LEGOsmart

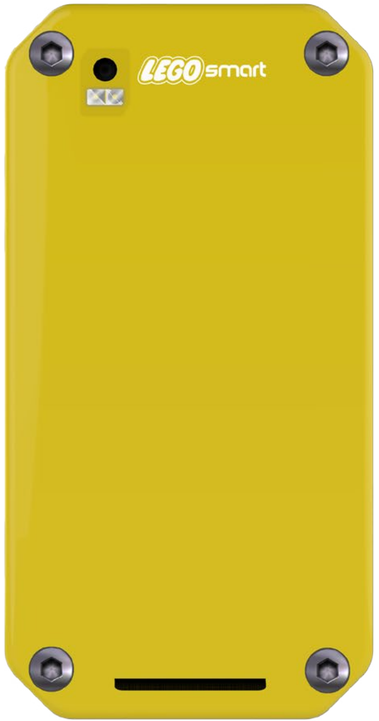
modular smartphone concept | 4th year project

lego smart - modular smartphone

A modern spin on playful building blocks.

Professor Ben Bush and I wanted to develop not only a product but and ecosystem for a solution to grow. After looking around for areas of need and frequent consumption we came to the decision that the current smart phone needed attention.

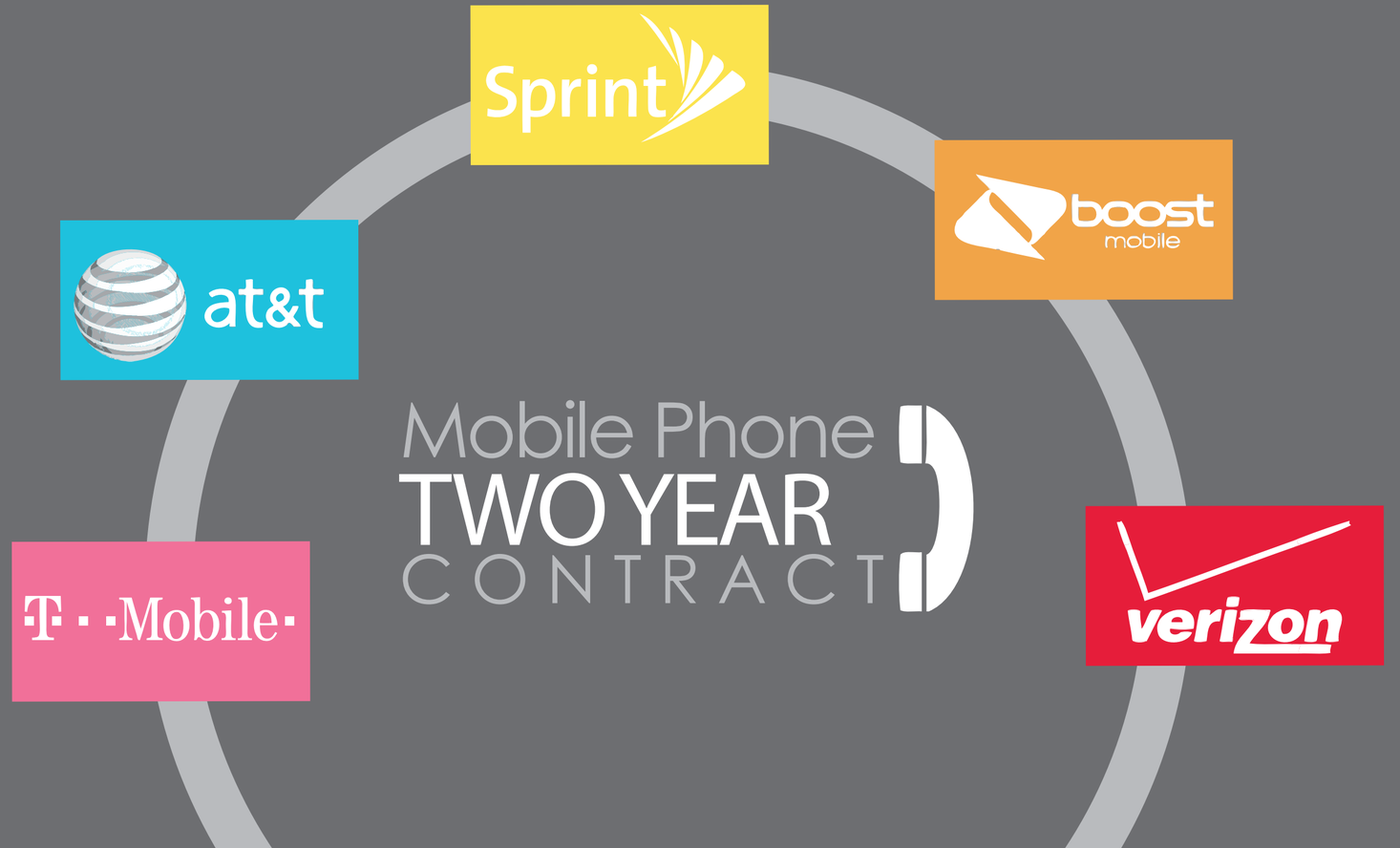
Oddly enough, part of our solution was a throwback to our childhood. The little colored squares that spurred our creativity and damaged the feet of our parents. This smartphone concept resolves hardware issues, provides new options, and allows users to have an engaging and playful experience.



