





Zeus

Snow Shovel, Brush & Ice Scraper



The Problem

A car shovel is one of the most important tools to have in your vehicle during the winter. However, car shovels are often overlooked by drivers because of their limited and infrequent use.

Why do you need a car shovel?



Easier cleanup

A car shovel is the safest and most efficient means of removing large quantities of snow from a vehicle and its surroundings. During snow ins and plow ins, removing snow around your vehicle is the only way to make it drivable again.

More traction

A snow shovel is the best tool for removing loose and packed snow around tires to provide traction.

Reduce danger to other drivers

Clearing snow off a car's roof with a shovel is three times faster than the standard ice scraper and snow brush combo. With a shovel, users are more likely to remove snow piles on their vehicle's roofs before hitting the roads. This practice makes the roads safer because it prevents huge piles of rooftop snow from sliding down the windshield and obstructing the driver's view.

A way to help yourself

When your vehicle gets stuck in snow and is unable to move, a snow shovel is a good way to dig yourself out because emergency services may be too busy or unavailable

The best tool for the job

When your vehicle gets stuck, clearing snow buildup near the exhausts of your vehicle is very important because it prevents deadly gases from building up inside the car. In the absence of a shovel, you might have to use improvised tools to remove the snow. Improvised tools can be very unreliable and can also expose your hands to wet cold snow.



How do you get more drivers to buy shovels?

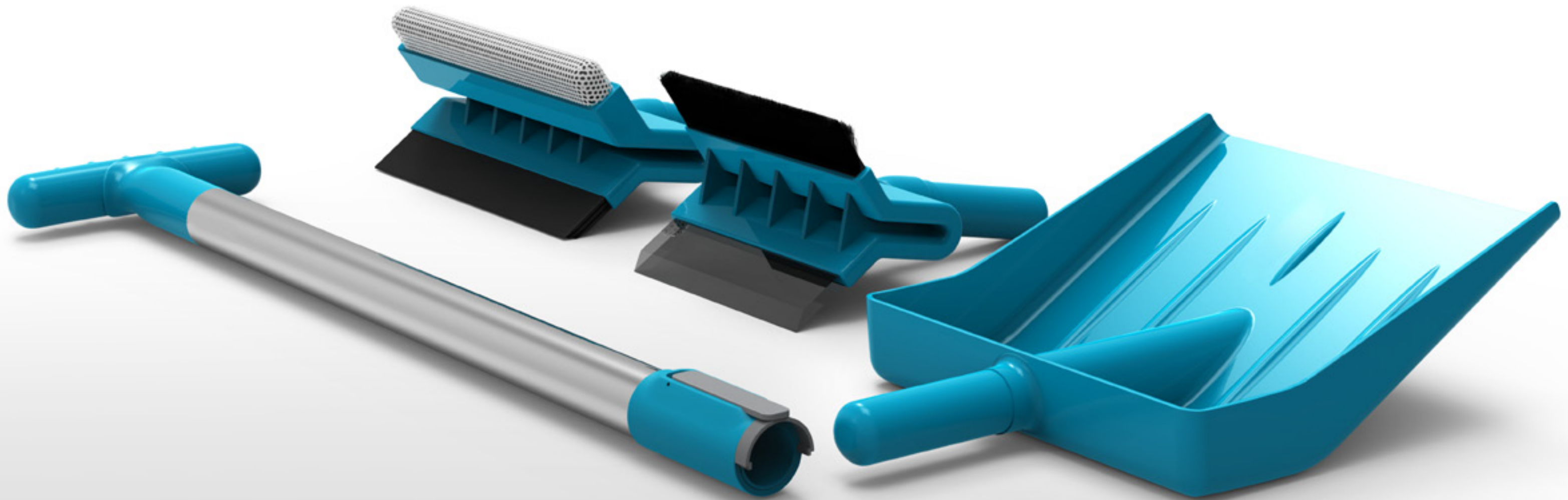
Creating a tool that allows users to shovel, scrape snow and brush snow will encourage more users to purchase shovels since it offers other benefits and increases their frequency of the using the shovel.

Version 1

A snow shovel with interchangeable heads for scrapping ice and brushing off snow.

Issues:

- Too many parts
- Takes too much trunk space,
- Loose parts are easily lost / misplaced





Black Diamond Depty 7 Shovel



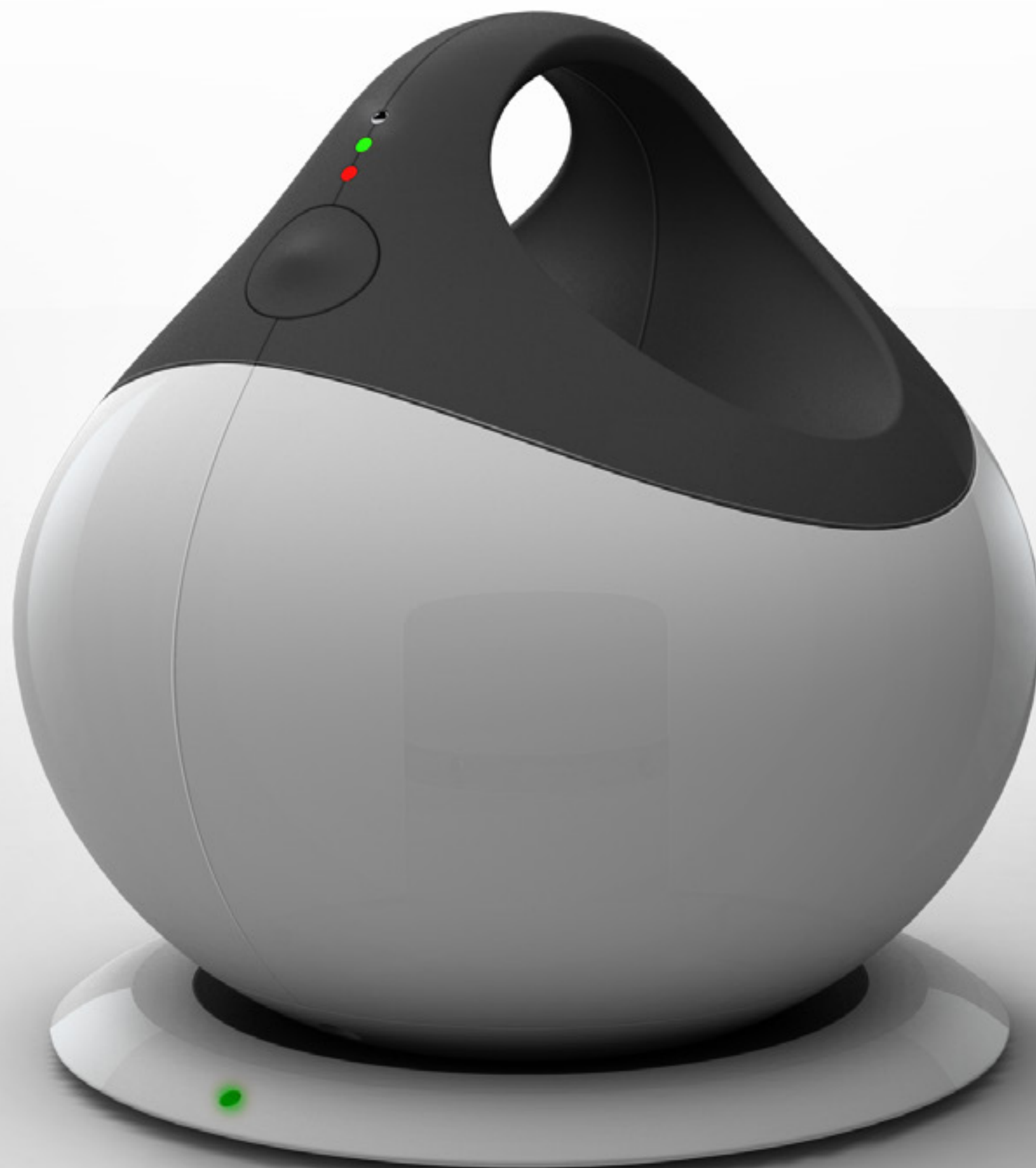
Improving the design

- Eliminate loose parts
- Reduce parts count
- Compactness



ZUES SNOW SHOVEL, ICE SCRAPER AND SNOW BRUSH





Children : Ages 4-6

- 30-40 percent of children between ages 4 and 6 have nyctophobia (fear of the dark)
- Their fear of the dark is reduced by using low intensity lights
- Their fear of the dark makes falling asleep a challenge
- Children wet their beds out of fear



Artifacts:

Children's night lights are small and are usually in the form of friendly or protective cartoonish characters



Activities:

Going to the bathroom, getting water or a snack from the kitchen, reading and other tasks performed before bed and during the night can be performed with low intensity lights



Environment:

The fear of the dark in most children is caused by traumatic experiences, the unknown and their imagination. In the absence of light, they are terrified. Low intensity lights makes them feel safer.



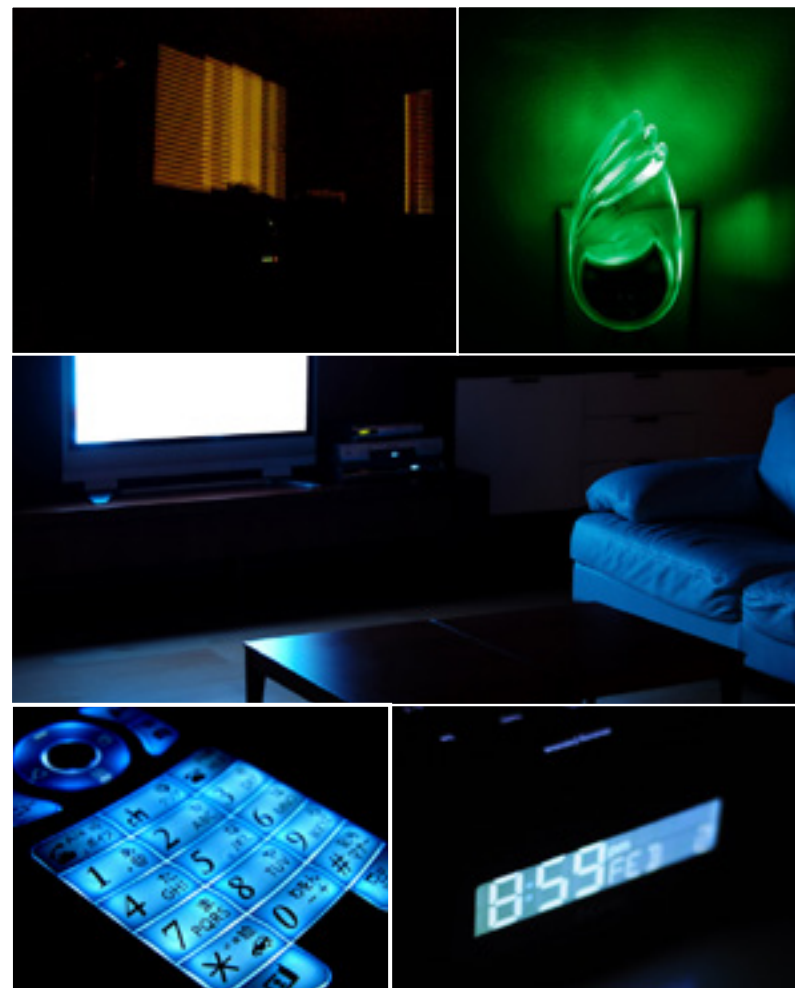
Adults: 20 years old to 40 years old

- Works long hours and return home very late at night
- Have an active social life
- Takes longer to fall asleep



Artifacts:

Some adults use night lamps and light emitted by electronics



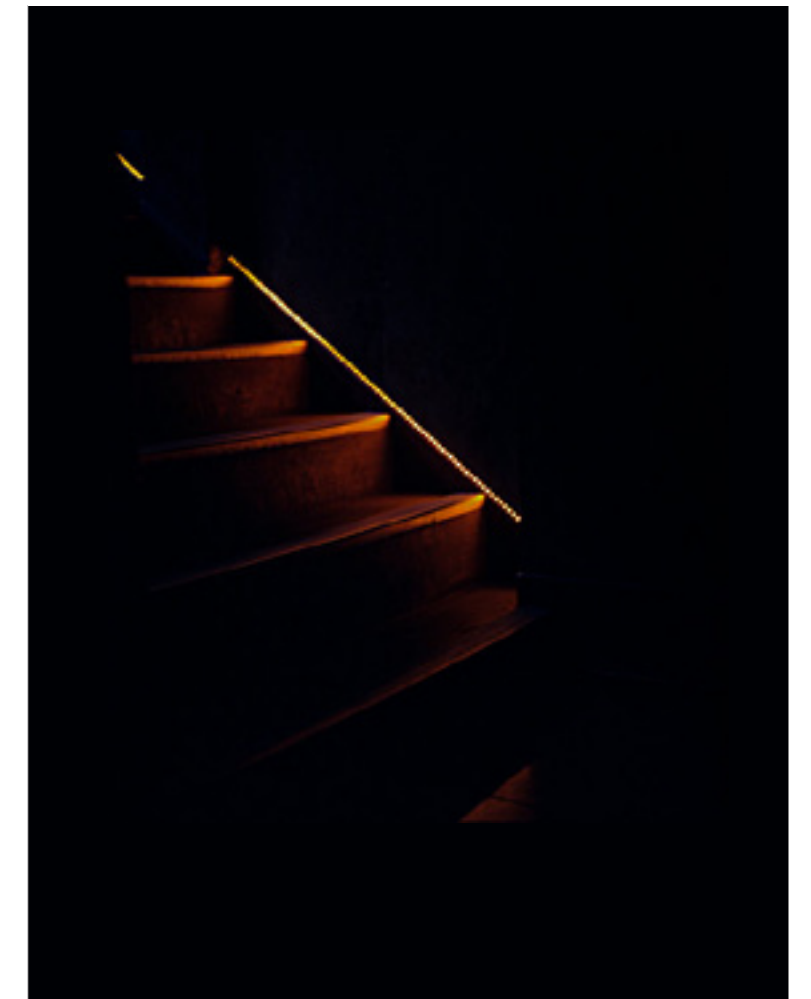
Activities:

They use low intensity lights to perform tasks such as finding their way to bed and going to the bathroom. Night lamps are often used as courtesy lights in order not to wake up the household during late night returns home



Environment:

Without light or low intensity lights, visibility is low and blurry which can be hazardous



Older Adults: 45 years old and older

- Due to aging, their eyes are sensitive to bright light and it takes longer for their eyes to adjust from no light to bright light environments. Using night lights as an alternative to bright lights helps them sleep better and prevents light from flooding their eyes when they wake up in the middle of the night



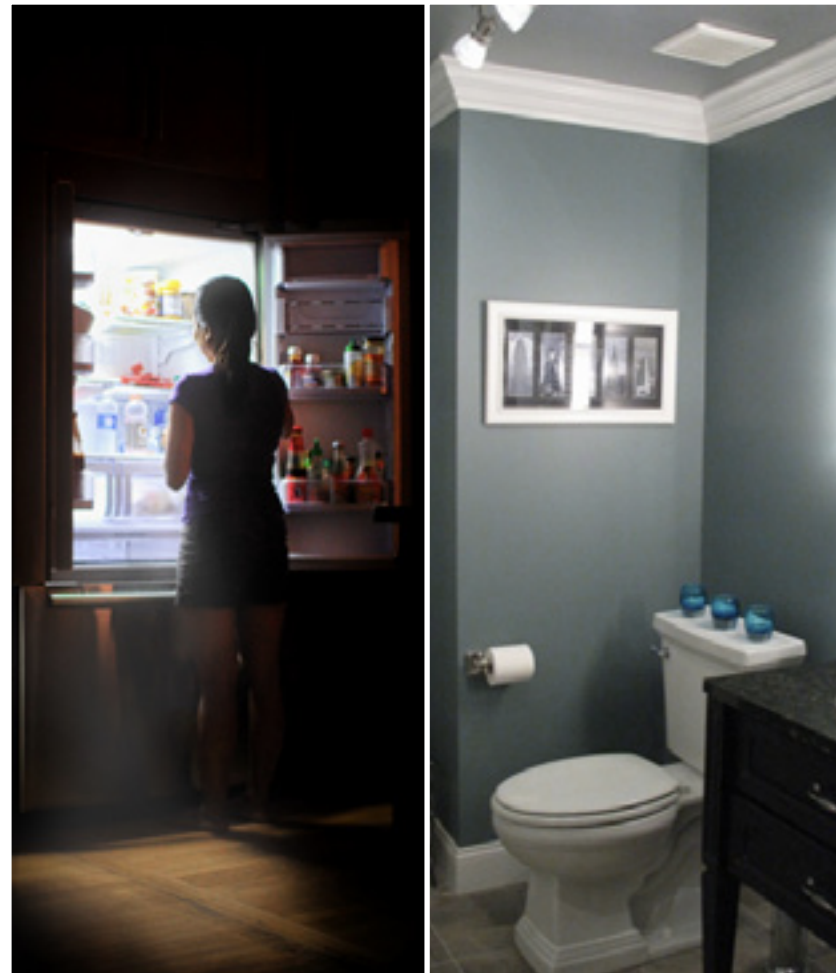
Artifacts:

Older adults use indirect light from street lights, hallway lights and plug in lights.



