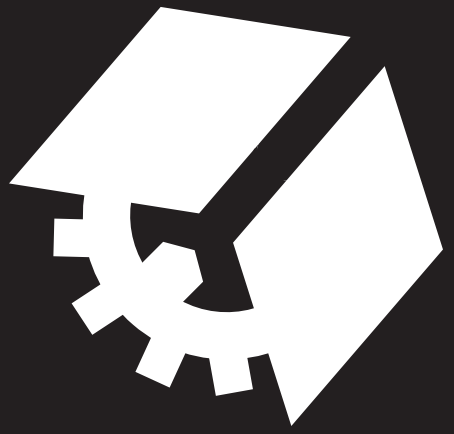

PORTFOLIO

WILLIAM CLEMENCY

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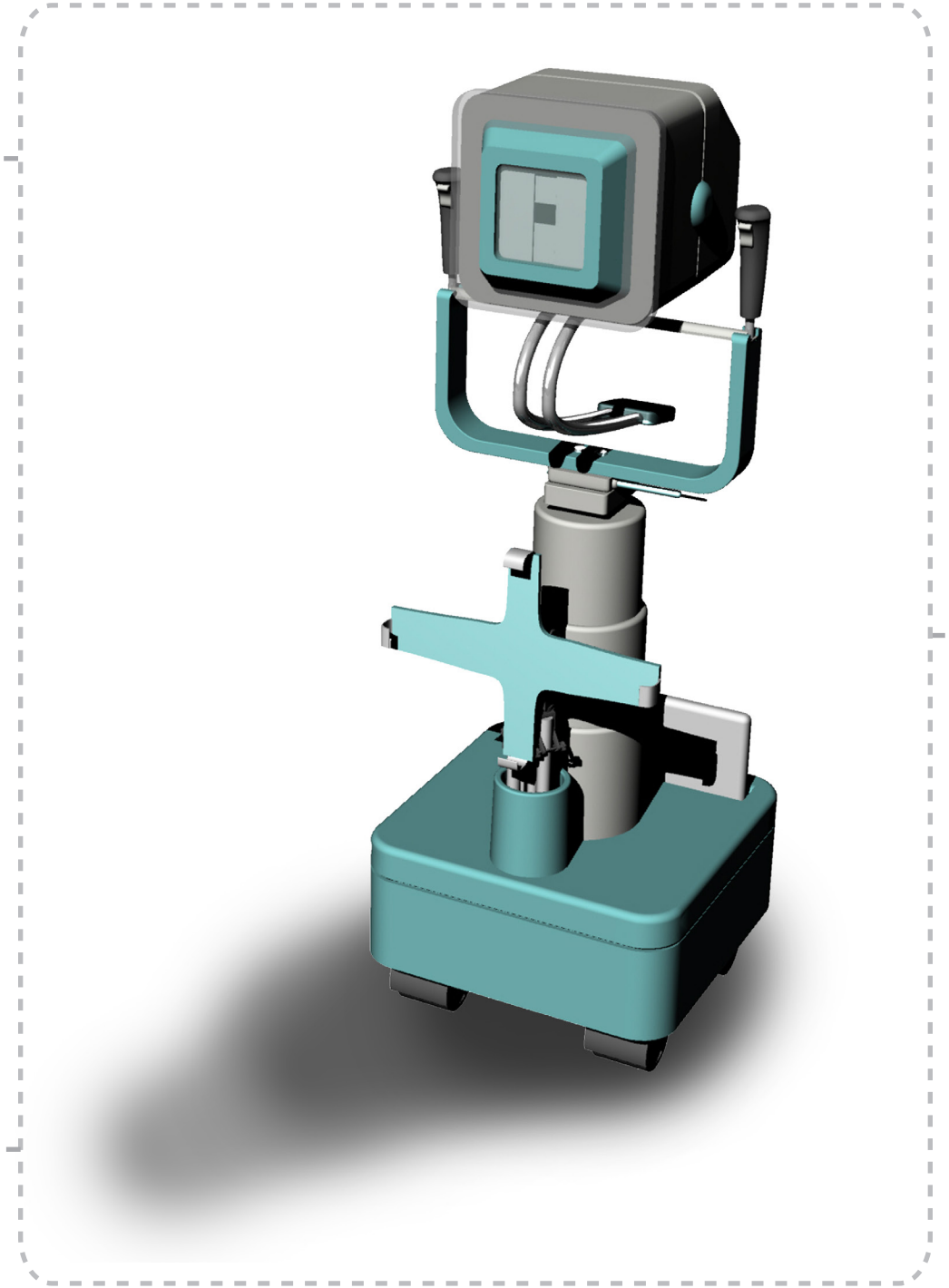
PROBLEM STATEMENT:

There has to be a quick, more efficient, and more accurate way scan someone for an x-ray.

SCANHELD
X - R A Y

What?

The Scanheld X-ray machine is an compact, innovative medical device that would allow EMTs to set up and perform X-rays on wounded patients at the site of the injury or while on the way to the hospital.

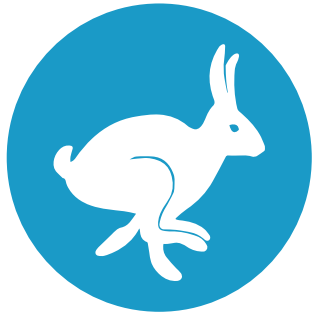


One of the biggest difficulties faced these days by medical professionals and technicians when it comes to taking an x-ray is mobility. If a patients condition is too severe for them to move it could be too risky take them to a room with a stationary x-ray. In this case the doctor's would use a mobile x-ray, and take the machine to the patient. However, many mobile x-rays take up a lot of space and don't have the best maneuverability for moving around the many important pieces of medical equipment that would possibly be in the room.

The Scanheld can help solve these problems due its compatibility, portability, and flexibility, providing high quality x-ray scans either in the hospital or on the field. Utilizing gimbal based technology and conservative use of space, the Scanheld becomes a reliable and versatile piece of medical equipment. What makes the Scanheld different from other x-rays is that its composition is made up of three different parts: a base, a receptor stand, and the scanner itself. Each part utilizes a different to make the Scanheld a unique and practical medical device.

