CHLORO

1.1 Contact Information

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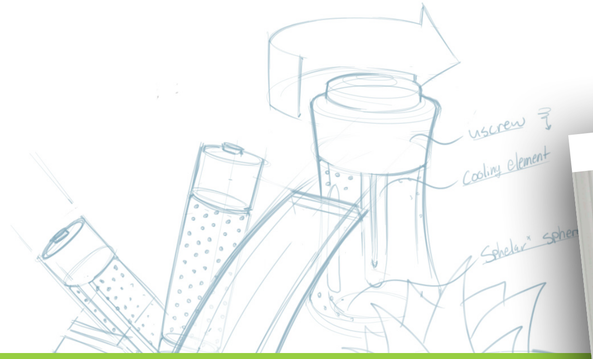
1.2 Submitting Category

Student

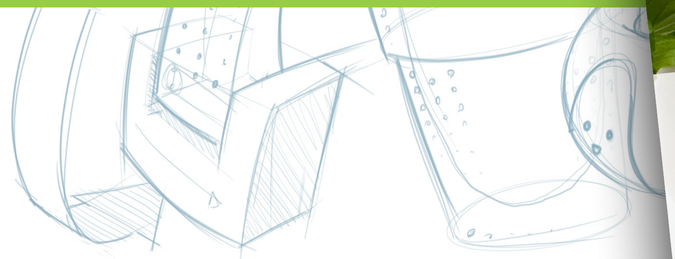


2.1 Product Description

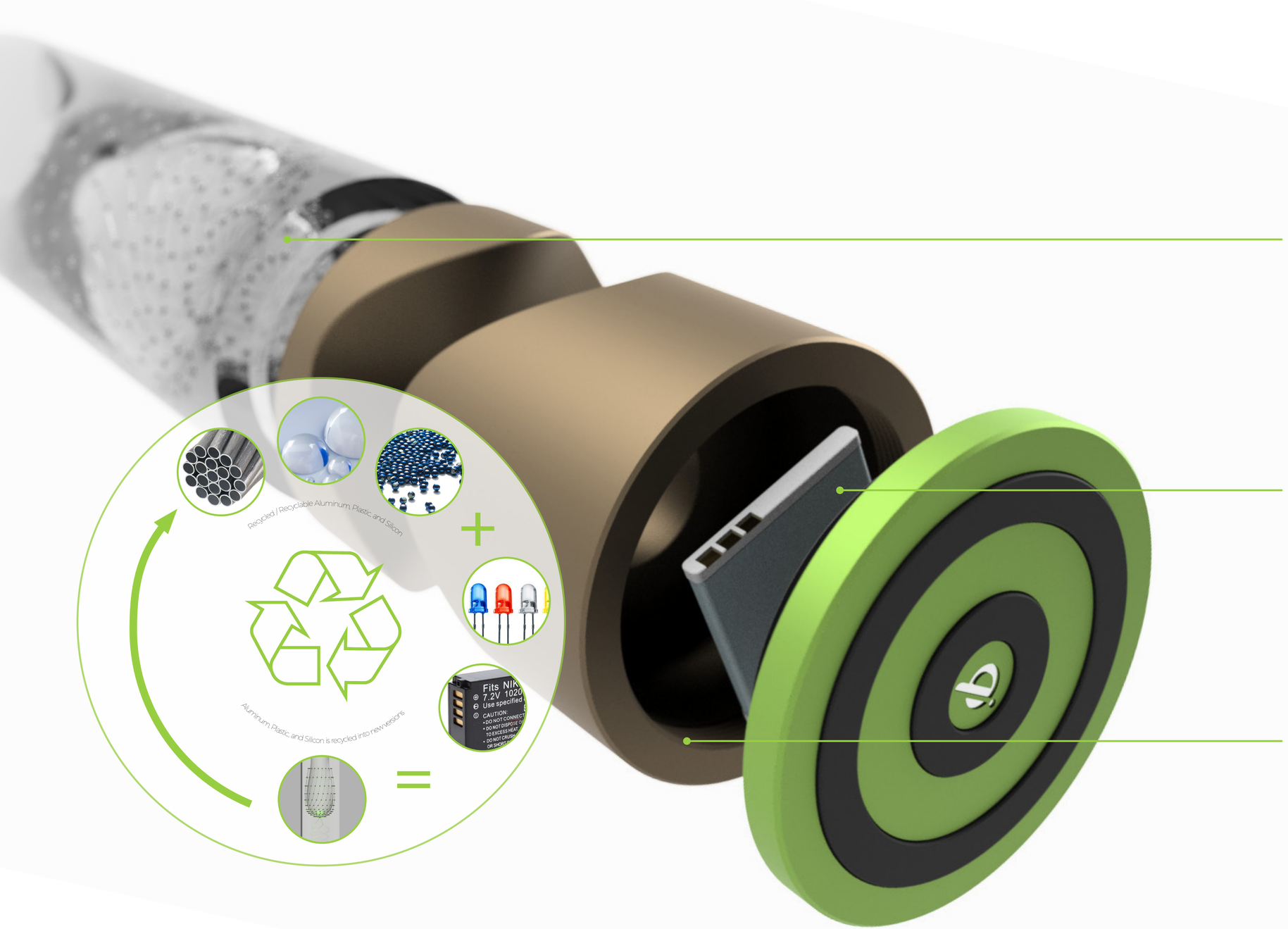
Chloro is a solar charger designed to fit into your home lifestyle.