Activities:

They need lights to go to the bathroom and to get water or a snack from the kitchen. Some aged adults with bladder problems might need to take numerous trips to the bathroom at night



Environment:

Without light, aged adults cannot perform certain tasks. Bright light is too intense for their sensitive eyes. When bright lights are used, it takes their eyes about an hour to completely adjust to it and it also makes getting back to sleep difficult



Target Audience: 20 to 40 years old

Reason: When it comes to night lights, the 20 to 40 years old demography is usually neglected. There are few night lights designed to suit the needs of this demography, as a result, they use indirect light, and light emitted by electronics instead of purchasing night lights.



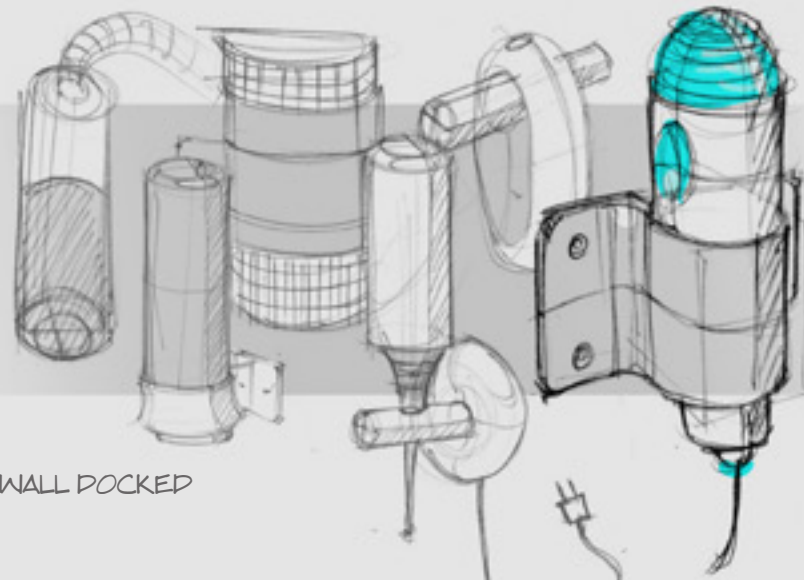


Research Summary:

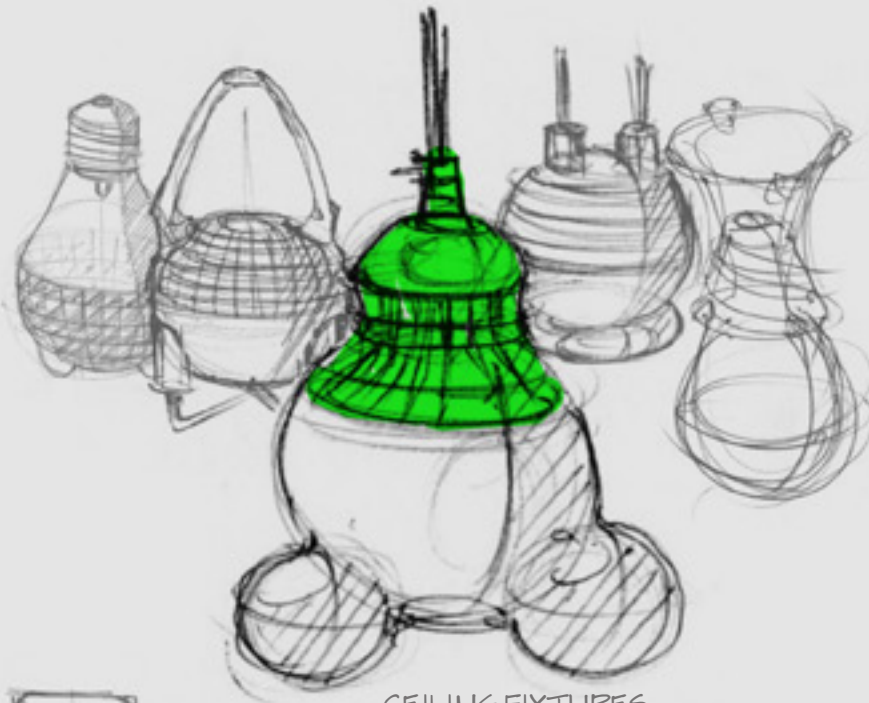
- Short or Long exposure to bright artificial light during the night disrupts the circadian rhythm which regulates sleep wake cycle and melatonin process which can lead to various health issues that can also increase the risk of cancer and sleeping disorders
- Sudden transition from darkness to bright lights and vice versa is bad for the eyes.
- Red and yellows lights are better than blue and green night lights. A study discovered that reddish or flame like lights at night have a smaller effect of melatonin production than blues and green lights because our ancestors adapted to red lights from centuries of using fire as their primary source of light and heat.
- Blue lights improves performance and reduce sleepiness and is ideal for users working at night but not for sleeping.

Problem:

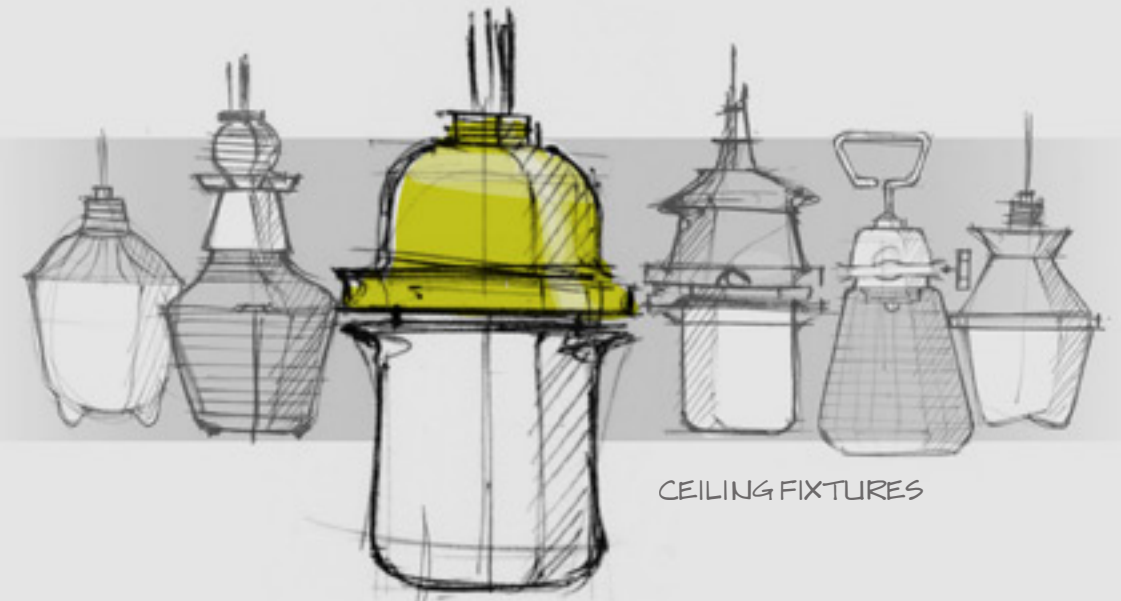
Create a means of night time illumination that reduces user's exposure to bright artificial light that disrupts sleep and circadian rhythm