MOBILE

ACCURATE

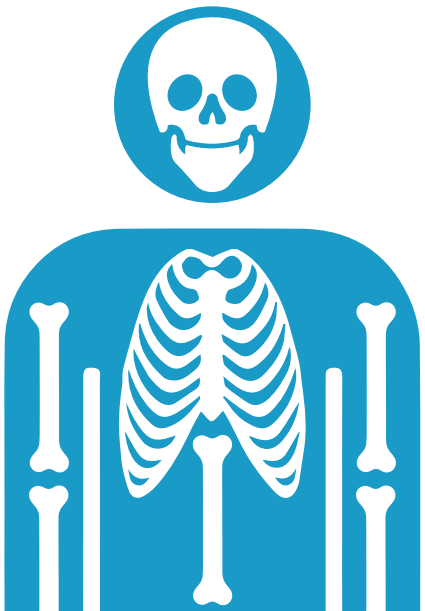


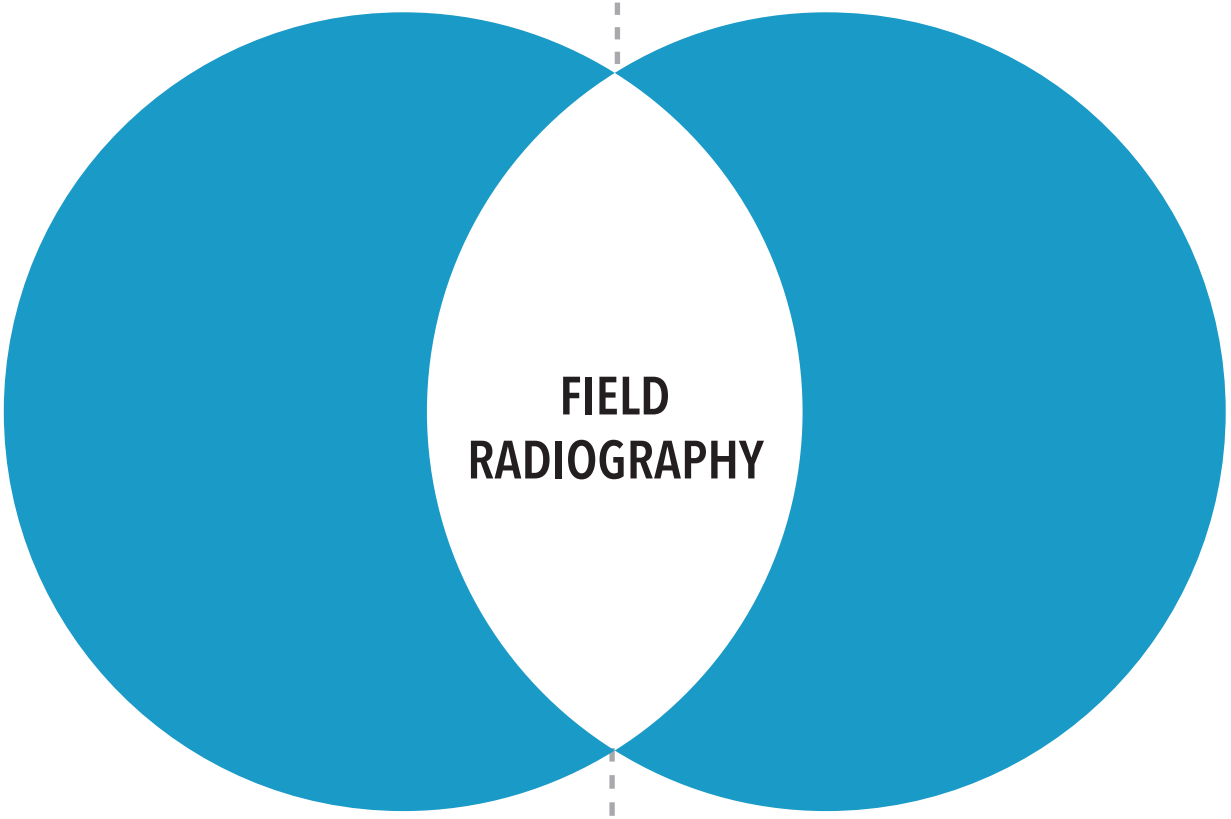
QUICK

TARGET MARKET

Who?

The innovativeness in the Scanheld's design is that creates a new market of radiography entirely: field radiography. Field radiography is the practice of radiography offsite, away from the hospital. Imagine if a doctor received a scan of a broken leg 15 minutes before their patient arrives. That's a lot of time to prepare for treament.





CURRENT MARKET

STATIONARY

Stationary x-rays are the most advanced and accurate medical x-ray machines on the planet. They're if you want a zero percent chance of skewing, blurring, or any other complications when taking an x-ray. However, if a patient is in too critical a condition, they wouldn't be able to get to use it because moving them could further their injuries.

MOBILE

Mobile x-rays are much more compact and portable than their stationary cousins. Mobile x-rays are typically used when a patient can't leave their bed without risk of worsening their condition. However, these machines are bulky, delicate, and known for their occasional inaccuracies. They usually have trouble maneuvering around medical equipment in a room.

HANDHELD

Handheld x-rays are a very niche category of x-ray machine, and are only used in the fields of optomitry and dentistry. These devices are incredibly handy, as they are lightweight, durable, and be used in any room with little readjustment effort on the patient's end.

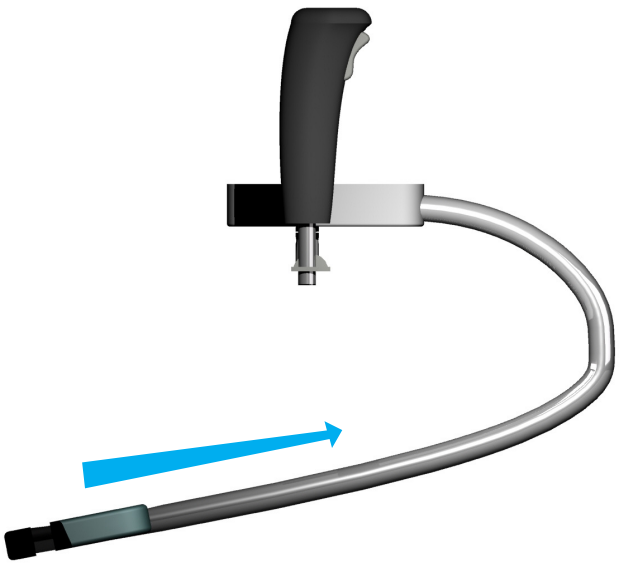
INSPIRATION

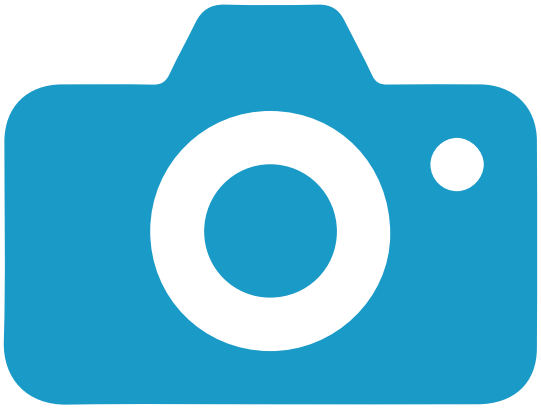
Where?

The inspiration behind the technology of a gimble based STEADICAM camera, which, no matter how much you shake it, provides a leveled, steady picture. Since accuracy is so important in radiography, setting up a gimble based handheld x-ray seems like the best next step!

STEADICAM

SCANHELD





COMPONENTS

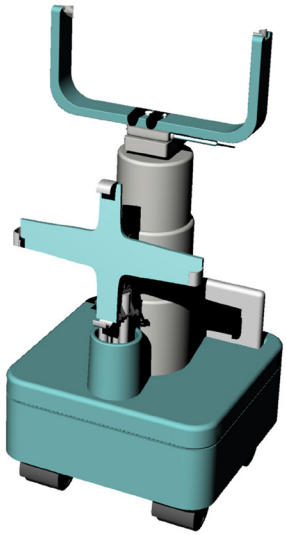
RECEPTOR STAND

Should the user need it, a stand that is meant to hold and secure an x-ray receptor is inside the front of the base of the Scanheld. Using technology similar to that of a collapsable camara stand, the receptor stand can easily be stretched out using telescopic legs, and then condensed and put away when not in use.