During the day, it sits as a vase on your windowsill, collecting the sun's energy.

At night, you can remove the battery and wirelessly charge your devices anywhere you like.



2.2 Product Image



cast together, melt apart.
a new thermoplastic resin.

Unlike current Sphelar products, Chloro's photo cells are cast in Recyclamine. The melting points of the two materials are very far apart, easing reclamation of both the silicon and recyclamine.

using recycling for variety.
it is the spice of life, after all.

As with all interior decor, Chloro's appearance will eventually go out of style. Chloro's manufacturer reclamation program will reuse the aluminum, Sphelar, and Recyclamine from the previous generation to cast a new design every few years.

easily separable.
designed for disassembly.

Chloro is designed for disassembly. All of the aluminum components are threaded, so the LED, battery, and voltage adapter can be easily separated from the homogenous materials for electronics recycling.

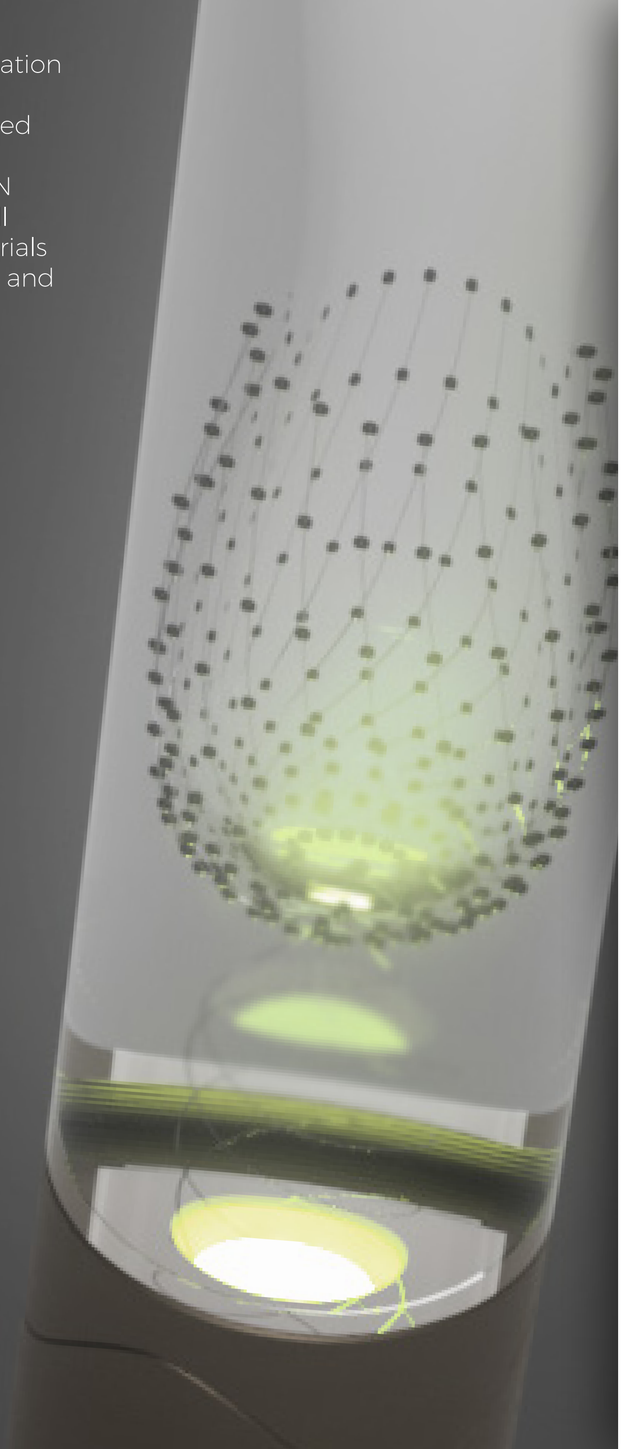
2.3-3 Illustration of Product System & Reutilization