The waiting period that you don't want.

All smartphone purchases require a plan for service. These plans help reduce the expensive burden but create a hassle when attempting to upgrade to new models. This is especially true for customers that want the latest and greatest.

The question we asked... Could a smartphone be designed to escape this form of gridlock? This thought gave birth to another question. Could a smartphone have a modular design that can change or add individual components?

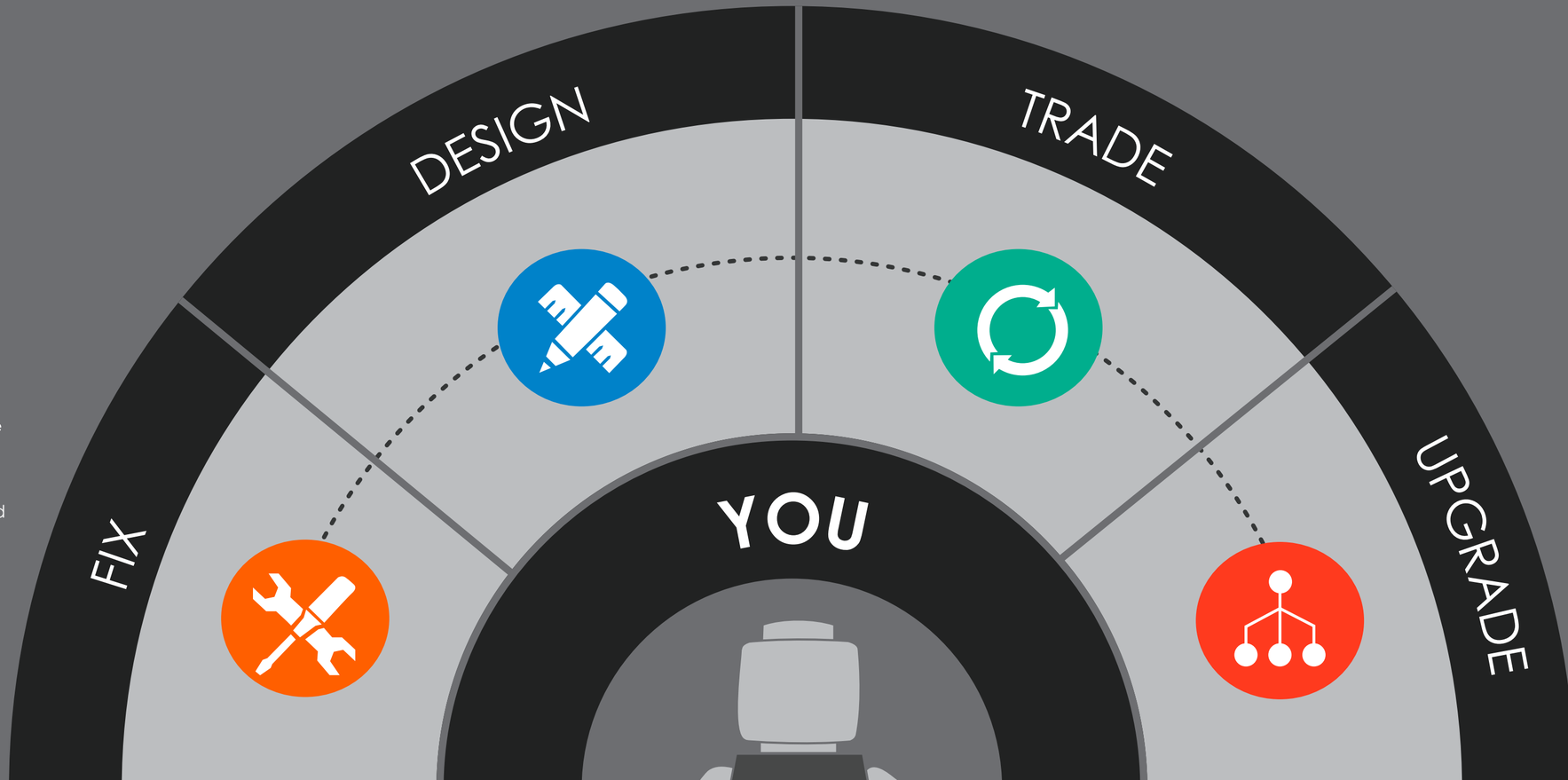


lego smart - business model

A new approach to the smartphone industry.

To implement this concept we deemed it necessary to go beyond design parts and pieces. We wanted to design a business model that focused on the touchpoints of users.

I broke this into four main silos. These areas include options to allow users to fix broken parts of their device, design a unique look, trade valuable pieces, and upgrade individual electronics.



FIX

If something breaks you can fix it.

There is nothing worse than when out phones get damaged. Your normal options are to send it to a repair shop, try to pull it apart yourself, and hope that your phone can be saved or salvaged. Otherwise you will have to pay the “full” price of a brand new phone.

Legosmart’s modular system allows you to easily separate and replace any part yourself. This reduces time and cost for the customer. Someone can replace a single part at a fraction of the cost of purchasing a new phone. Now you have one very satisfied customer.