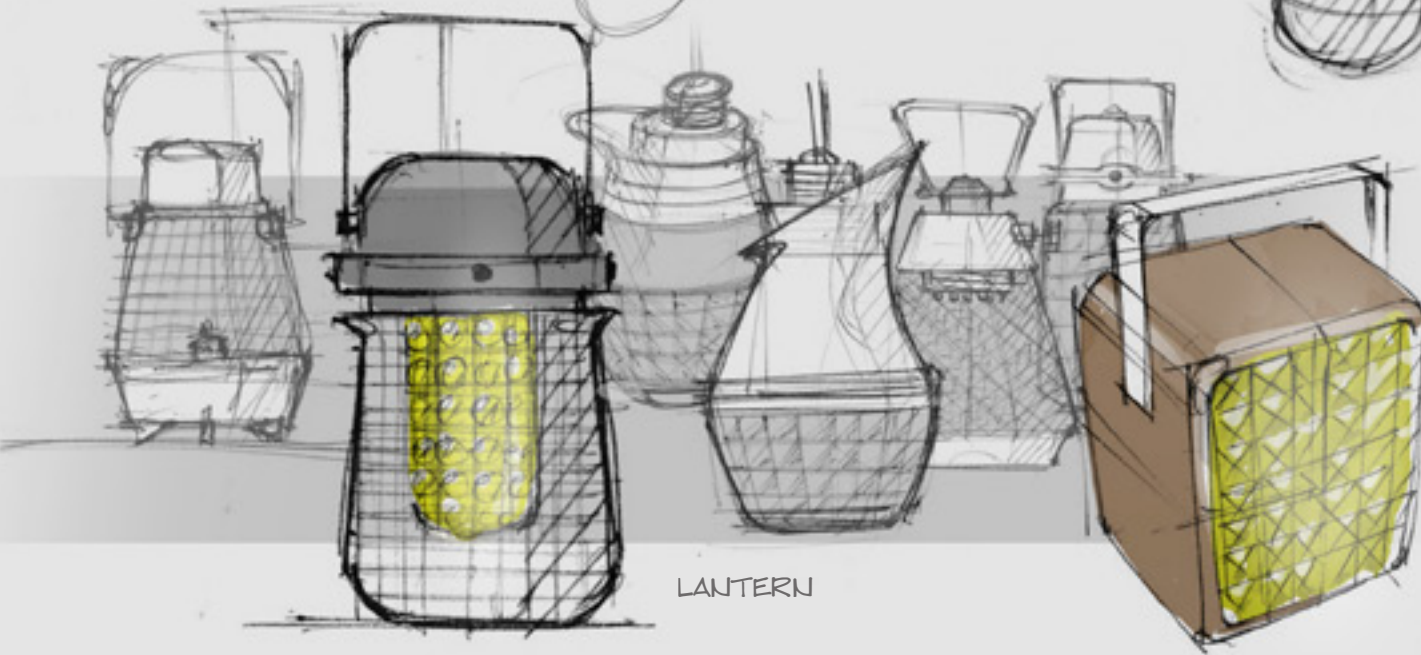
WALL DOCKED



CEILING FIXTURES



CEILING FIXTURES



LANTERN

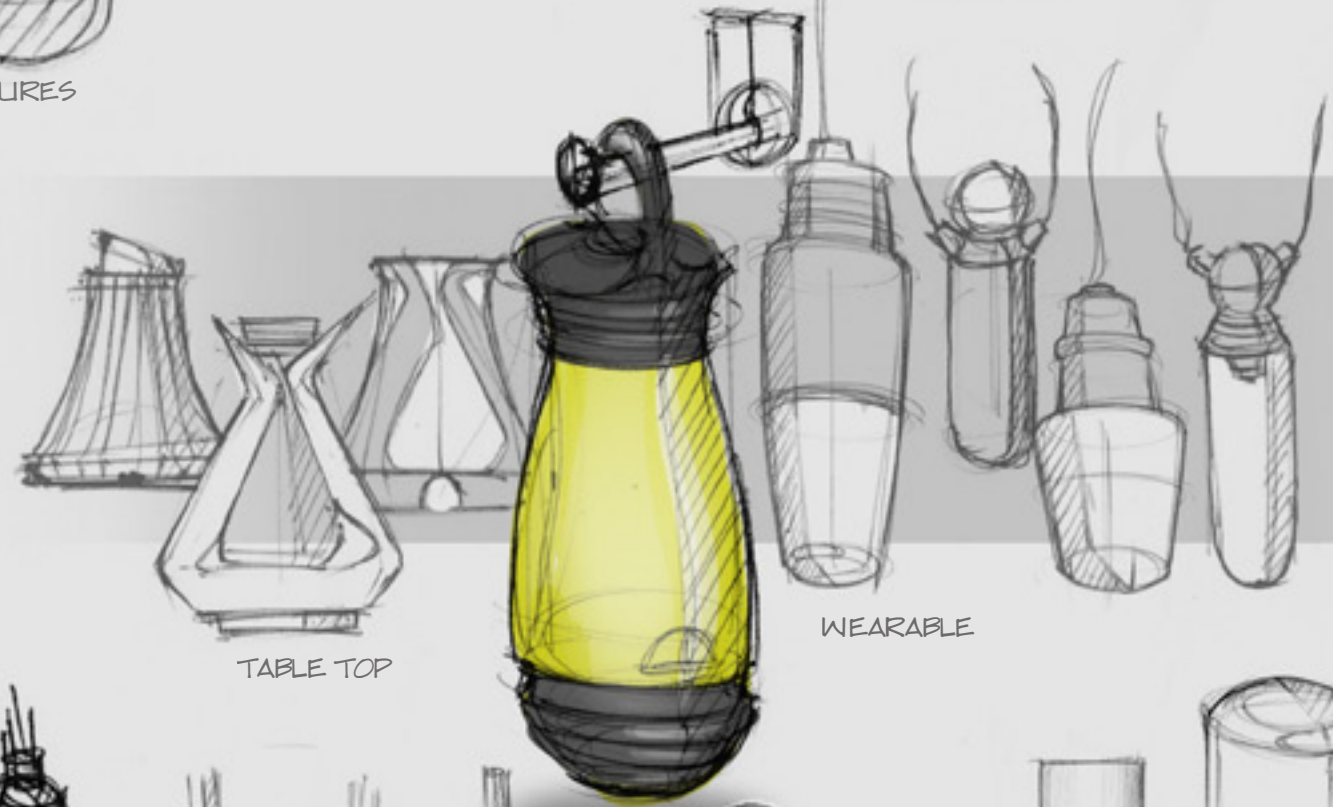
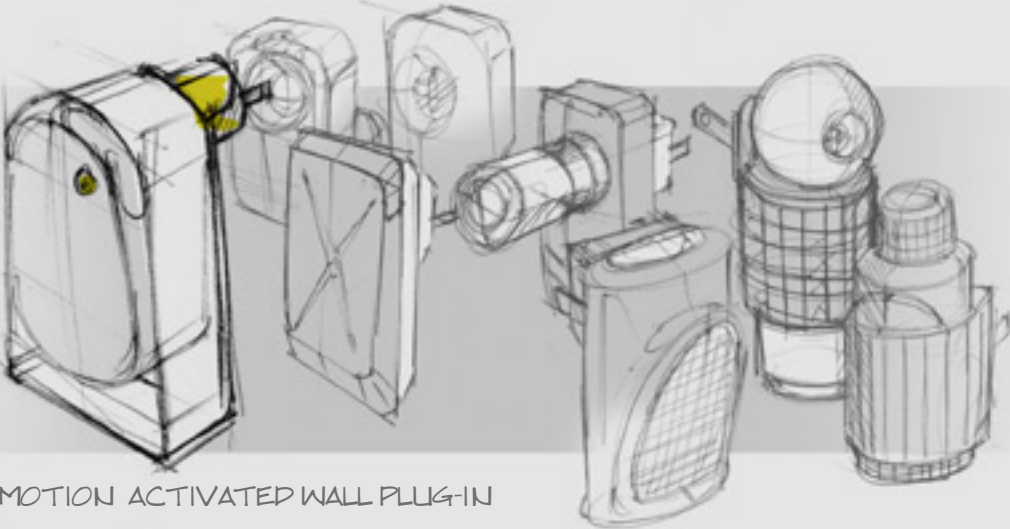
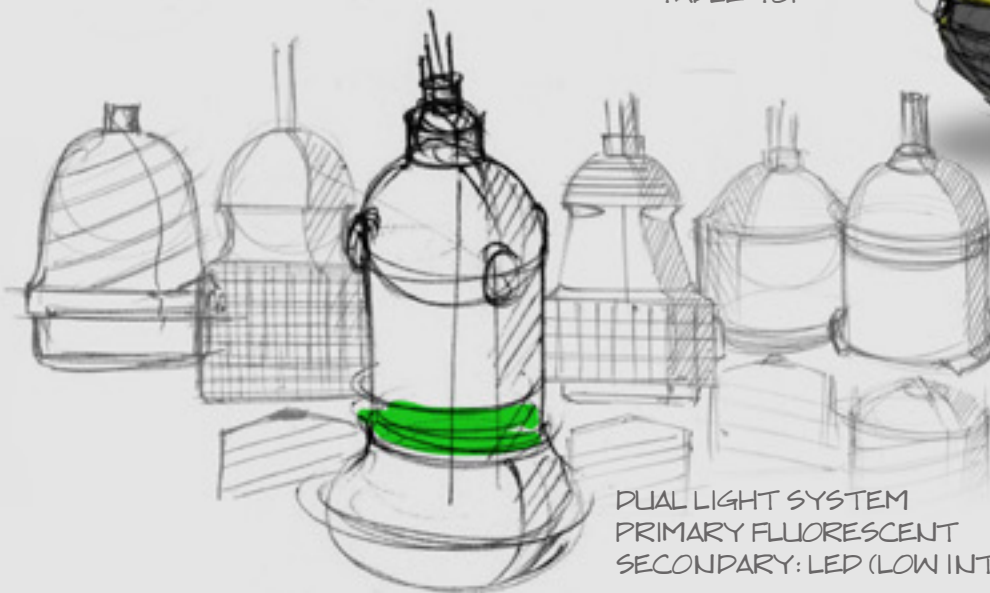


TABLE TOP

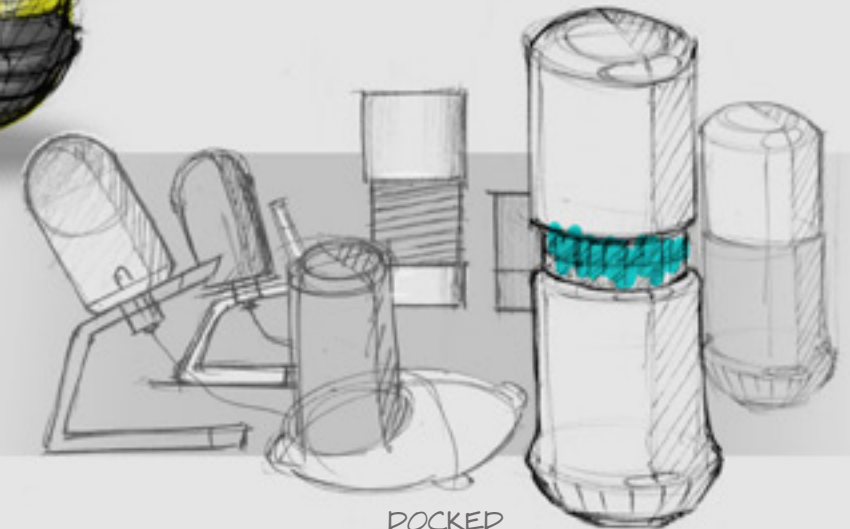
WEARABLE



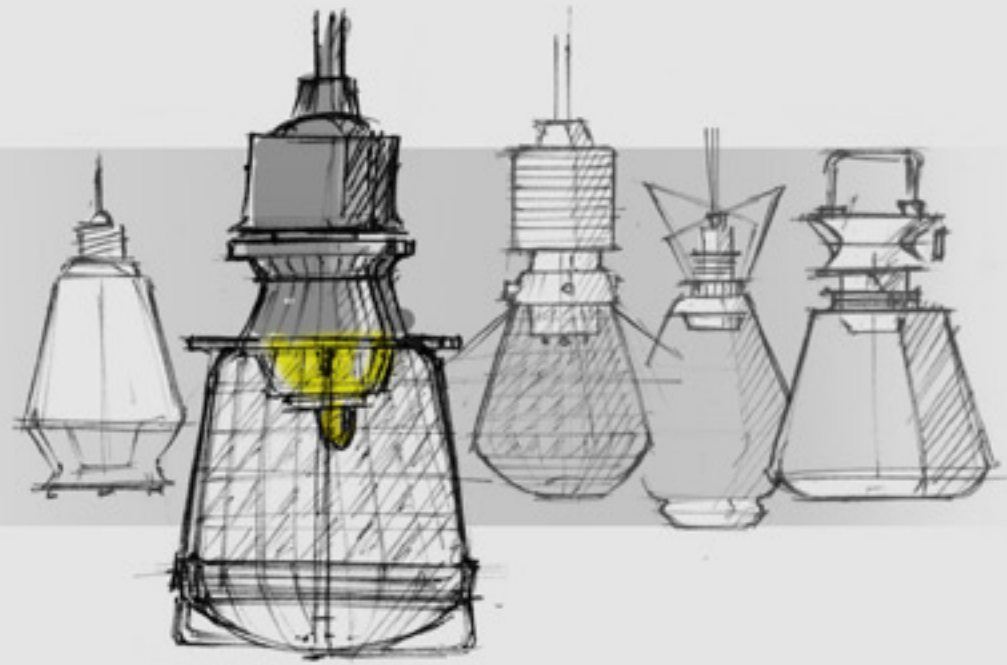
MOTION ACTIVATED WALL PLUG-IN



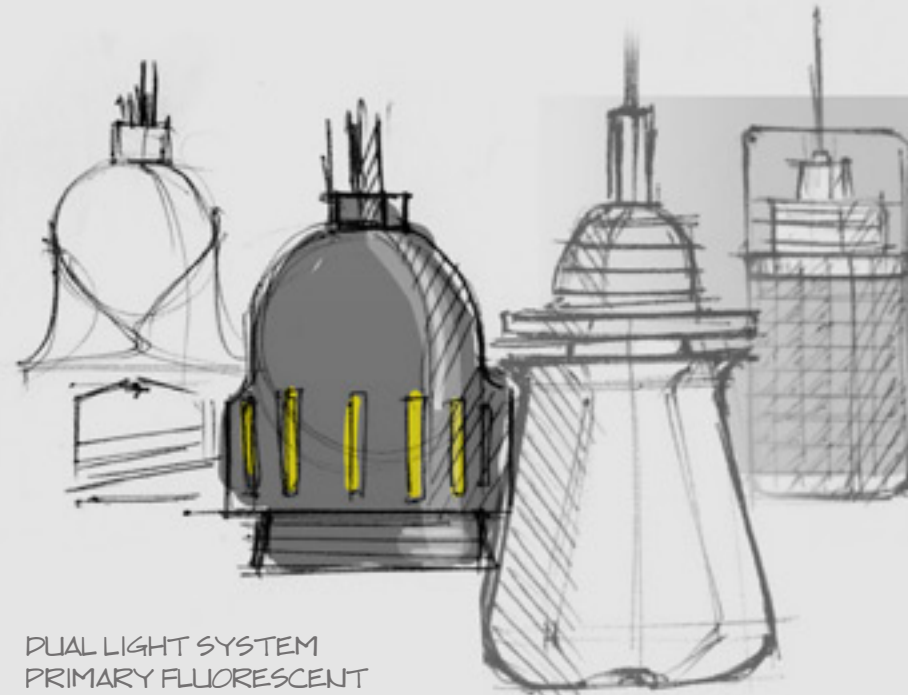
DUAL LIGHT SYSTEM
PRIMARY FLUORESCENT
SECONDARY: LED (LOW INTENSITY)