CONSOLE

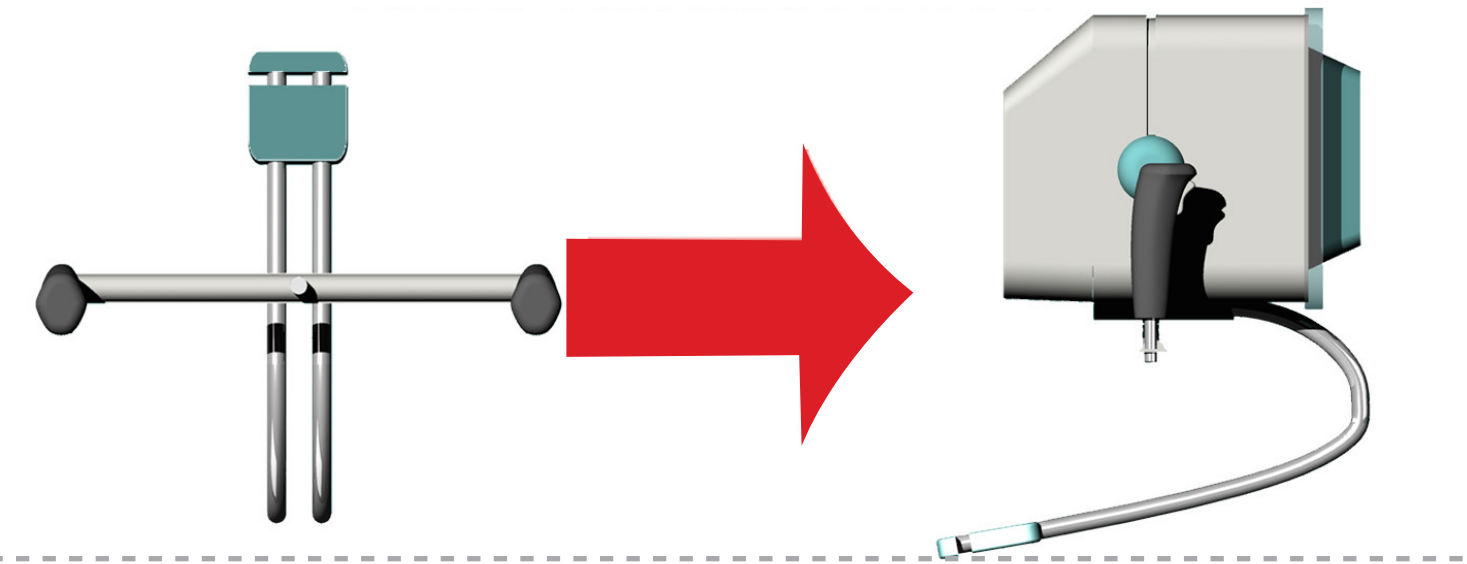
The console contains a number of different components, including a gimble, small digital computer software, a lead shield, handles, a cathode, an annode, and all the other basic components that go into constructing an X-ray. Once an x-ray has been taken, it sends a wireless signal of the x-ray over to a terminal inside the hopital.

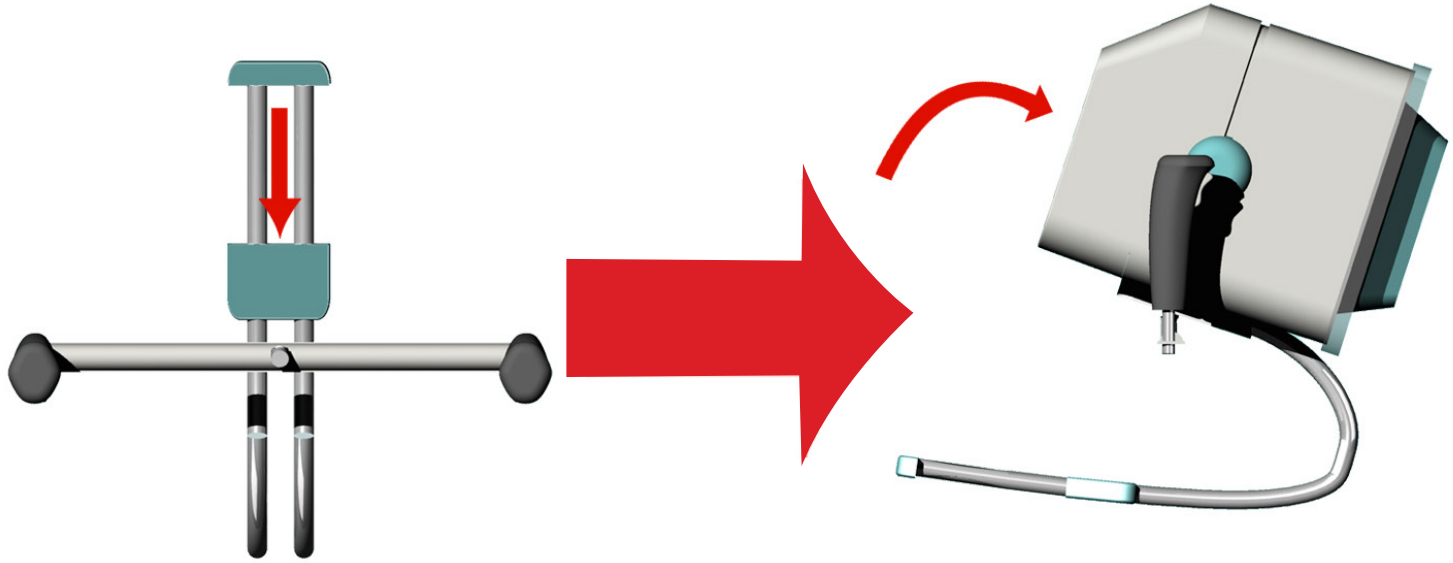
X-RAY BASE



The x-ray base holds a wide variety of functions. It holds the console in place, should it not need to be removed, it charges the console using a small battery at the bottem of the base, and it stores both the receptor stand and receptor plate, and it has an adjustable height, all while being able to be effortlessly wheeled around.

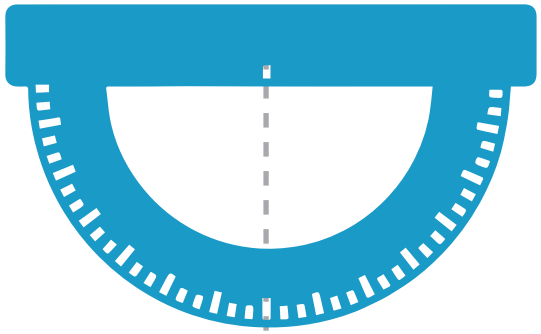
HOW IT WORKS





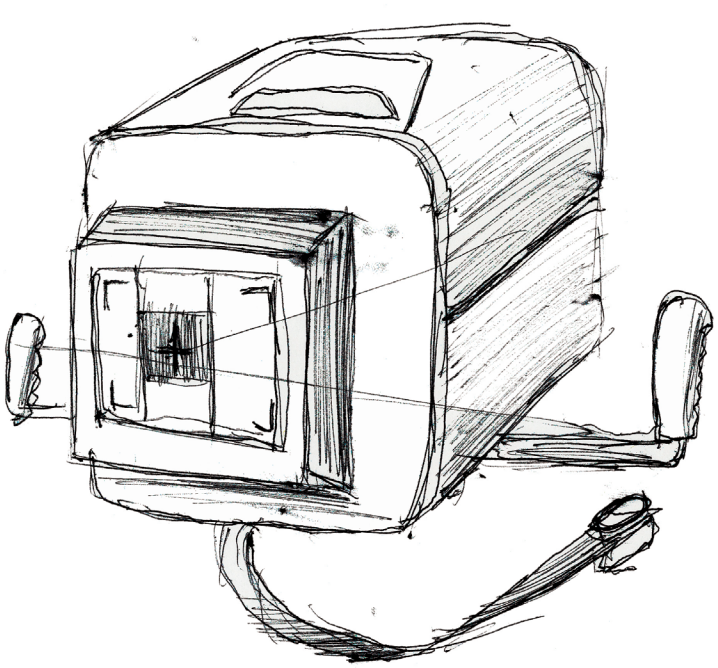
How?