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DESIGN

Create a unique look for your phone.

A standard smartphone will look the same until your next phone purchase. You do have the option to buy a protective case but many of these just add more bulk and cover the beautiful object you just dropped some serious dough on.

This product will allow you to change the look of your phone at you leisure. Since you don't need a protective case, Legosmart's profile will stay the same with every model. You can match it with your outfit, change it for an occasion, or follow current trends. Design sets can be purchased the same way you would buy parts to fix your phone.

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TRADE

Collect multiple styles to swap with your friends.

Trade allows us to create a very unique offering for this product. Collector's markets such as vinyl toys and card games allow companies to design unique items that are sought for by customers. Providing a limited quantity of certain items create incentive for purchasing before they are all gone.

Once purchased specific parts or sets can be sold for a higher value or traded. This effect will help grow brand awareness and set Legosmart apart from other competitors.

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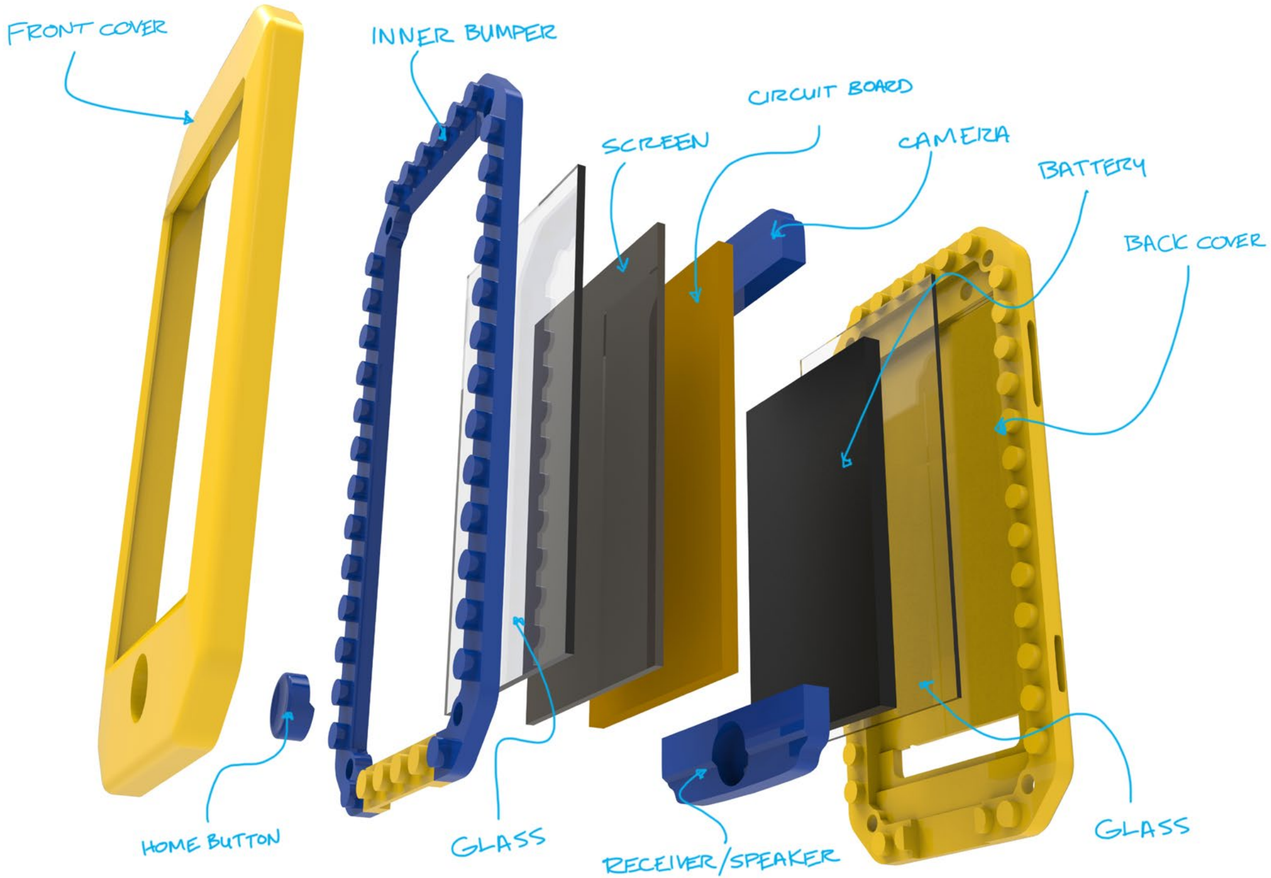
UPGRADE