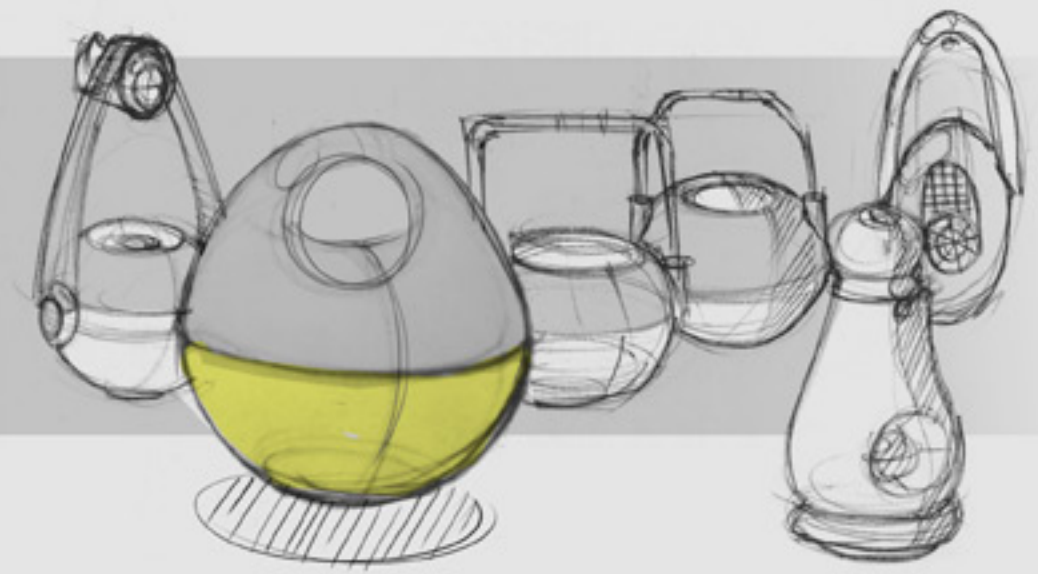
DOCKED



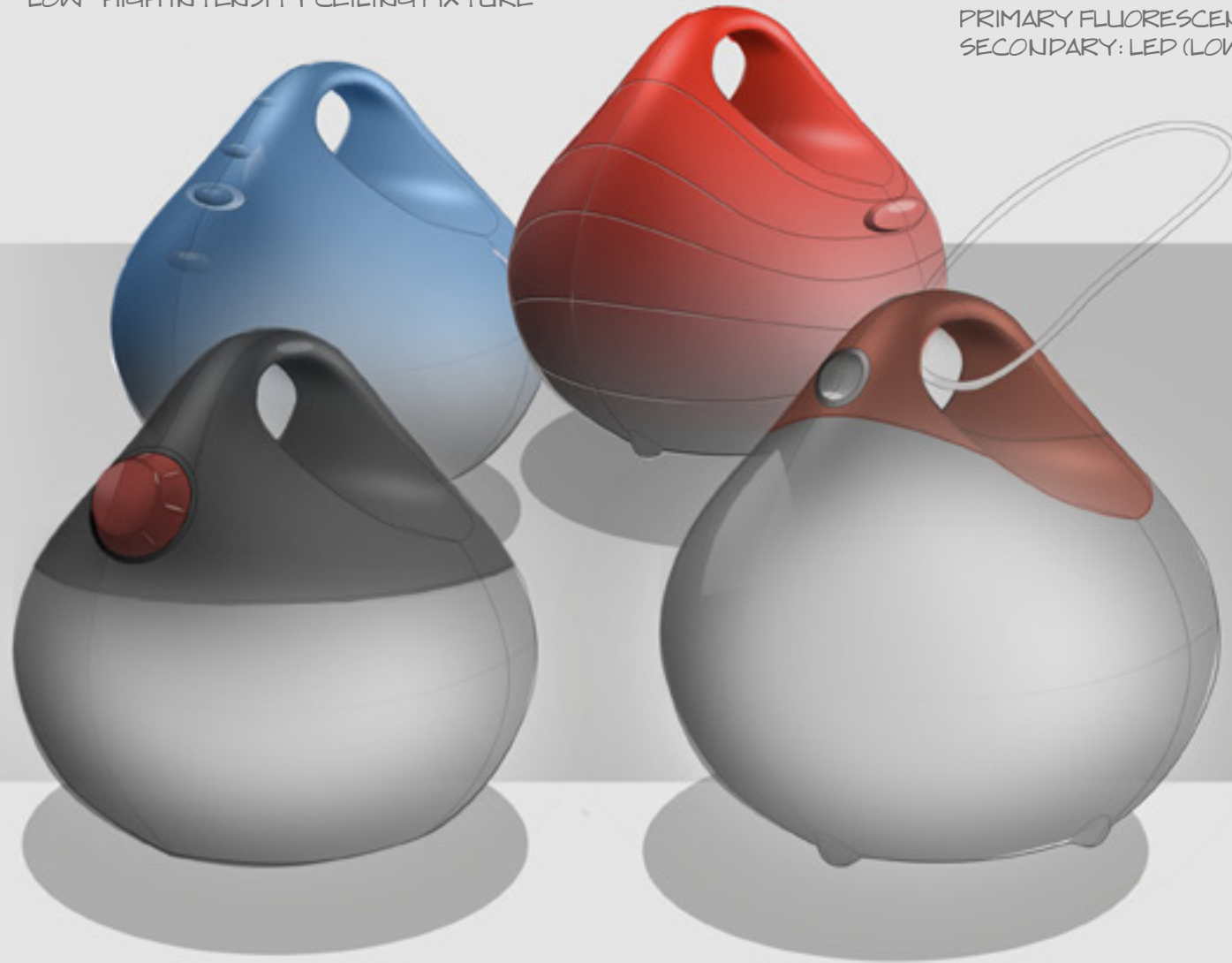
LOW - HIGH INTENSITY CEILING FIXTURE



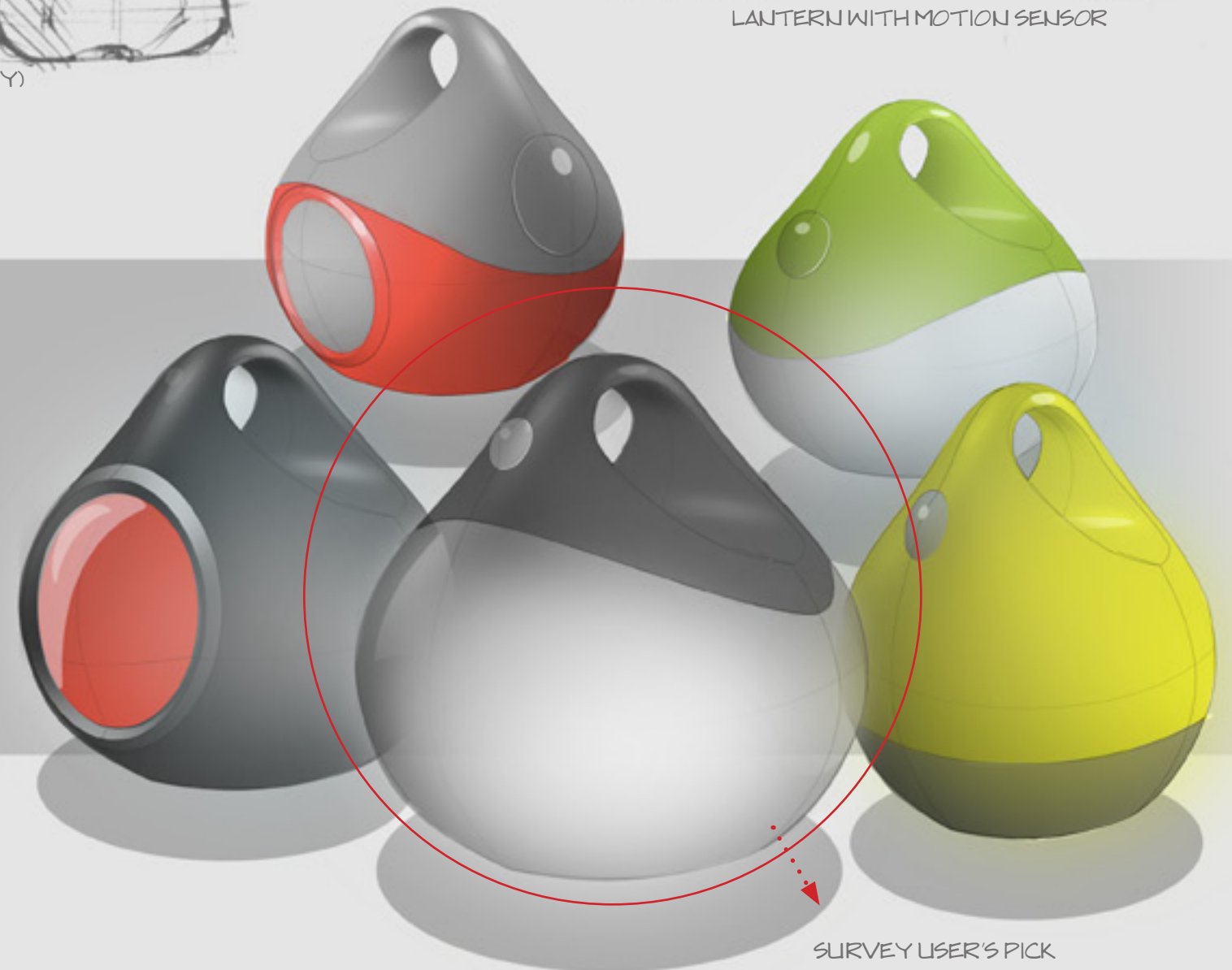
DUAL LIGHT SYSTEM
PRIMARY FLUORESCENT
SECONDARY: LED (LOW INTENSITY)



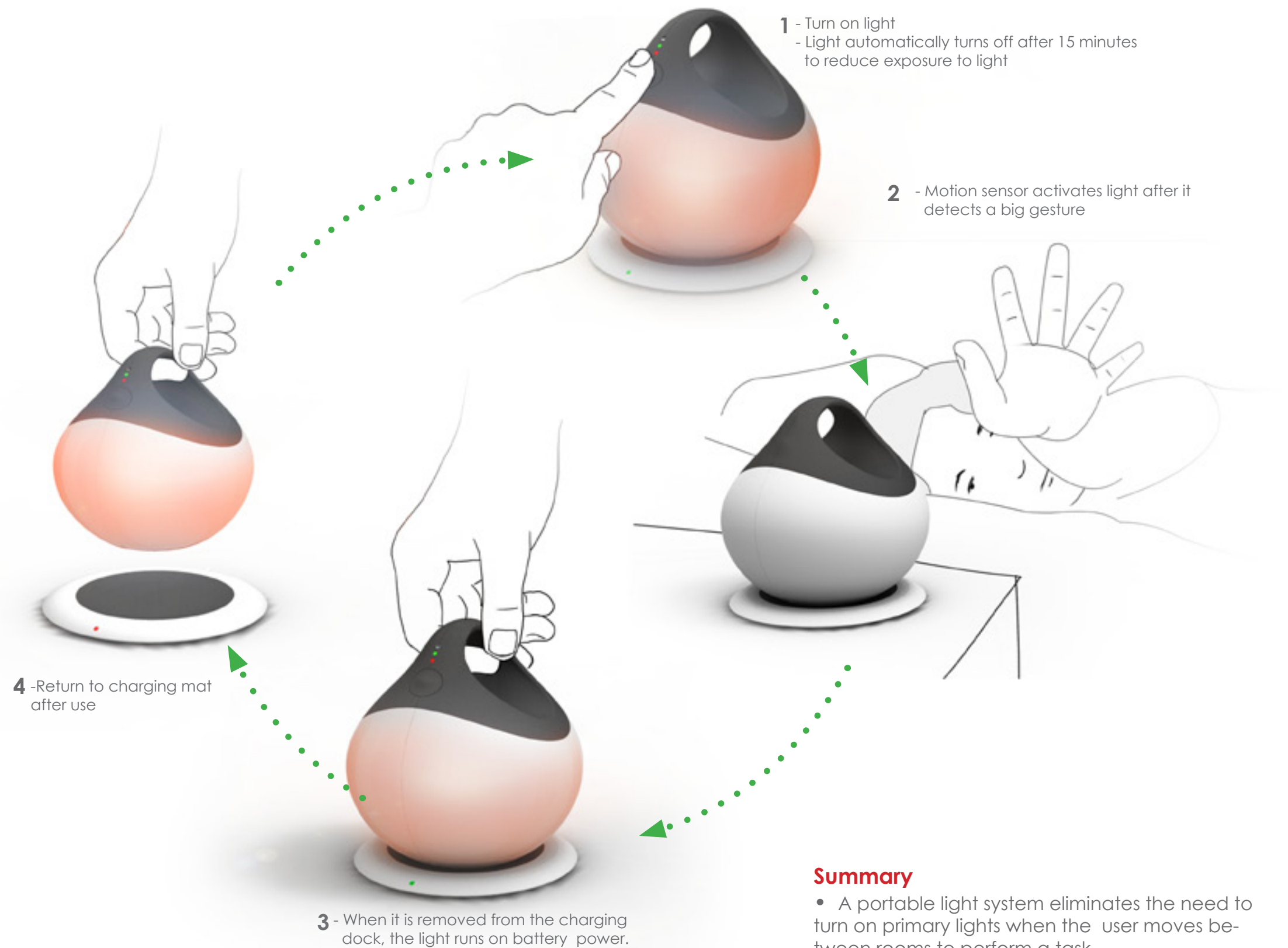
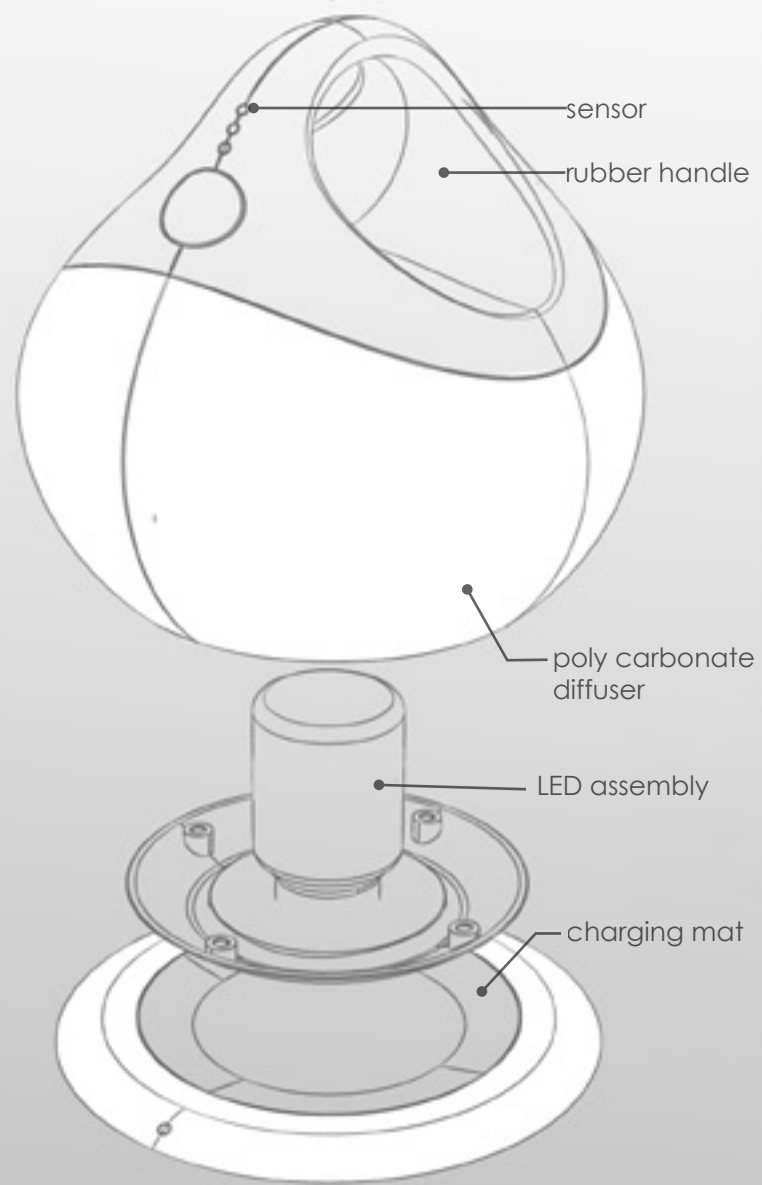
LANTERN WITH MOTION SENSOR



LANTERN WITH MOTION SENSOR REFINEMENT



SURVEY USER'S PICK



Summary

- A portable light system eliminates the need to turn on primary lights when the user moves between rooms to perform a task
- Humans are not as sensitive to warm lights as cool lights. Warm lights improves visibility without keeping you awake like cool lights





Bore | Lithium Polymer Pivoting Drill



VAL'S SURVEY RESULTS (Experiencer / Innovator)

- Impulsive consumer
- Craves variety
- Self expressive
- Craves excitement
- Sporty
- Enthusiastic
- Buys items based on their looks



USER LIFESTYLE AND PURCHASING HABITS

1. Owns an SUV
2. Active Lifestyle | Pet Owner
3. Wine aficionado
4. User Assembled Furnishing
5. Regular customer at Home Depot
6. Family man
7. Insurance salesman
8. Owns a variety of DeWalt tools
9. Tech-Savvy
10. Suburban Homeowner
11. Heavy Duty clothing and shoes
12. Sports Fan



USER PROFILE

Name: Eric
Age: 42 years old
Occupation: Insurance salesman
Income Level: \$60,000
Household type: Family of 5
Geographic Location: Suburban
Descriptor: Do It Yourself home owner

Practical: Function is more important



Household “Do It Yourself” Projects

Household “Do It Yourself” projects require a variety of tools . The cordless drill and driver is the commonly use tool.



Plumbing fixture repair and installation



Furniture assembly and repair



Large appliance installation



Room expansion



Room remodelling



Wood Floor installation



Carpet installation



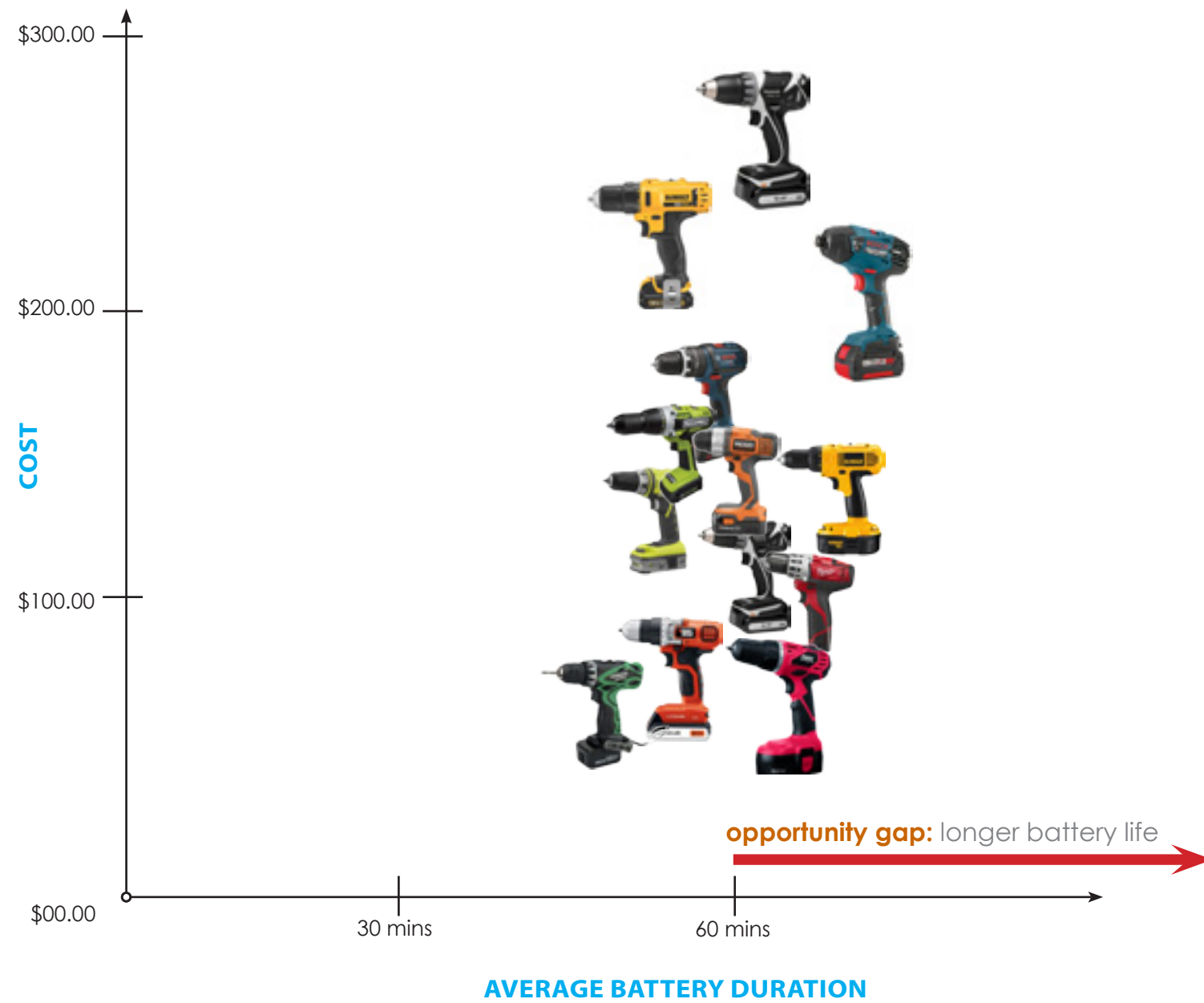
Window installation



Deck building and repair



Roof and gutter repairs



Market Summary

- On average, small DIY jobs last from 3- 12 hours
- Battery life of drills on the market lasts for about an hour.
- When the battery dies, users have to wait for it to recharge with an external charger before they can use the tool
- Some users own multiple batteries that they interchange when the battery dies during a job
- Waiting for the battery to recharge can sometimes double or triple work time
- Lithium Ion cells are best for drill because they are lightweight and have low discharge
- Single Sleeve chucks are easy to use because one hand is needed to install or remove chucks

Lithium Polymer Cells

Lithium Polymer cells are cost efficient, environmentally friendly, lasts two times longer than Lithium Ion Cells. Electronics that uses Lithium Poly cells are designed so the cells can be recharged through an AC adapter without the need for an external charger. This will allow the user to use the drill while it is being recharged.