4.2 Material Reutilization

The only non-recycled components are the Qi charger, LiON battery, and LED. All homogenous materials are 100% recyclabe and recycled.

87% Recyclable
85% Recycled

MRS 86.3



recyclamine.

a new 100% recyclable resin.

Recyclamine is a brand new clear casting resin. Unlike traditional casting resins, it is thermoplastic. The interior is sandblasted for a sense of depth. Both the resin and its contents can be separated and reclaimed.

sphelar.

pure silicon photovoltaic beads cast inside the resin.

Sphelar beads are 20% efficient, almost three times more efficient than traditional flat solar cells. The spherical beads collect energy from sunlight. They are made of pure silicon, and their high melting point makes them easy to reclaim from the recyclamine, and recycle the metal.

anodized aluminum.

an electrical contact with no wires.

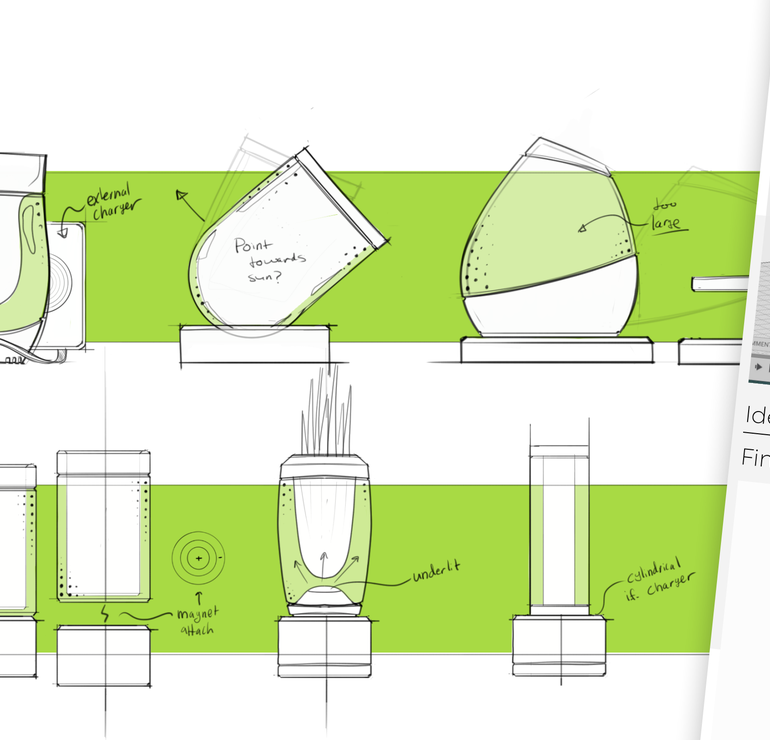
Anodized aluminum still conducts a charge, so it can be used for the contact-based connection from the sphelar to the battery source. No need for a plug, and it adds a splash of color!