Get the latest and greatest tech available.

New smartphones models are released with upgrades to past technology. The problem is not every part has been upgraded but you till pay for it. Maybe the housing is sexier and the camera has improved. Although the battery might be the same model.

Legosmart allows users to change the way your phone looks anytime. So why not the electronics? Upgrading individual components as technology progresses will be another unique option with Legosmart.



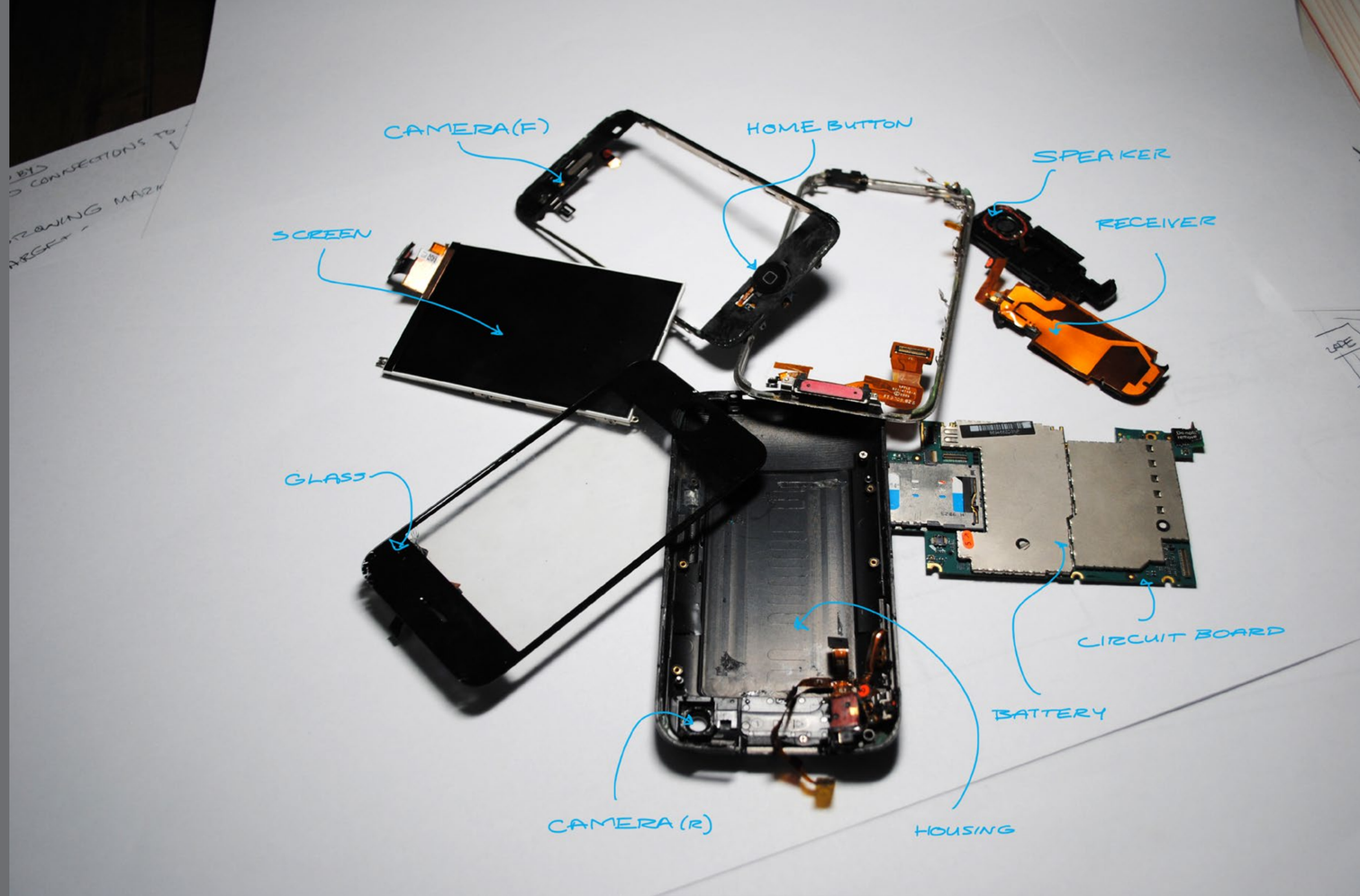

design
process

research - materials and components

A large part list in a very small space.

The beginning of this process started with understanding the makeup of current smartphones. After looking at different phones, we decided the iPhone had the most compact assembly, good recyclability, and efficient use of materials.

This became the base for us to design our own assembly. We thought our phone could improve the way parts were accessed using less adhesives. This also led us to believe Legosmart may be more recyclable as well.