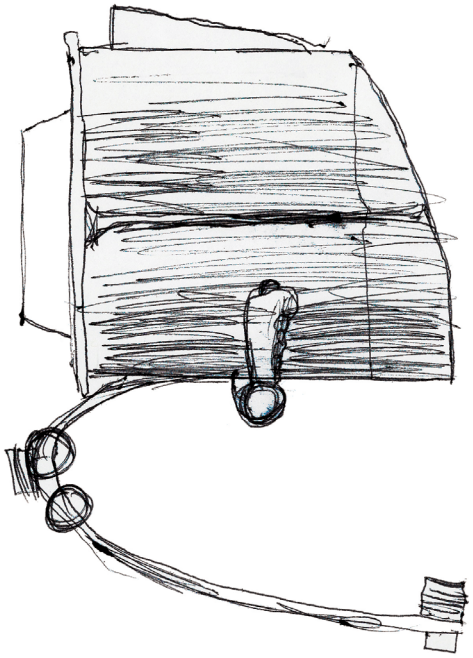
The gimble system on this machine is actually incredibly simple. On the end of the bar there is a weight that keeps the Scanheld balanced while it's in use. There's a little button you apply pressure to if you want to change the angle of projection. As you slide the weight along the little bars, there is a guide via numbers-and-arrow carved into the metal that tells you exactly what angle you are at so can adjust the receptor stand accordingly.

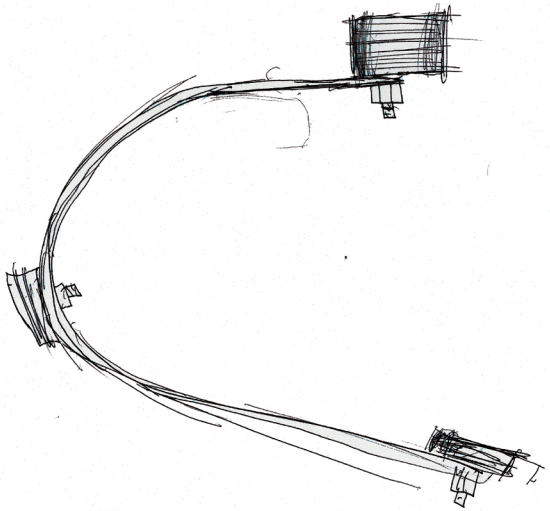


SKETCHES

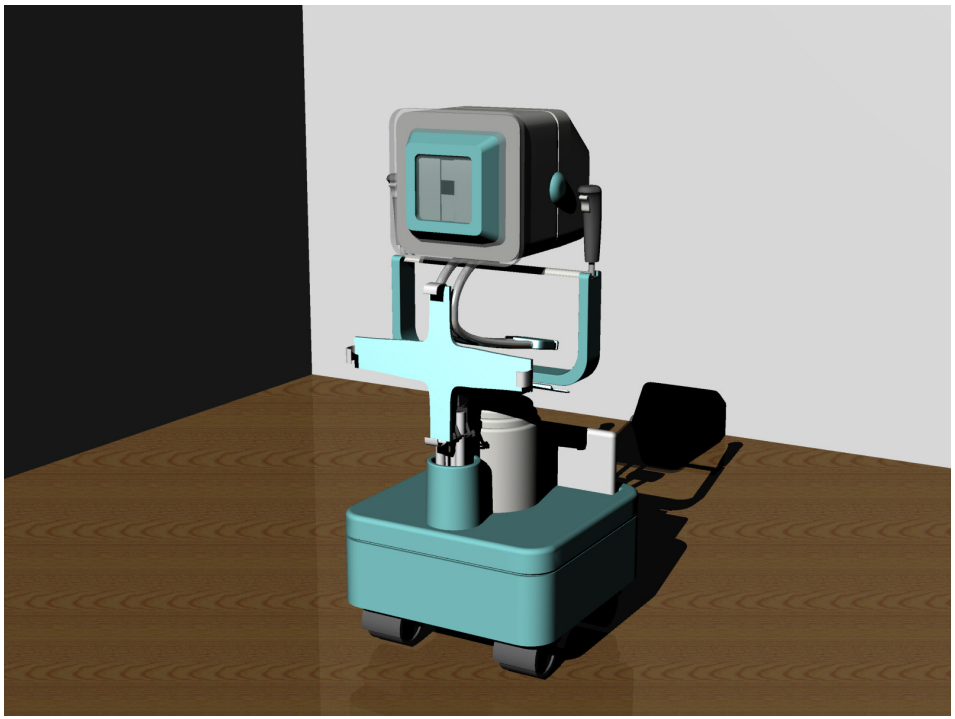
I'm sorry to say that this project never really lead much in terms of form. I was so excited to design I never really had an inspiration of form besides an old desktop computer. As you can see from my sketches, the weight slider used to be much more primative than a regular click and slide. It was orignally a screw-to-loosen, adjust, and then screw-to-tighten, a much slower process. However, I suppose that this is why iteration is the most important thing when it comes to desiging a product.

