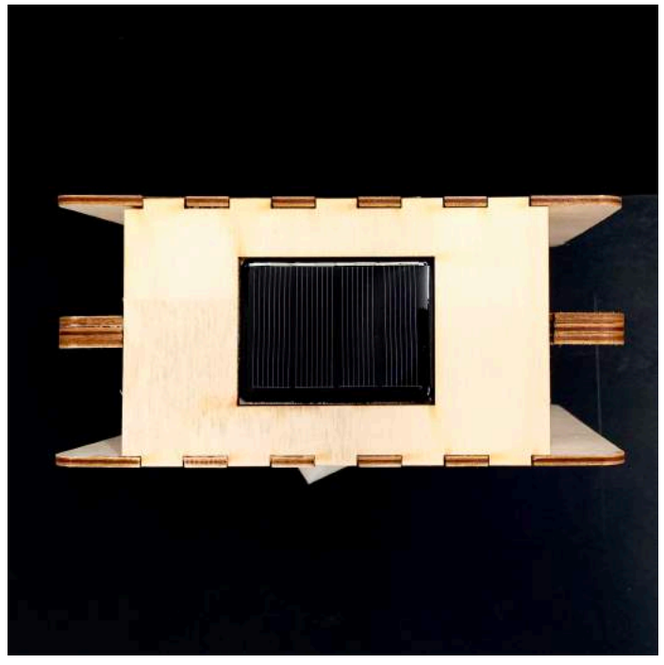
Final Model





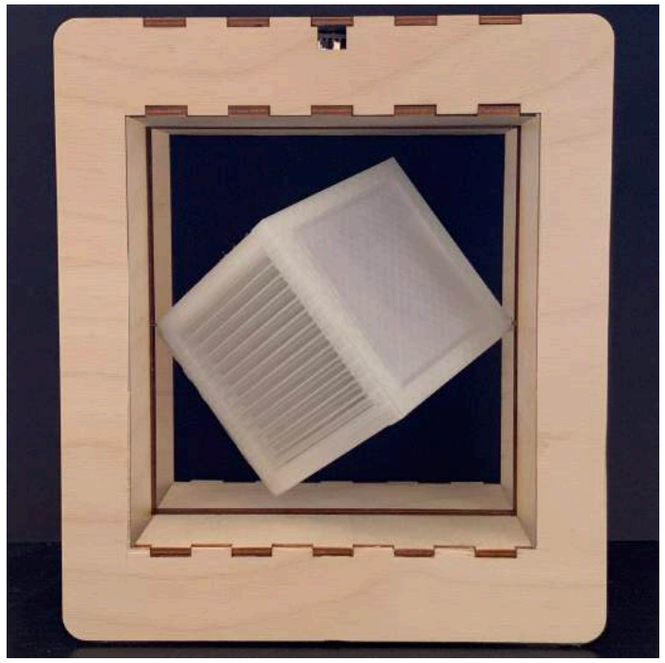
Final Model

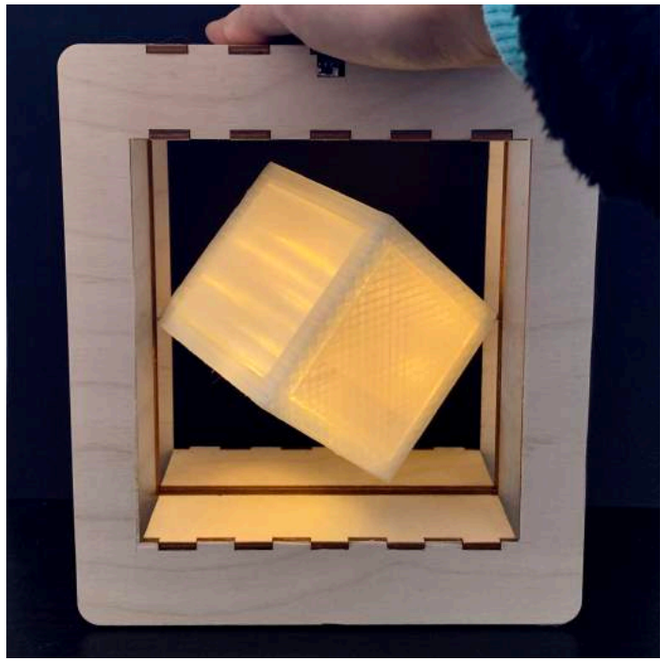




Interactions

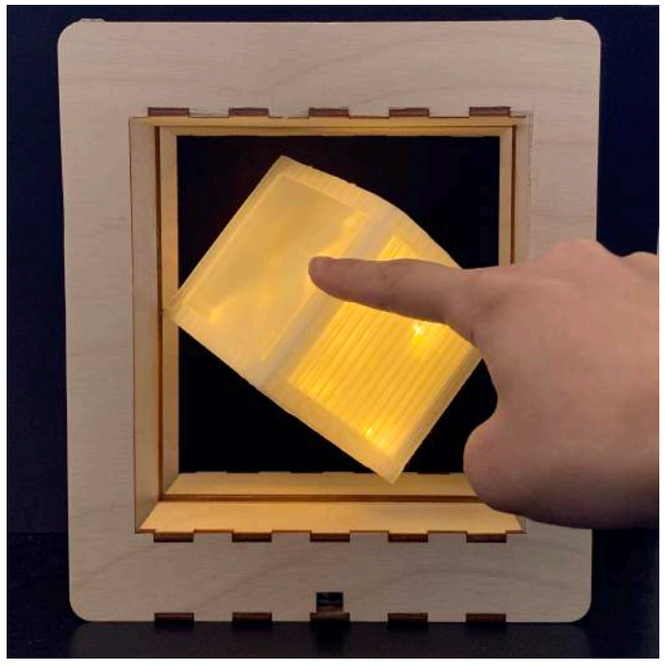
1. Original position: light does not turn on until the environment gets dark

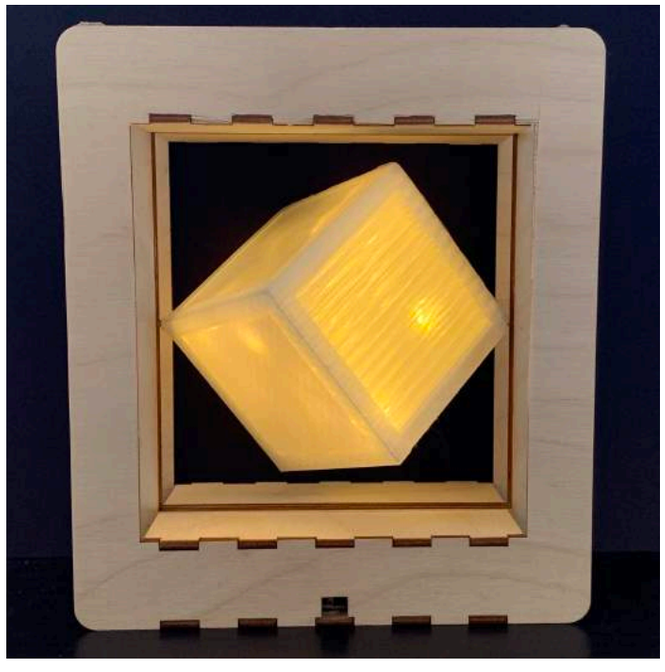




2. Hover over the solar panel to turn on the light

4. Spin the cube





3. Turn it upside down to leave the light on