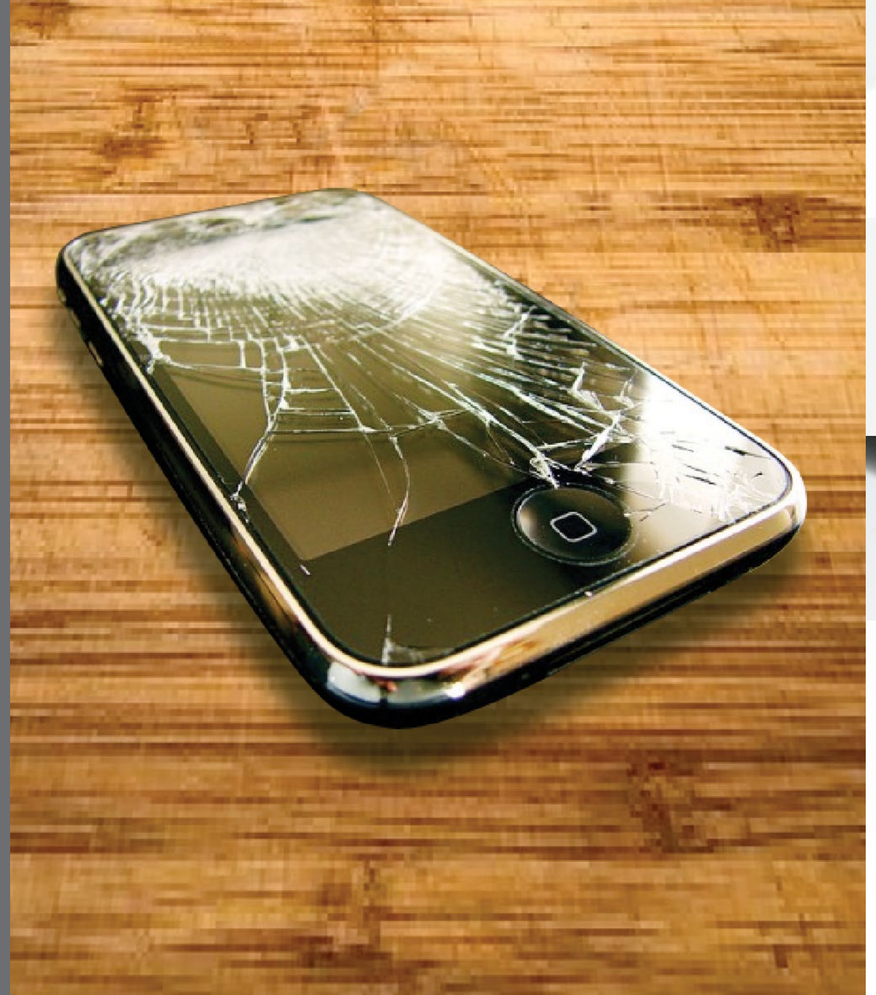


research - break point study

Areas of damage due to form factors.

Most smartphone users purchase cases to protect from drops, spills, and other damage. We studied over a hundred smartphones to see where more of the damage was occurring. After looking at various phones we made a discovery.

Most damage occurs on the corners of the phone. Originally we thought the screen may be the biggest issue but most of the insights we gathered told a different story. This inspired a direction for our design to mitigate this issue.

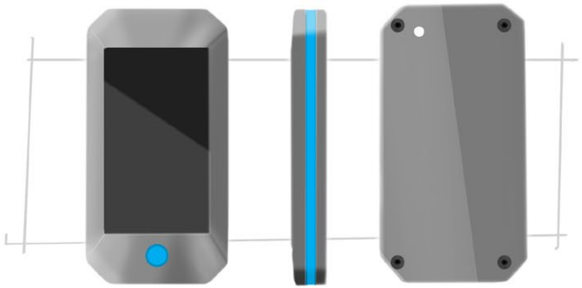