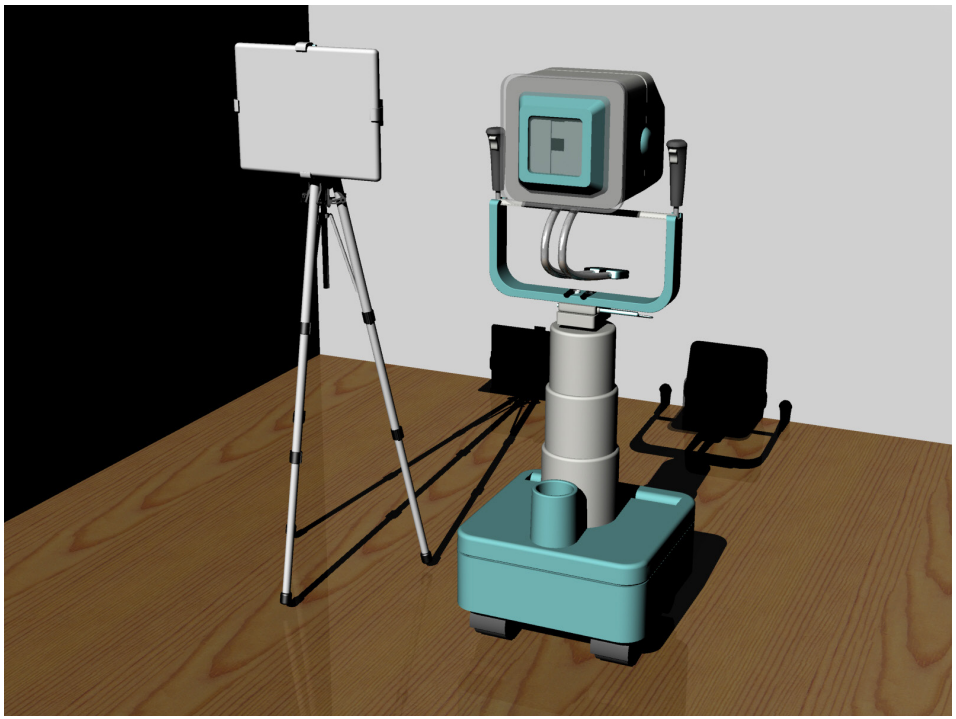






RENDERINGS






SCANHELD

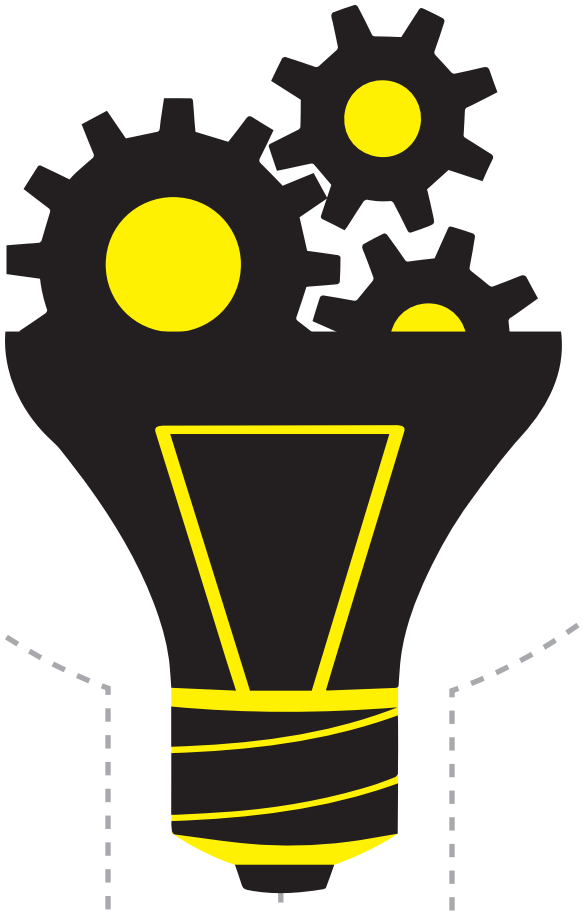
PROBLEM STATEMENT:

There needs to be a more engaging, positive learning environment in an out of school.

SELF-STUDY
PROGRAM

What?

The Self Study class is aimed at promoting the futures of high school students by providing the environment, time, resources, and encouraging feedback to each individual student.

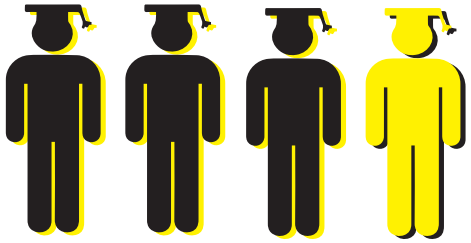


The Self Study class acts as a hub that connects many resources for the benefit of the students, providing a systematic, logical structure that connects many independent organizations for the ease of the students. The unification of these organizations will provide a systematic pathway of non-standard education for the students—thus creating an education opportunity for students to test out potential career areas without the harsh financial consequences that most post-graduates face.

In addition, the consolodation of these organizations will divide up the time, resources, and teaching responsibilities into manageable expense amounts for each organization's budget. The technical schools offer hands-on resources and workshops for students to apply and practice their skills, mentorship programs offer students expert guidance and networking opportunities, and Governor's Schools offer academically enriching programs. Currently, these organizations stand mostly alone, but all together they can skyrocket student innovation and ingenuity.

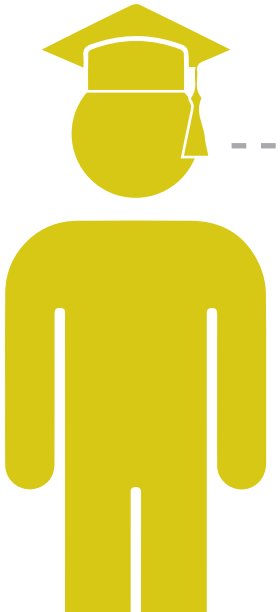
PAIN POINTS

1 of 3 high school students don't end up going to college



75% of college students change their major before graduation

80% of people in United States are dissatisfied with their current job



Students are losing creativity.

Life after school isn't standardized.

People are born to be curious.

STAGES

SELF IDENTITY

During this stage the students will spend time sharing their skills and passions, introducing to their fellow students what they love to do.

EXPLORATION & BROADENING

This stage's goal is to broaden the student's perspective. This will be done through field trips, guest speakers, and research to help the student expand upon the skill they want to learn.

BRAINSTORM IDEAL SKILLS

At this point, the student will begin thinking about how they want to explore their subject of interest. This stage is all about setting ambitions and helping the students develop an objective for the final project.

EXPLORE A NEW SKILL

Here, the students will start exploring and harnessing their ambition. This is where they will develop a plan involving their chosen passion and work on it, gathering all their resources for their final presentation.

PRESENTATION

Throughout the year, the students will be doing presentations that the show progress they've made with the skills they've studied. All this will lead to a final display where they'll show the teacher what they've learned

SCHEDULE

DISCUSSION DAYS	WORK DAYS	PRESENTATION DAYS	DIVERGENT DAYS
Lectures. Sharing. Reviewing. Critiquing.	Research. Writing. Planning. Building.	Informing. Displaying. Talking. Progressing.	Free Flow. Spontaneous. Collaborative. Different.

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
DISCUSS	DISCUSS	WORK	WORK	PRESENT/ DIVERGE

SELF STUDY

A CLASS GEARED TOWARDS SELF-EXPLORATION

PROBLEM STATEMENT:

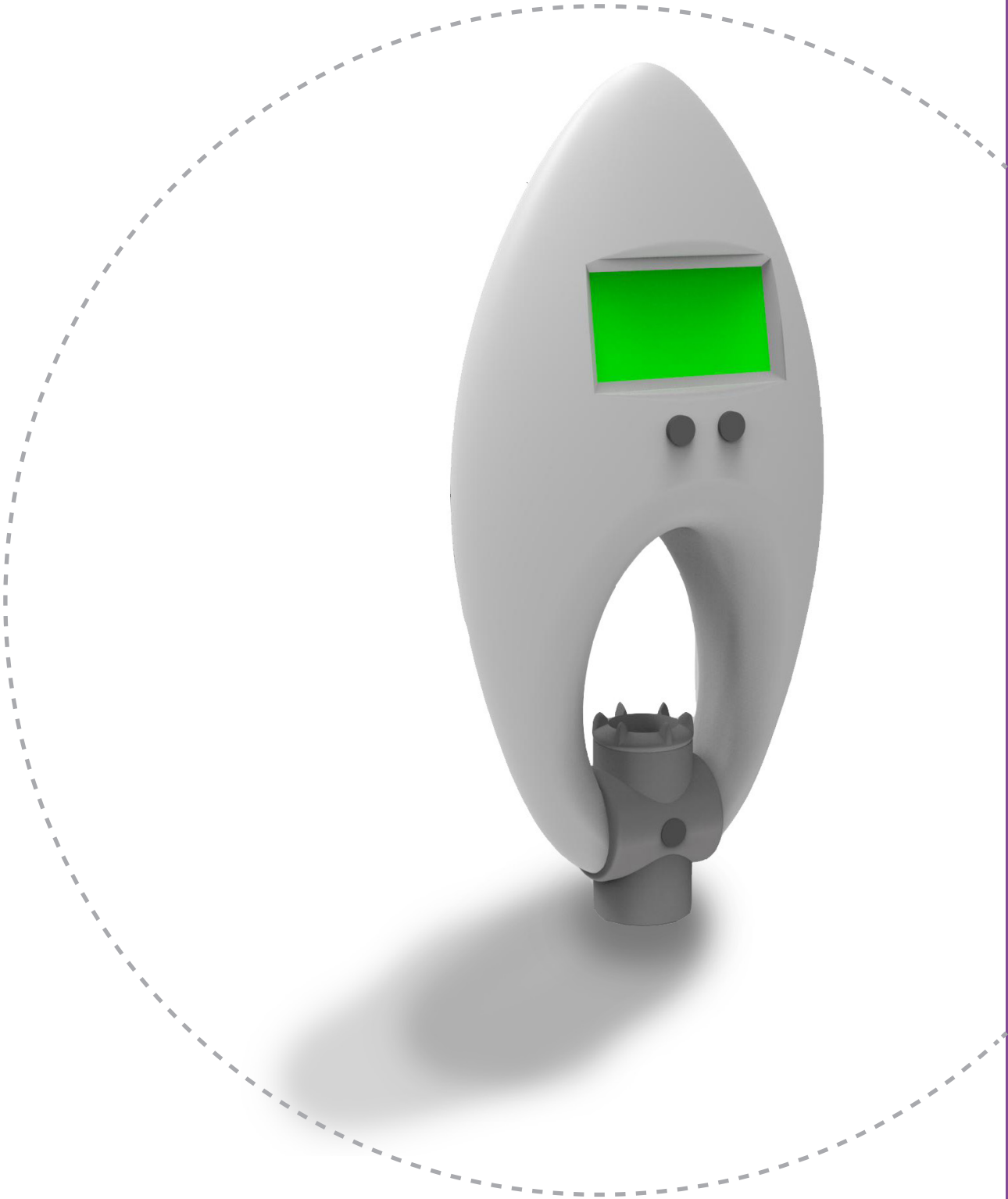
There has to be a more efficient way for us save water when using our sinks.

AQUACOUNT

MEASURE

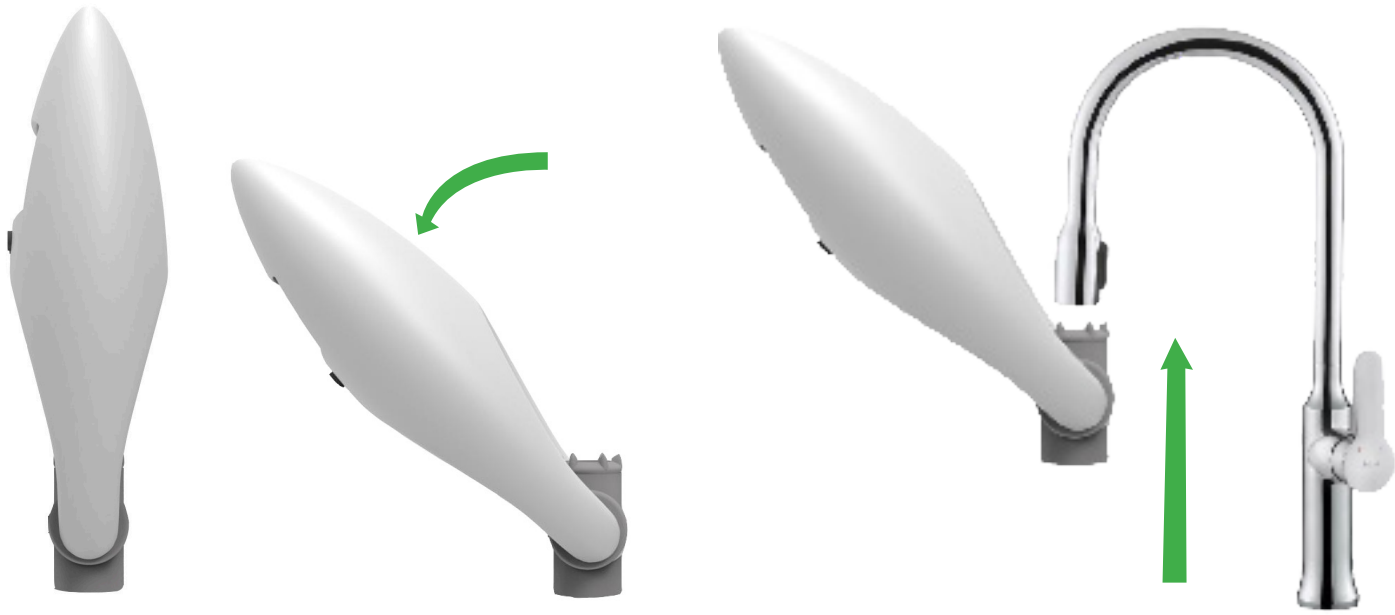
What?

Aquacount is a tool that can change the behavior of the user's water usage, allowing them to save on water and therefore create a smaller environmental footprint on this planet.



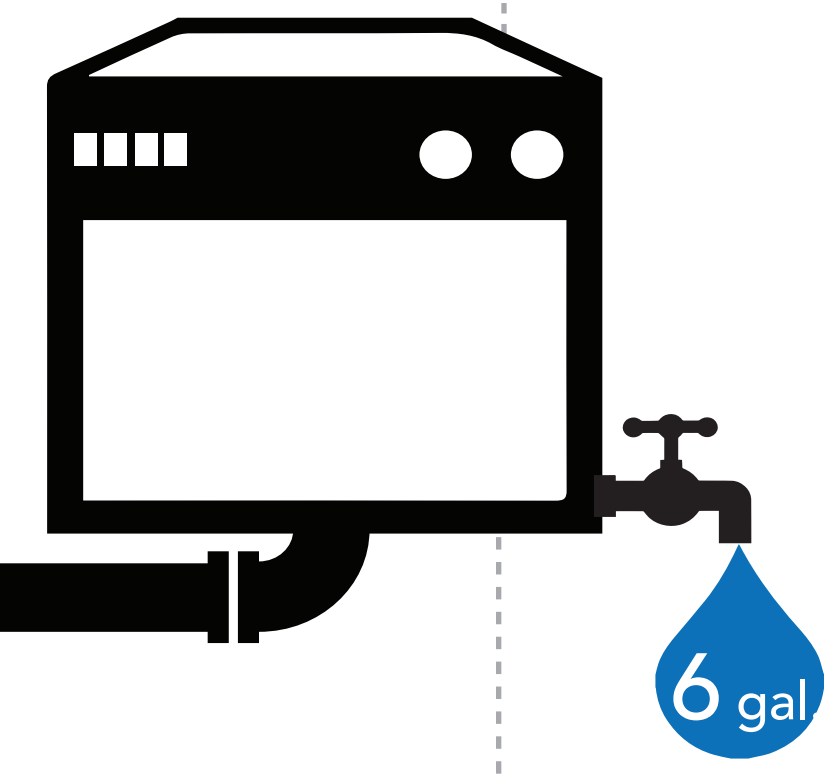
Aquacount is an innovative, environmental, money saving tool that utilizes motion-sensing and flow rate detection technology to measure the amount of water usage from a certain given sink at any particular time. Then, using a display, it can tell the user how much water they've used over the past month. Whether you're trying to save money on your utility bill, or you just want to be more environmentally friendly, the Aquacount allows you to do so!