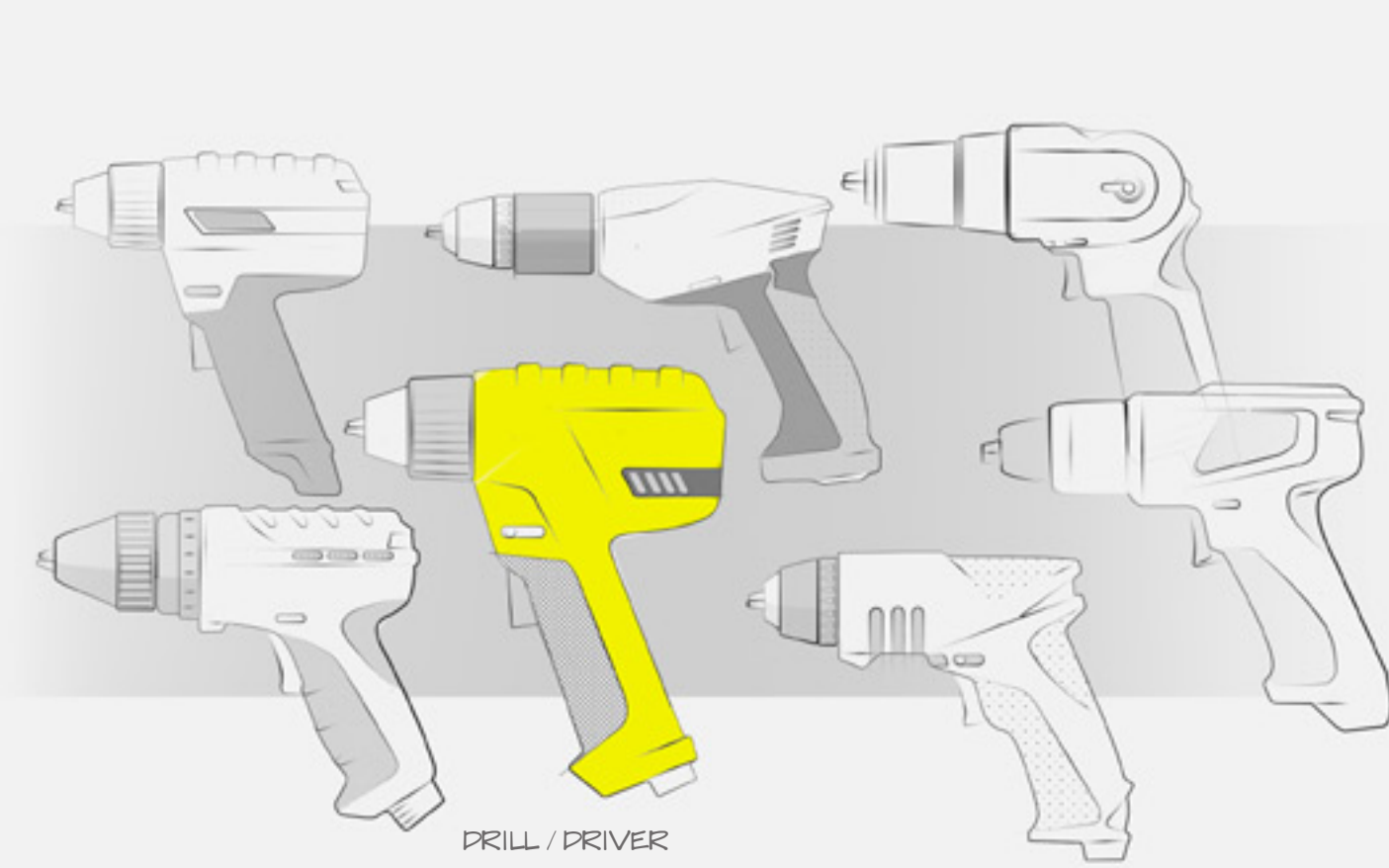


current products that uses Lithium Polymer cells

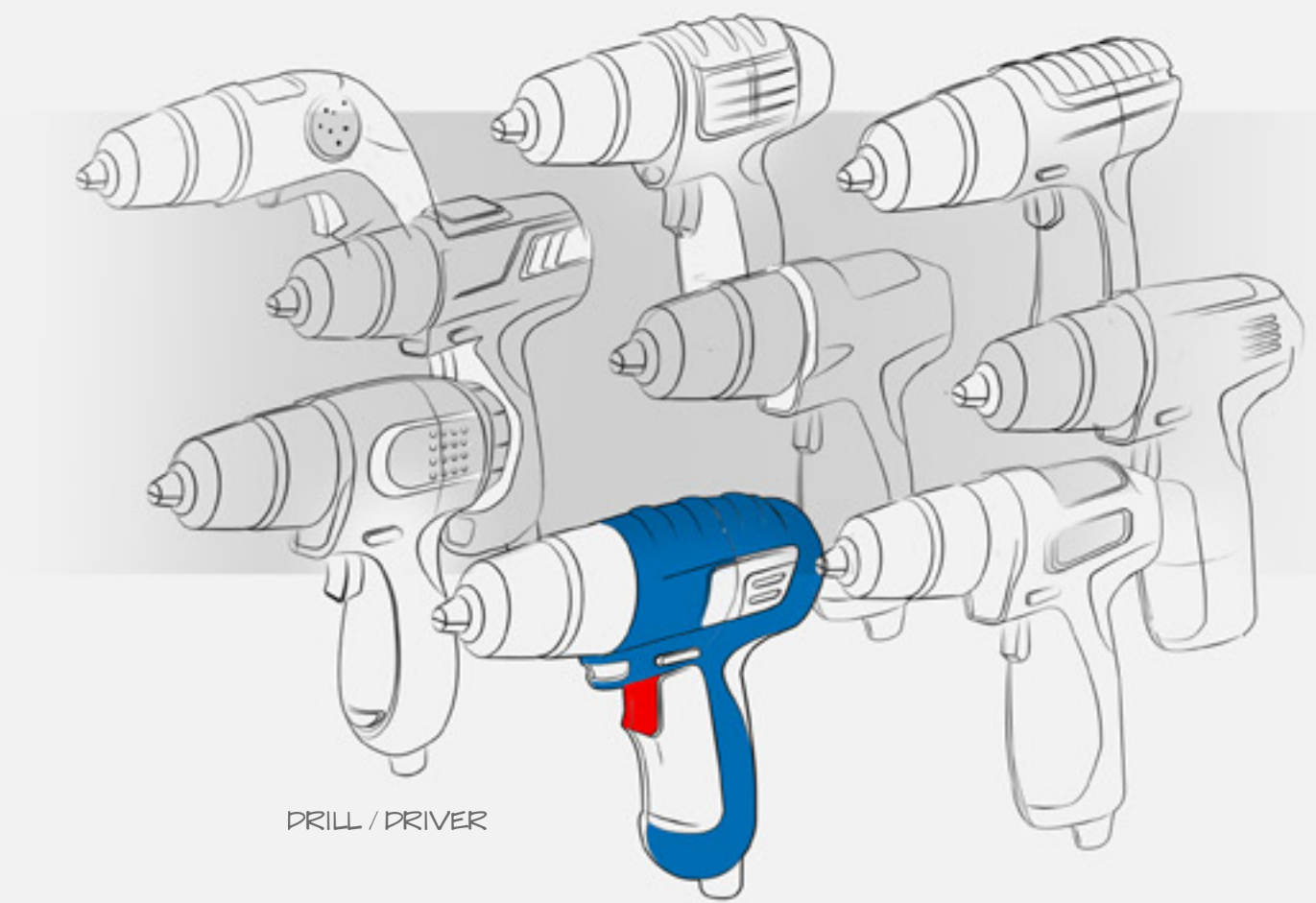
DIY Upgrade is a big problem

Do it Yourself upgrades from Lithium Ion batteries/Nickel Cadmium batteries to Lithium Polymer cells are very common because they are easy to do, yields great results and are cost efficient at an average cost of \$20.00. These upgrades pose various safety risks because the Lithium Polymer cell is left exposed sometimes and can explode when punctured. Since the drills are not designed for Lithium Polymer cells, they do not have built in safety features that prevent over charging of the cell. Over charging a Lithium Polymer cell can cause it to explode and start a fire.