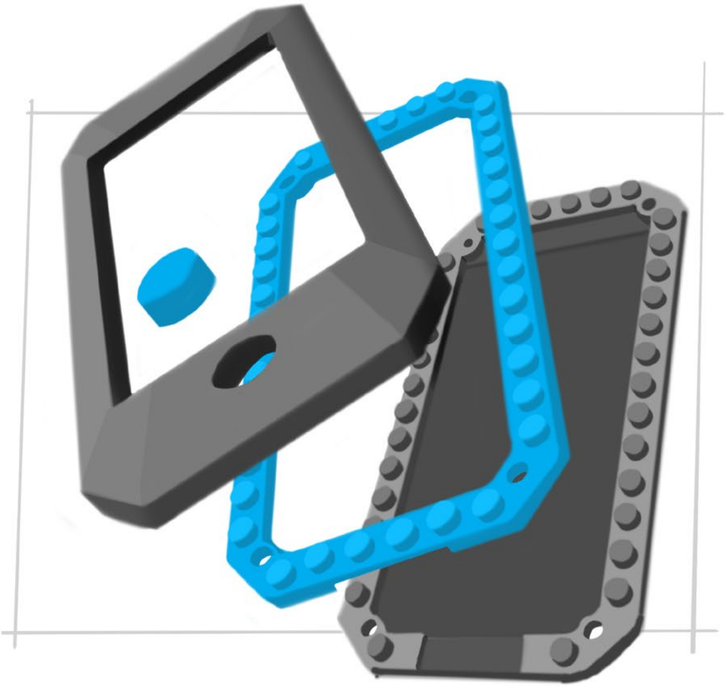
design - connections and components

Inspired by the unlimited possibilities of Lego.

When trying to discover a simple system for connecting parts of our phone my mind kept coming back to Legos. I thought their simple form factor would be easy to design around. It also gave this concept a playful element that could connect people.

I combined the Lego inspiration with my knowledge of components from the iPhone and the insights from break points. This combination resulted in a wealth of ideas and visualizations for Legosmart to take shape.