In addition, this product is ideally marketed toward those who do not own a dishwasher. Most people don't realize it, but there a huge amount of water being used when it comes to washing dishes by hand! Thanks to the Aquacount, the user has much more control over how much water they'd want to end up using.



ENVIRONMENTAL **SAVES MONEY** **EASY TO USE**

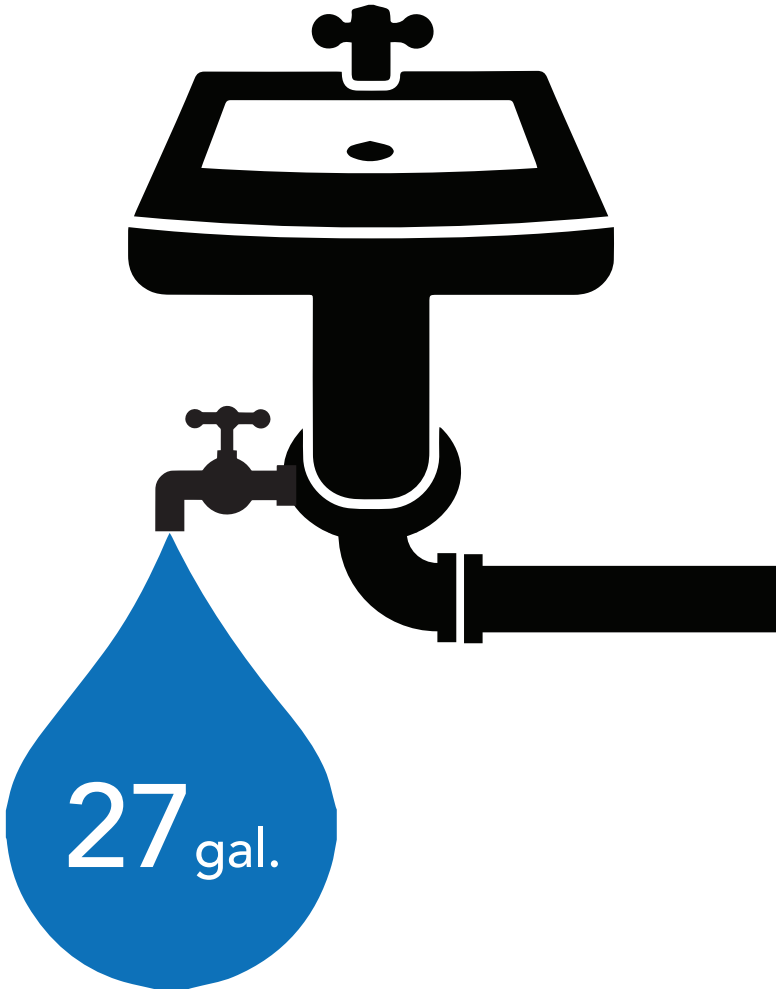
PAIN POINTS



Why?

According to usa.gov, your average dishwasher will run about 6 gallons of water cycle. However, if your washing dishes by hand, assuming you wash enough dishes to fill a dishwasher, the average water usage is 27 gallons of water! that's more than 4x the amount!

This is mostly owing to the fact that when washing dishes by hand people usually keep the water running, even when nothing's underneath the faucet. Aquacount provides a higher method of control by using motion sense technology to only keep the sink running if you need to.



Some people are afraid of the germs and bacteria that may not have gotten scrubbed off.

Many are annoyed by the amount of time it takes for them to get everything nice and clean.

High temp water is required for proper washing, but people often end up burning themselves.

TARGET MARKET

Apartments who don't want to pay for the water, heatings, and installation costs.

Very old houses with faulty wiring or piping who are incapable of getting a dishwasher installed.

Households who don't possess a salary sufficient enough to purchase a dishwasher.

Who?

Ideally, the Aquacount would be made utilizing cheap technology from already existing products, thus allowing it to be sold at a rather affordable price. This is so people who are living on a fixed income would to afford purchasing it, and saving money on their water and heating bill in the long run.

It also allows those who simply don't have access to dishwasher installation an extra option, should they decide that being reminded of the water usage would help cut back. In addition, the Aquacount doesn't have to limited to those who don't own a dishwasher. It would also appeal to people who simply want to save water.

CURRENT MARKET

EZ FAUCET

$30 - 45

The EZ faucet is a battery powered, motion-sensing faucet attachment that ejects water (assuming the faucet is on) whenever it detects movement. This is meant to show that a motion-sensing sink attachment is possible without worrying about any electrical problems occuring.

DIGIFLOW 8000T

$40-50

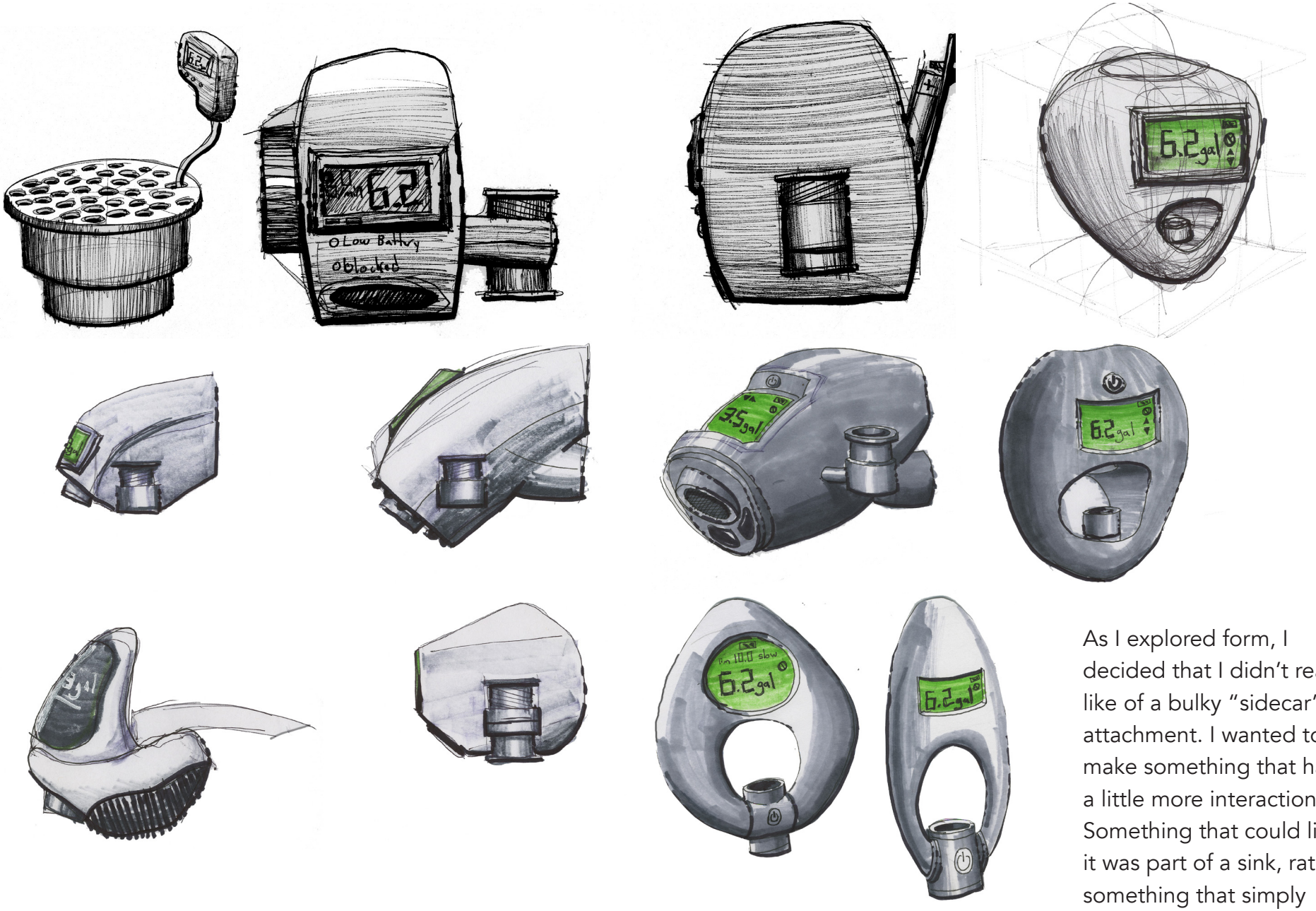
The Digiflow is a digital filter moniter that measures the flow rate of water when connected through a pipe. It does this by using a really small water wheel spinning when water pushes it, and then a small computer calculates the wheel's RTM. This is proof that we can accurately measure flow rate.