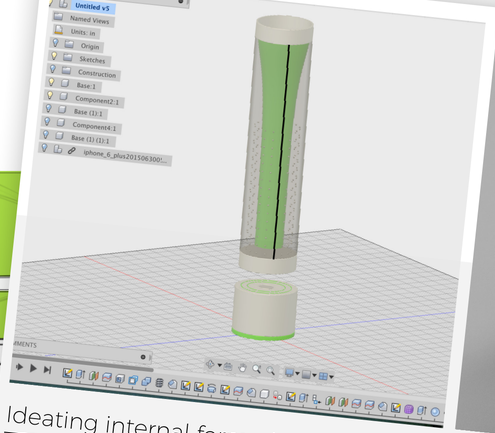
qi wireless charger / LiON Battery

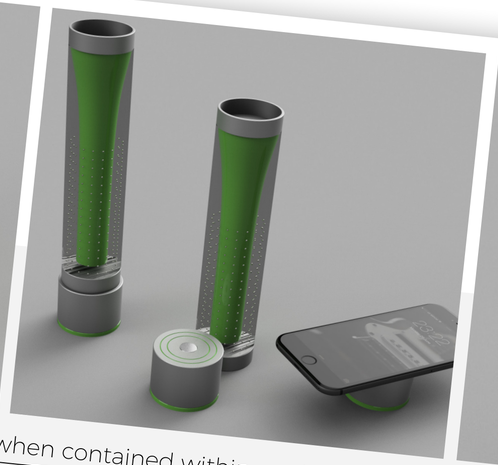
charges any compatible device.

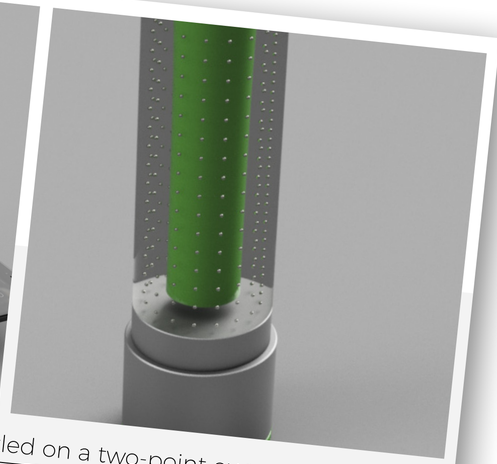
There's no such thing as a 100% recyclable battery, so the battery, LED, and charger are easily accessible for reclamation by unscrewing the base of the unit.

4.1-4.3 Material Selection



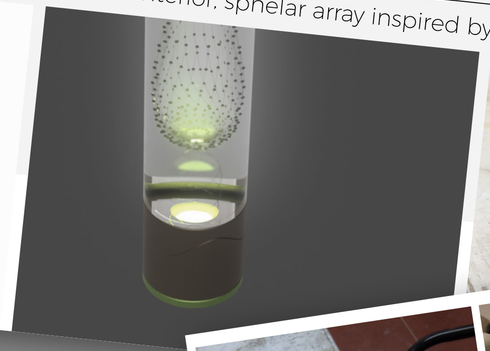






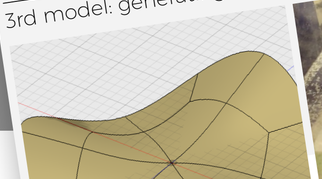
Ideating internal forms, initial ideas based on vase forms. Looked very awkward when contained within a cylinder, so settled on a two-point curve.

Final model features a three-point curve on the interior, sphelar array inspired by muranese vases, interior lighting rendered in Fusion, and sculpted connector.



1st model: determining scale/weight 2nd model: lathing foam inserts, inserting magnets, testing connection

3rd model: generating a Fusion toolpath, milling final connection, final connection fitting, wallet for scale



5. Design with Fusion 360

I used Fusion 360 and Sketchbook Pro for all of my design work. Fusion 360 was useful for quickly sculpting and visualizing the interior vase form, **and made it easy to generate toolpaths for prototyping on a ShopBot.** I found and imported the iPhone 6+ model directly to Fusion from the model database!

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