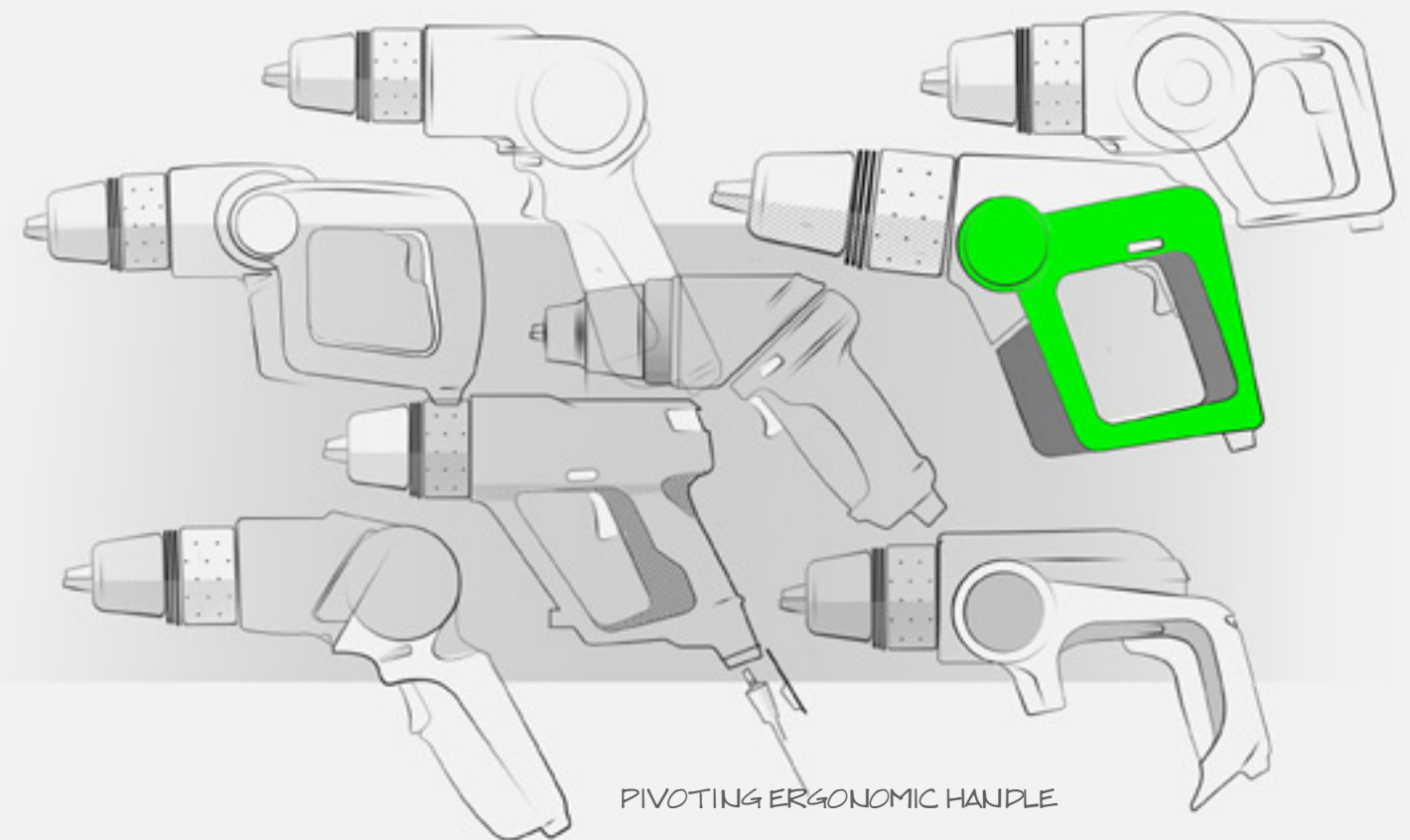
DRILL / DRIVER



DRILL / DRIVER



COMPACT DRILL / DRIVER

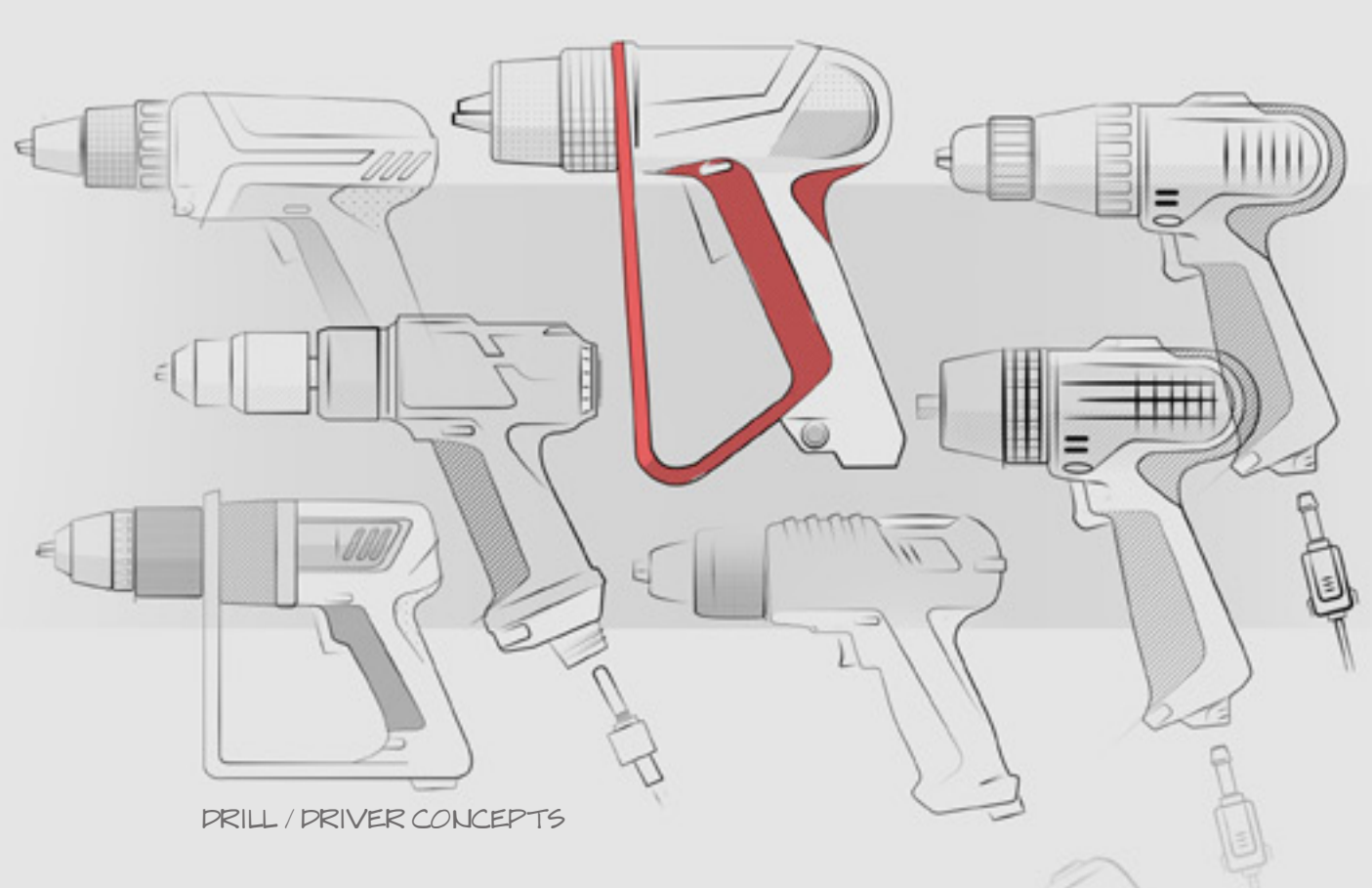


PIVOTING ERGONOMIC HANDLE

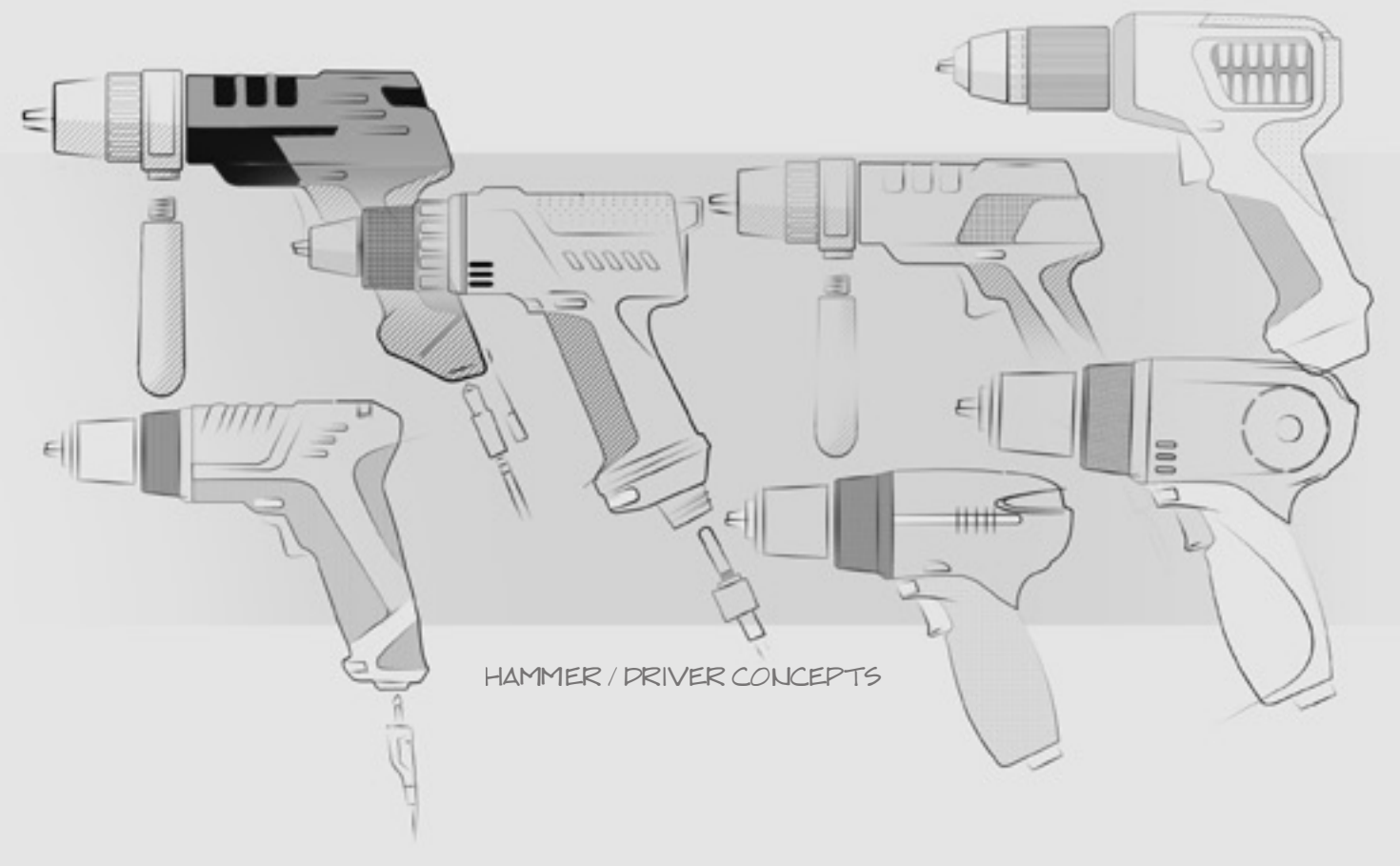
ALL CONCEPTS HAVE AN INTERNAL LI-POLY CELL THAT CAN BE CHARGED VIA AN AC ADAPTER

Adjustable handle concepts

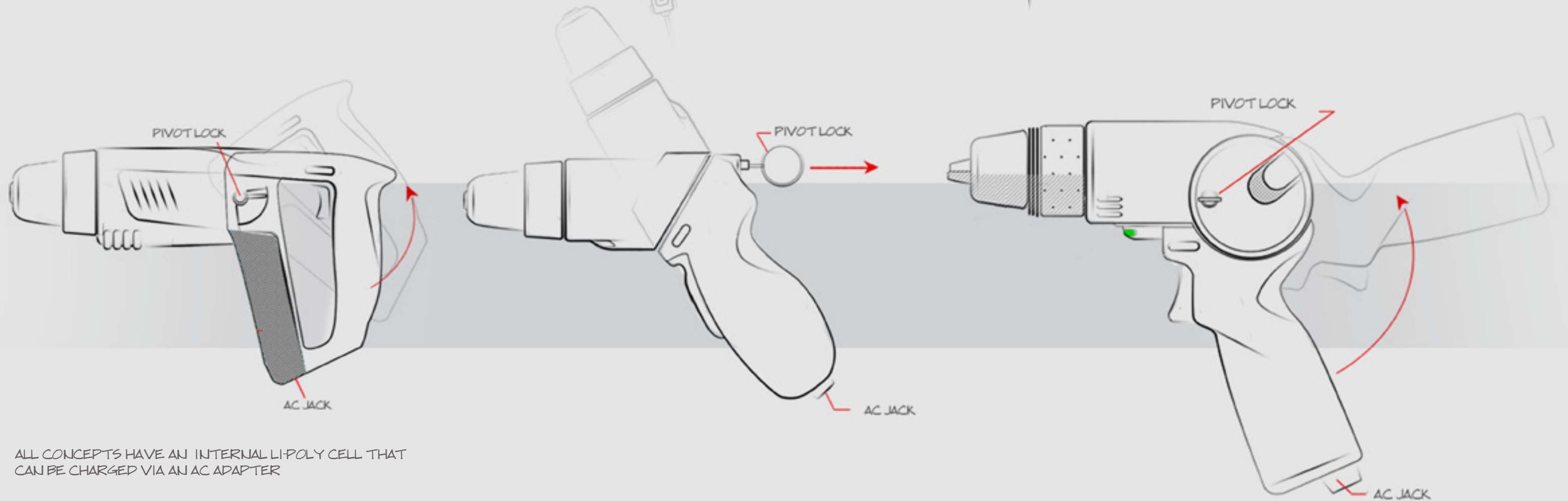
Drills with adjustable parts such as a pivoting handle are more comfortable to use because it allow the user to adjust them to a position ideal for the job



DRILL / DRIVER CONCEPTS



HAMMER / DRIVER CONCEPTS



ALL CONCEPTS HAVE AN INTERNAL LI-POLY CELL THAT CAN BE CHARGED VIA AN AC ADAPTER

Adjustable Handle: Drill / Driver



Mock-Up Testing Summary

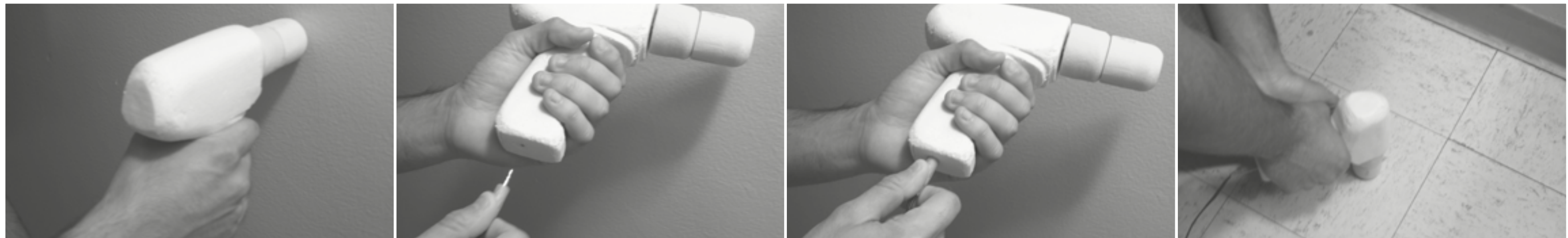
Drills with adjustable parts such as a pivoting handle are more comfortable to use because it allows the user to adjust them to a position ideal for the task at hand.