HANDY METER

N/A

The Handy Meter is product that most resembles the Aquacount. However, the good news is that it's someone else's concept model, and not an actual product! Basically the concept is for an attachable flute that measure water usage for chefs so they can pour exactly the right amount.

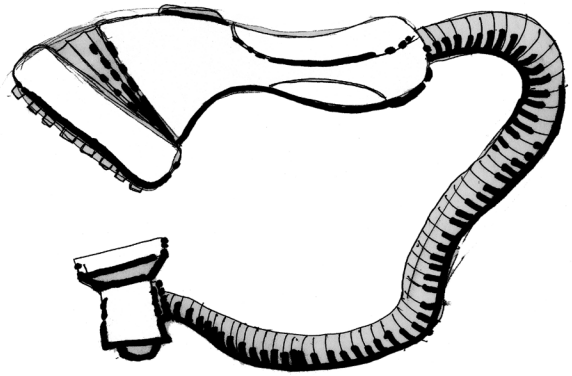
ITERATIONS

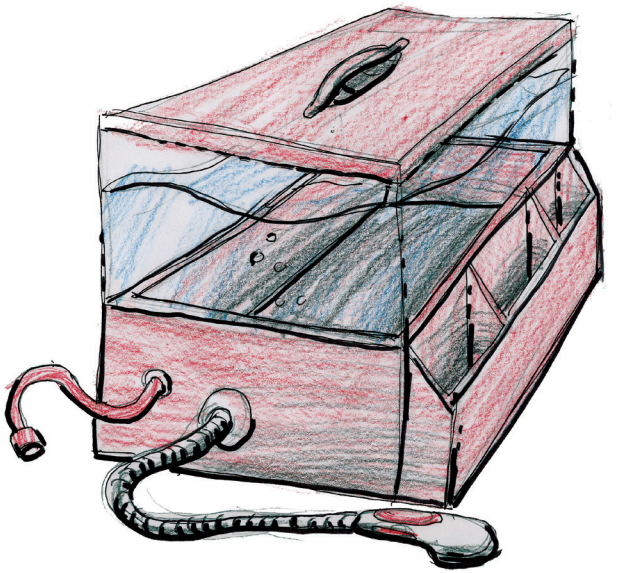


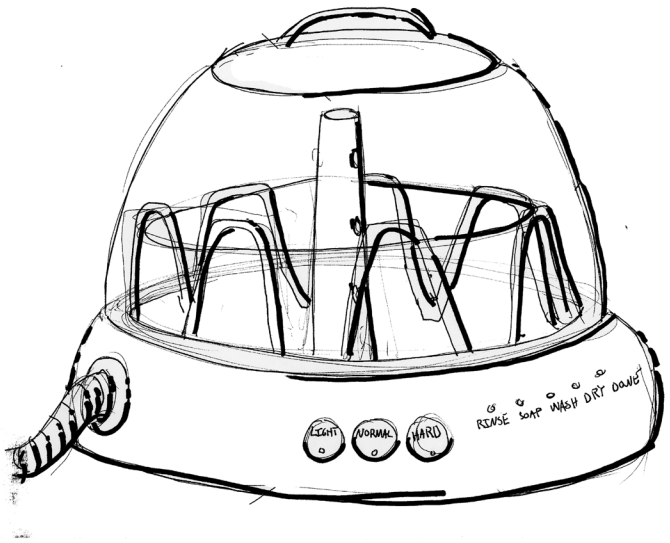
As I explored form, I decided that I didn't really like of a bulky "sidecar" sink attachment. I wanted to make something that had a little more interaction. Something that could like it was part of a sink, rather something that simply attaches to it.

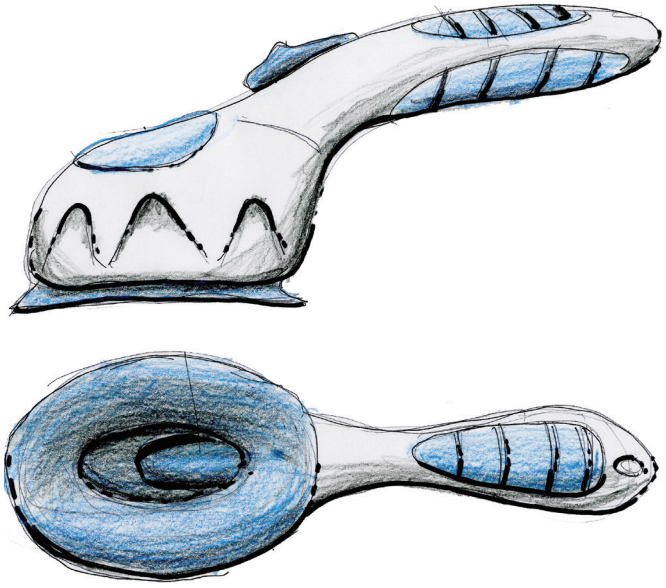
SCRAPPED IDEAS

The driving problem behind this project was make dishwashing by hand a more pleasent experience, either by reducing the total amount of water, or creating an easier way to wash dishes for those who don't own a dishwasher. As I iterated and did market research, I discovered that not everyone hates doing their dishes. In fact, some people actually enjoy the ritual of washing dishes every day. "It's one of the things that makes the day feel right," was one of the comments I got during an interview. In the end, the products to the right ended up being either too bulky, complicated, or already existed. In the end, my idea for Aquacount was so positively received by my peers and intervewees I decided to explore its route.









THANKS FOR READING!

PORTFOLIO

WILLIAM CLEMENCY