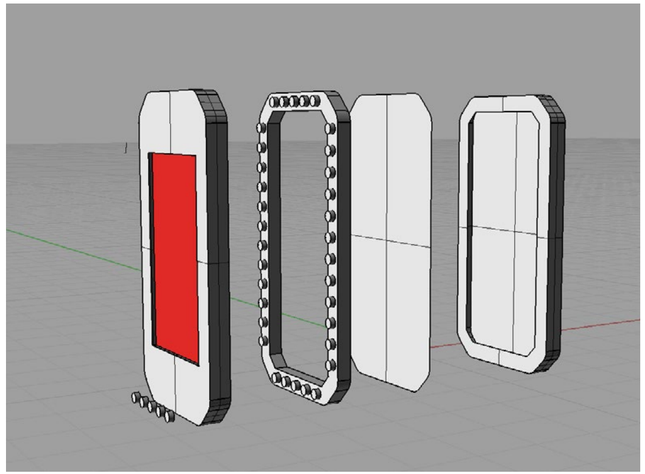


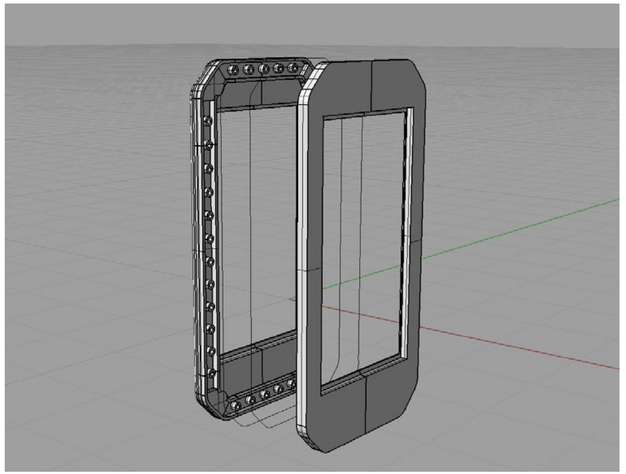
design - cad development

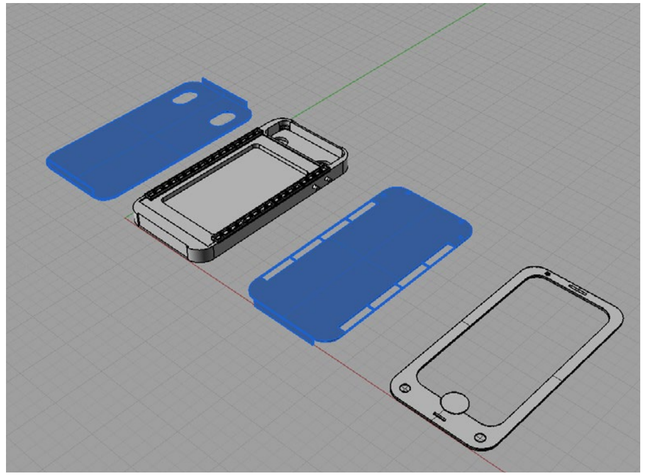
Fine tuning our parts and dimensions.

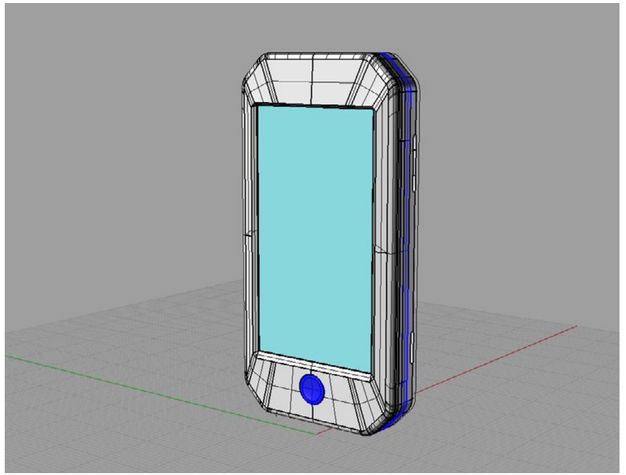
Once we had a couple designs, it was time to take them to the next level. We reverse engineered the dimensions from Lego connections and added them into our models. This allowed us to make sure we could still keep our phone at a reasonable scale.

Through this process I discovered how detail this small object could get. The simplest components had to remain thin but work together. The model had to maintain a strong design that would not easily break









design - prototyping

Experimenting with different builds.

Here we finally made this design a reality. We decided to test out the various designs we had modeled and select the favorite for us to finalize. One of them definitely stood out as the most viable.

We discussed using many connections to make this product solid and universal. The Lego connections did a great job of connecting parts but it was not enough to hold it together firmly. A hardware connection utilizing Allen head screws was the solution we needed. It was simple, easy to use, and inexpensive.

design - future development

From here... To infinity and beyond.

During this project we developed a concept for a new modular smartphone. Along with a product I also designed a business model that highlighted the benefits of making smartphones modular.

We would like to grow this concept into a marketable business. Of course further steps will be necessary. Eventually we need an interface, developed electronics, and new branding. I look forward to achieving these steps in the future.