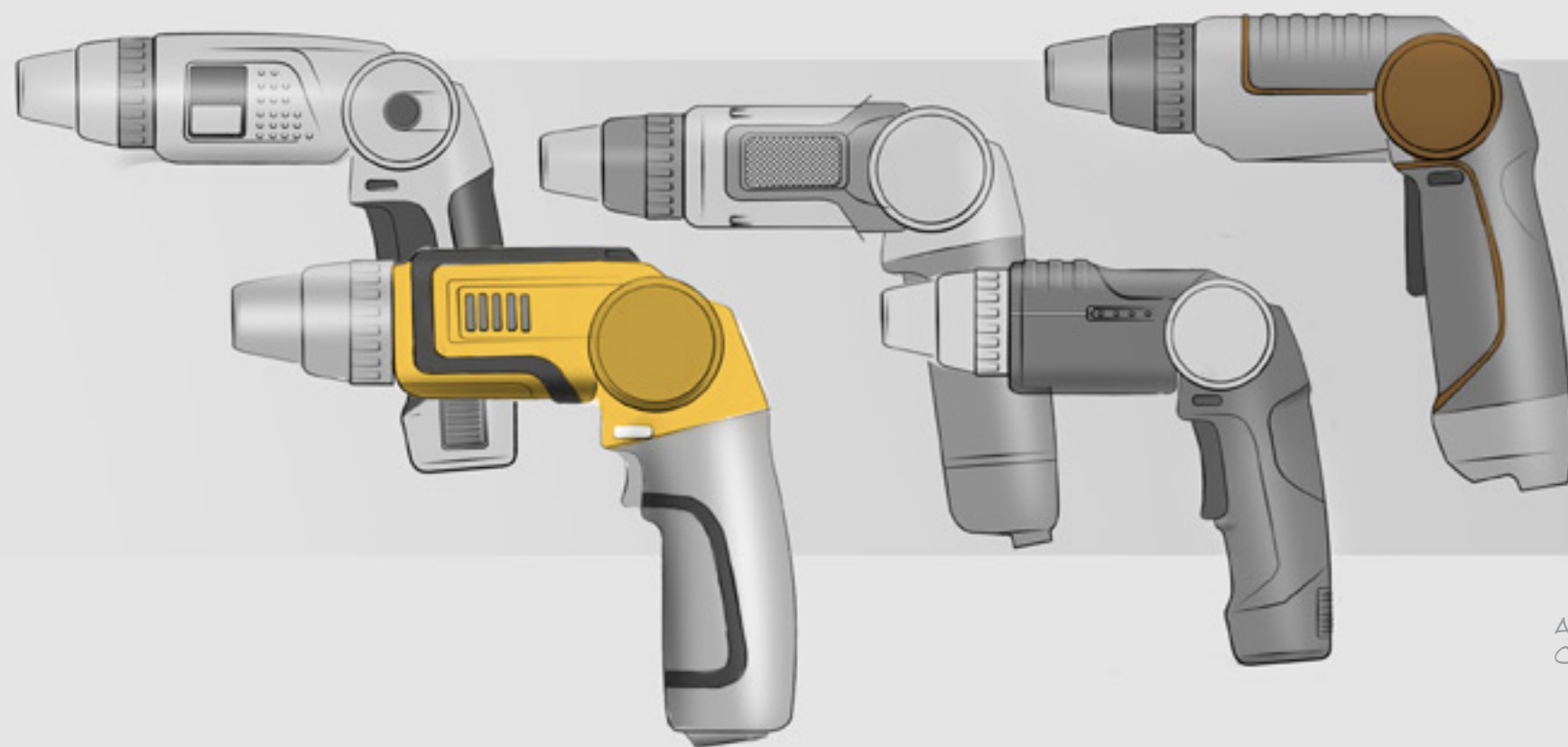
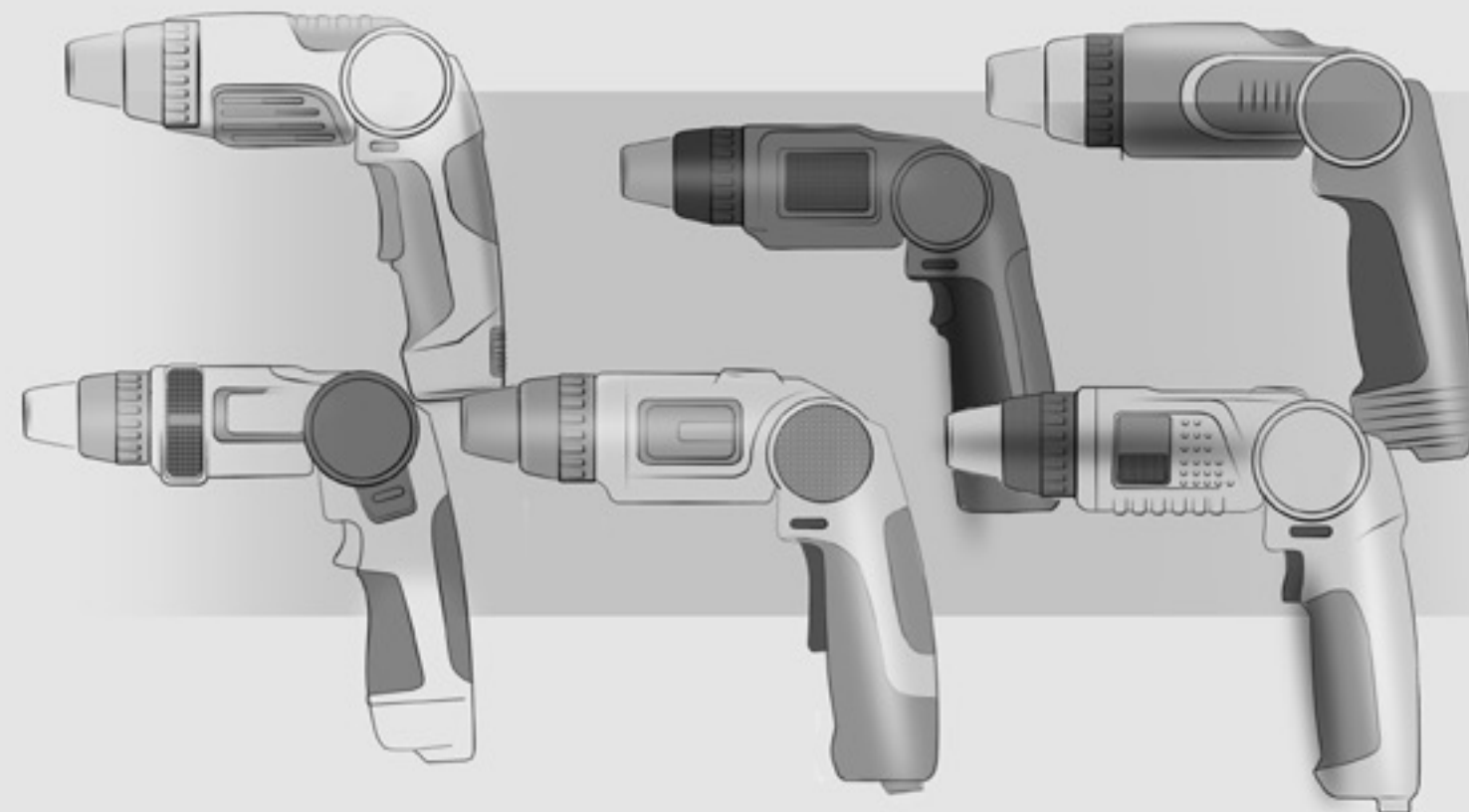
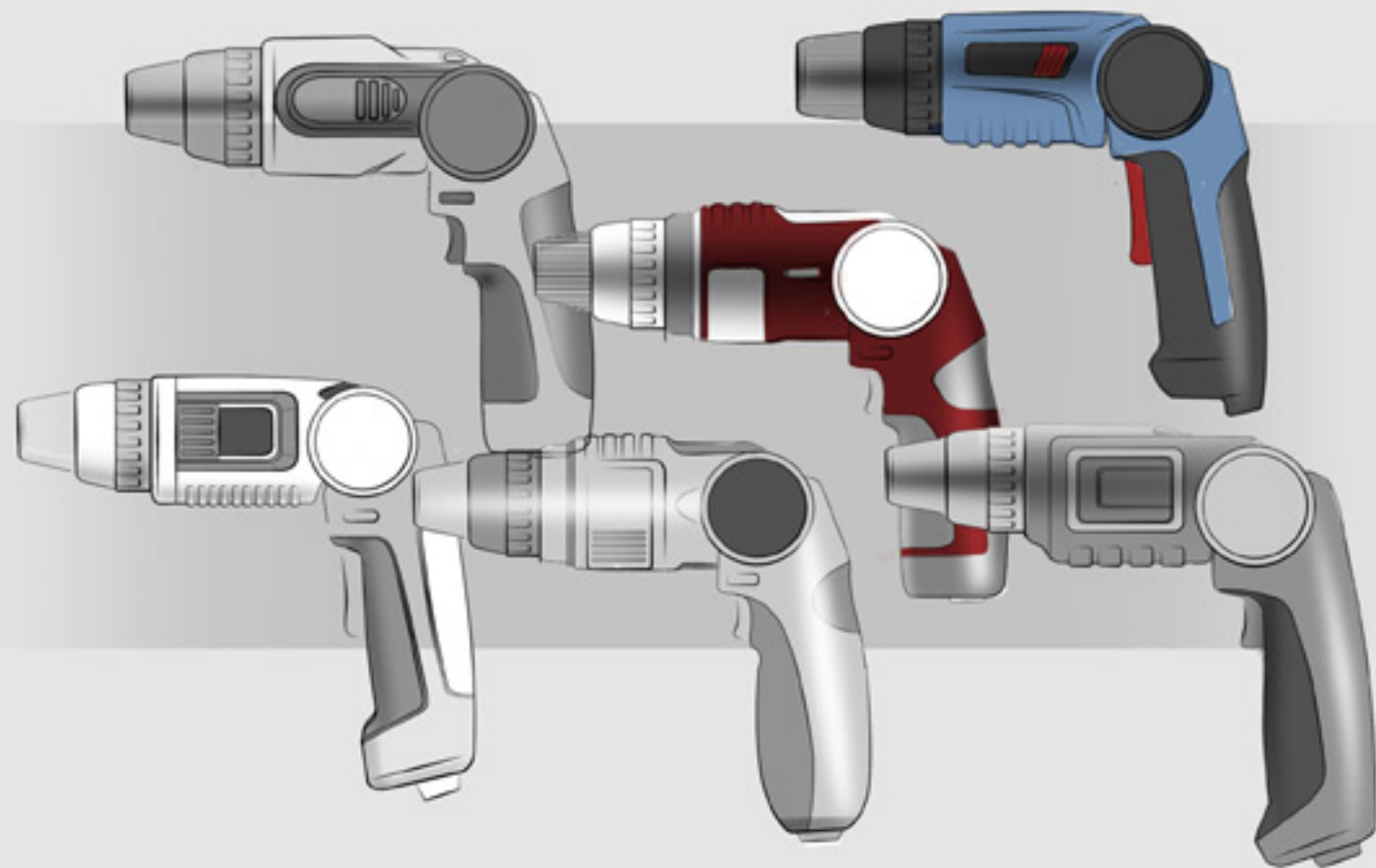
A longer battery life means longer work times. Comfort and ease of use is very important to the drill design

Compact: Drill / Driver



Traditional: Drill / Driver





ALL CONCEPTS HAVE AN INTERNAL LI-POLY CELL THAT CAN BE CHARGED VIA AN AC ADAPTER

Additional testing



Use Sequence



drill / drive screws



pull pivot lock to adjust handle position



adjusting the handle is more comfortable to the user and also reduces chances of drilling at an angle



plug in AC adapter to charge Li-Poly battery



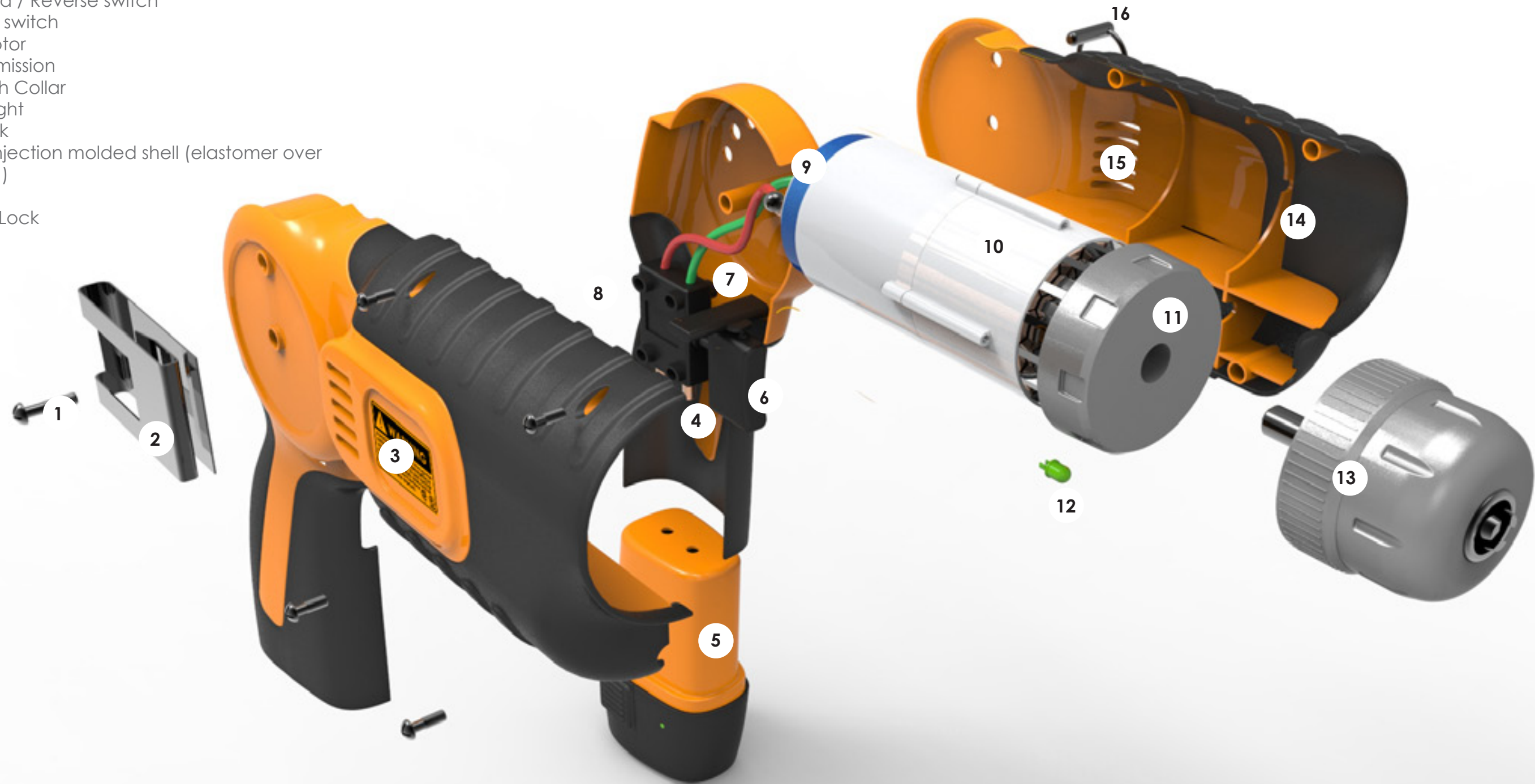
continue to use drill with AC adapter plugged in

Summary

Final Product meets the needs of it's target user because the AC Adapter allows it to be used while it is being charged which eliminates wait time. The pivoting handle is more ergonomic and comfortable to use because it allows the user to adjust the handle to a position suitable for the task being performed

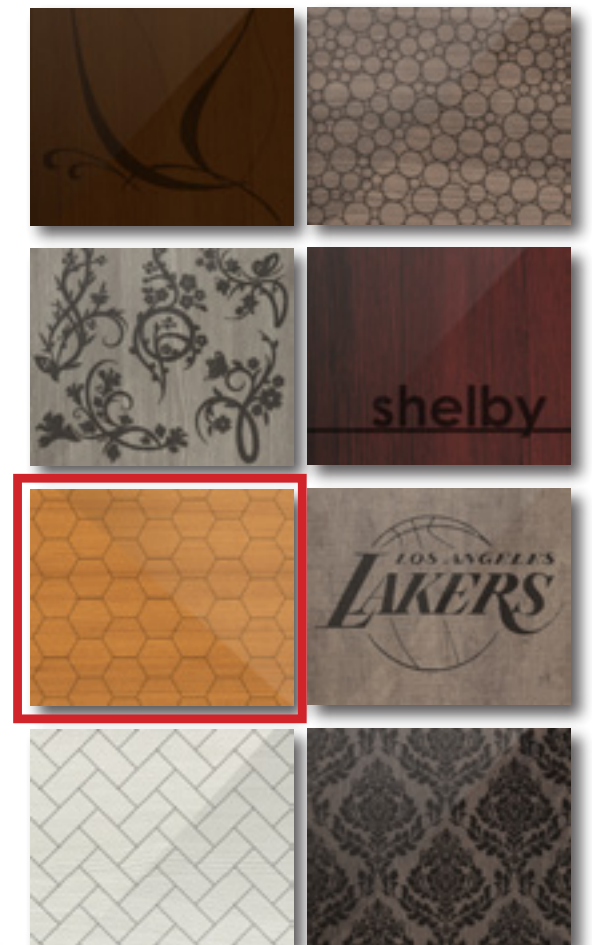
Components

1. Screw
2. Belt clip
3. Space for Electric shock and spark warning decal
4. Battery to trigger switch connector
5. Lithium Polymer Cell
6. Trigger
7. Forward / Reverse switch
8. Trigger switch
9. DC Motor
10. Transmission
11. Clutch Collar
12. LED light
13. Chuck
14. Co- injection molded shell (elastomer over HDPE)
15. Vent
16. Pivot Lock

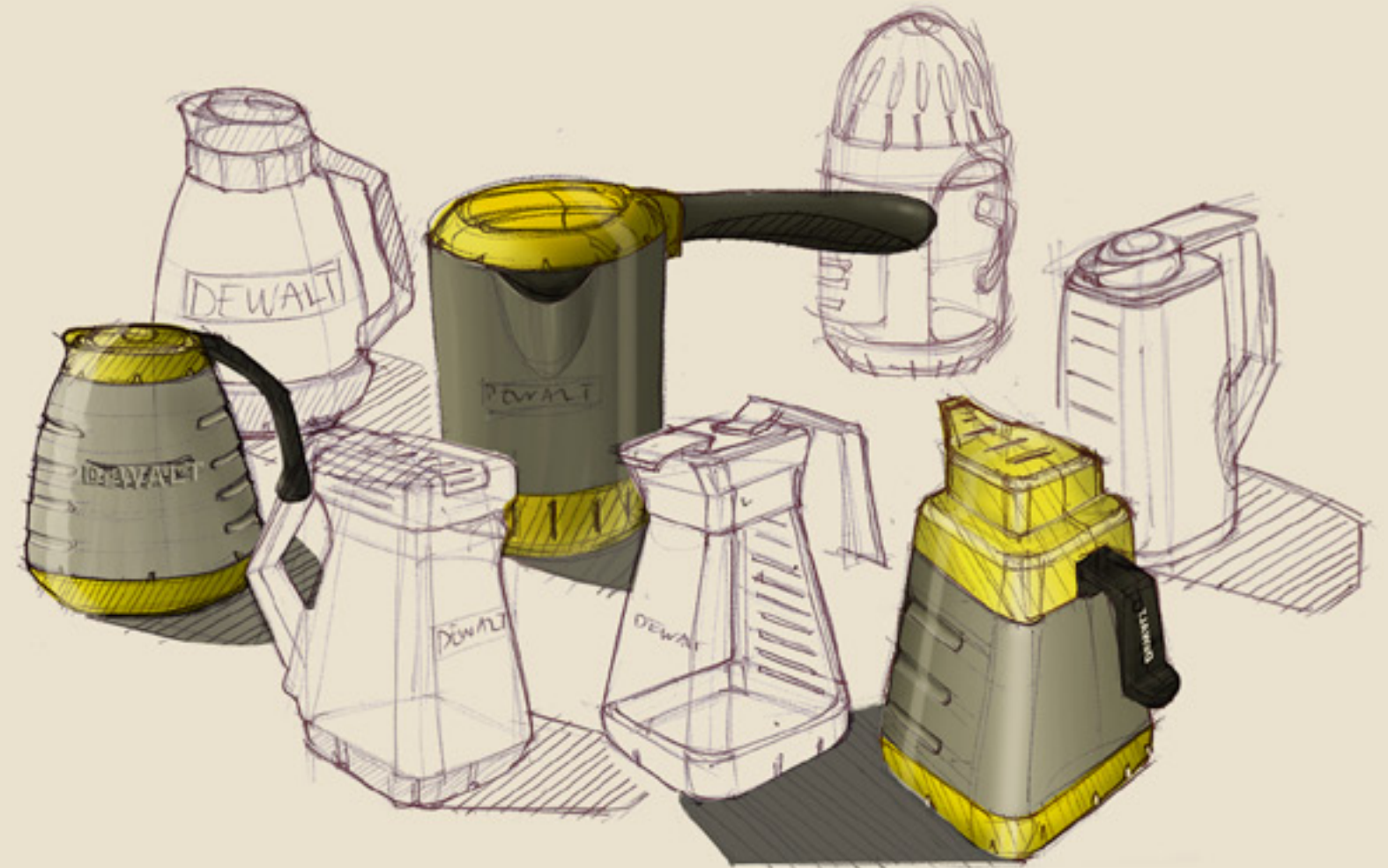




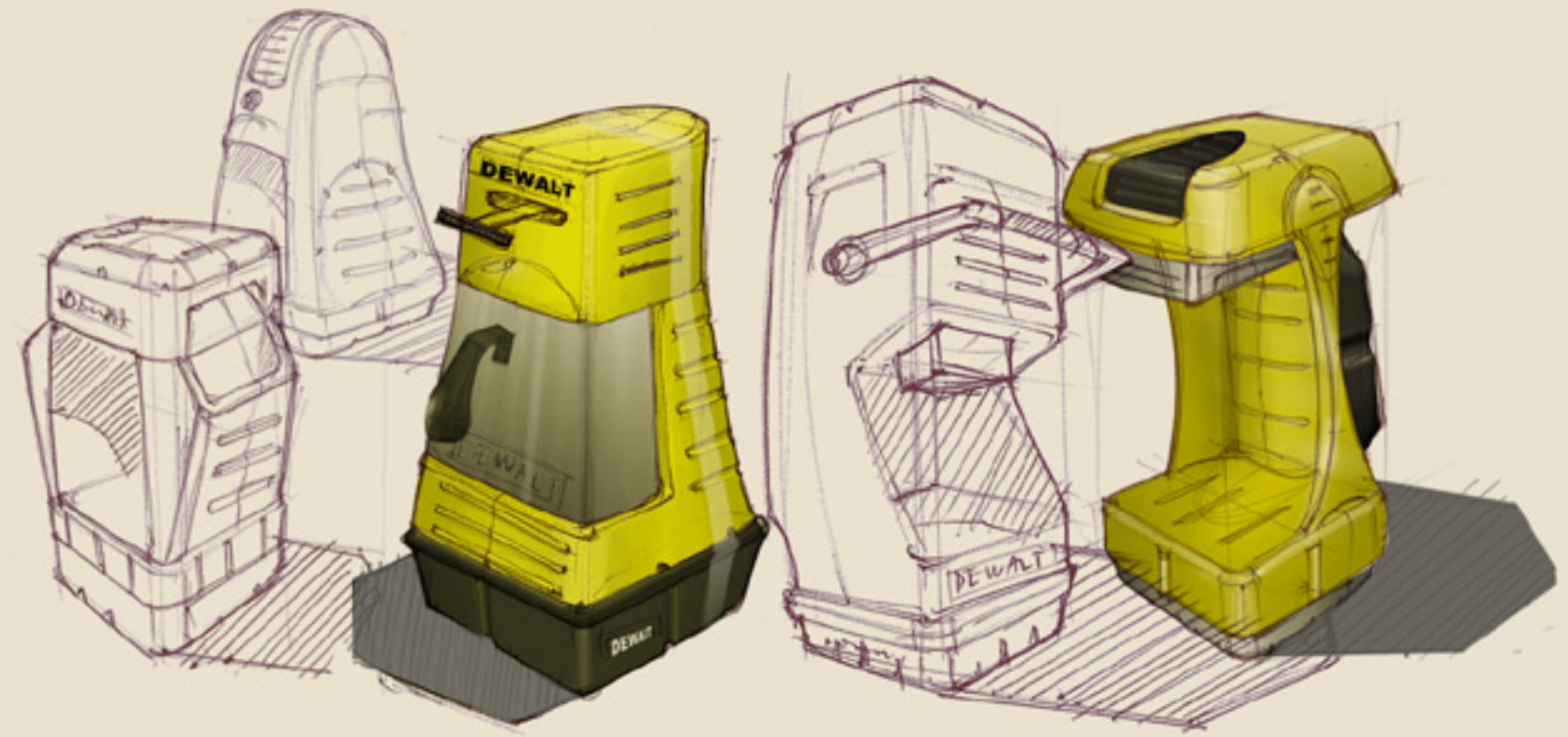


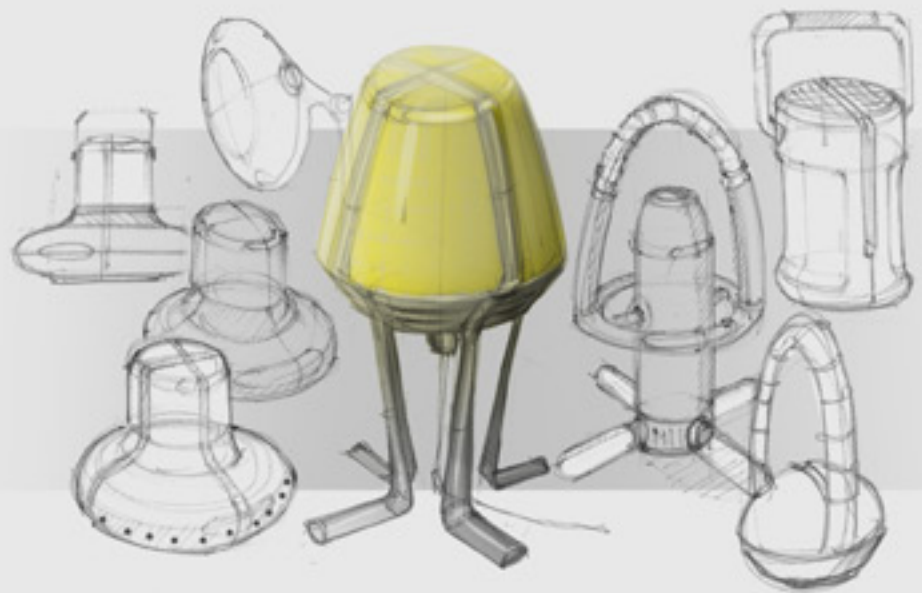


Samples of custom laser engraved patterns on stained and varnished wood

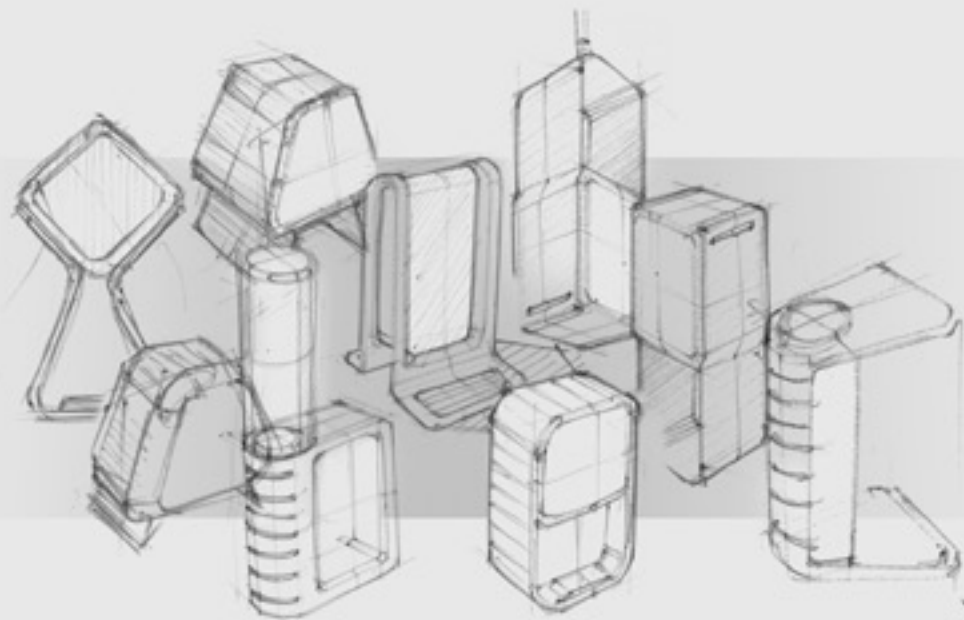


CARAFES

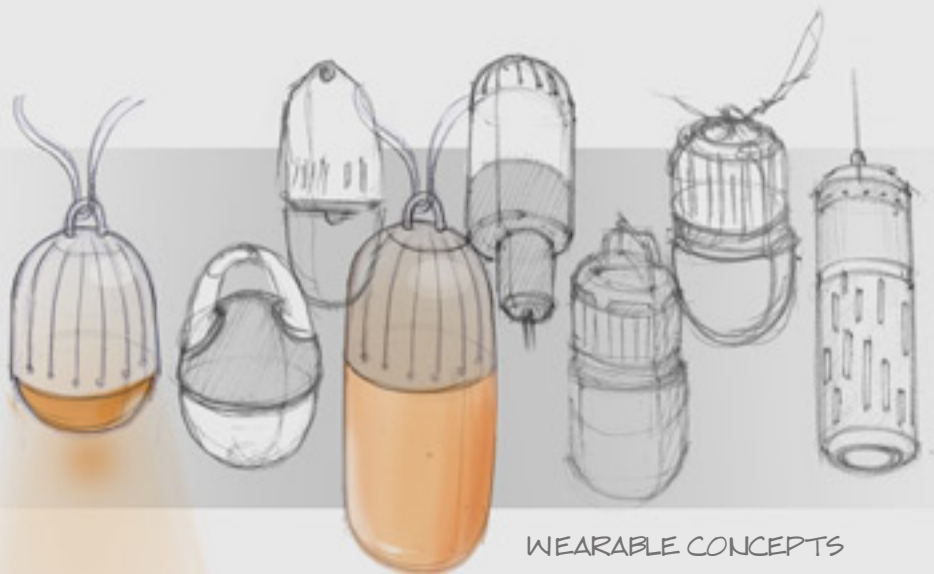




STATIONARY C



STATIONARY CONCEPTS



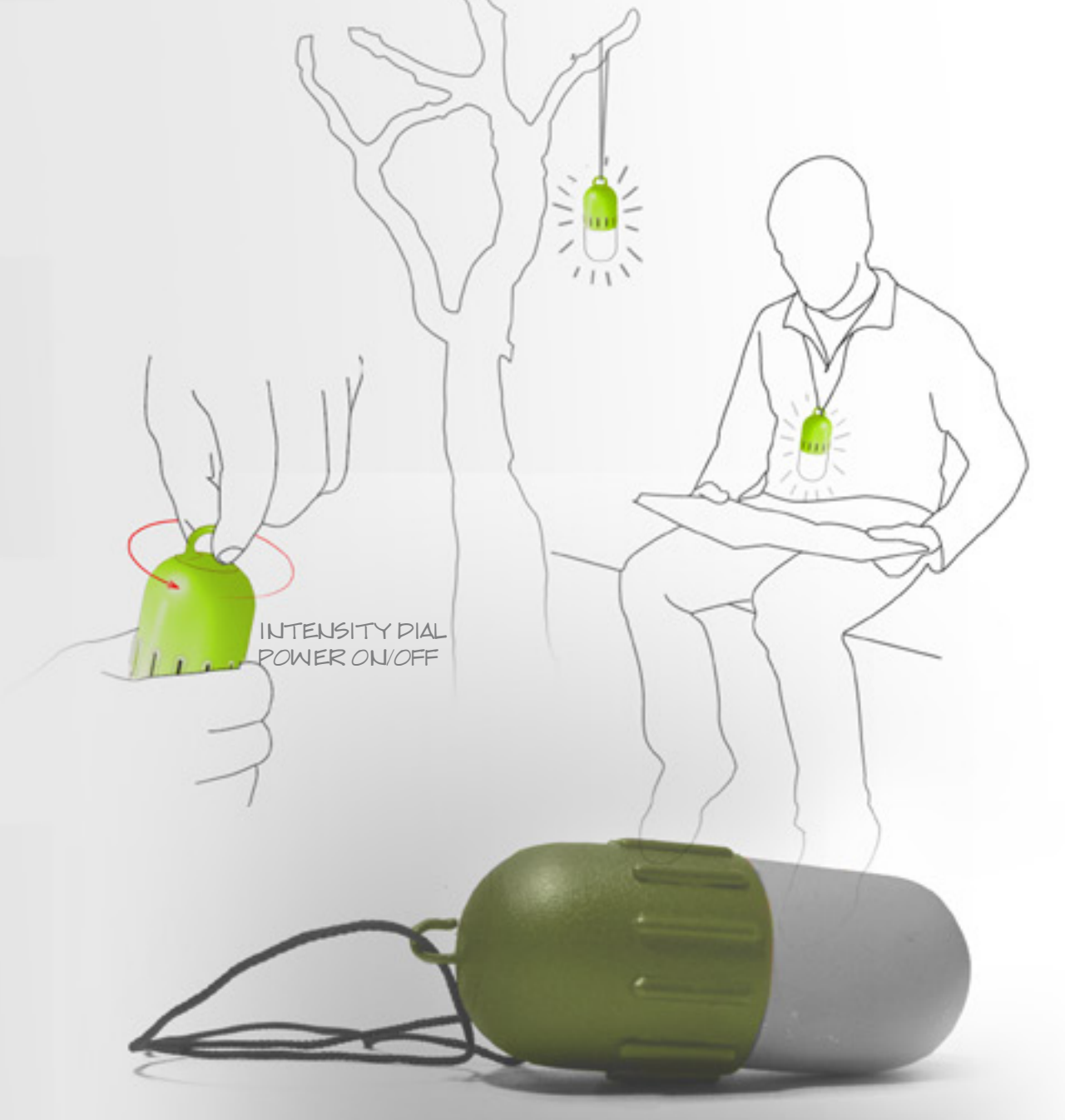
WEARABLE CONCEPTS

Negative Ions

Negative Ions occur naturally and are highly concentrated in forests and waterfalls. Due to the positive ions created by heating and cooling systems, TVs, radios, computers, exhausts, cigarette fumes, etc, they are scarce in the home. Negative ion generators artificially increase the amount of negative ions in a space.

Benefits of Negative Ions

- Purifies air by neutralizing positive ions
- Increase the flow of oxygen to the brain; resulting in higher alertness, decreased drowsiness, and more mental energy
- Protects against germs in the air, resulting in decreased irritation caused by inhaling various particles that makes you sneeze, cough, or have a throat irritation.



Delight Ion

Air Purifying Lamp