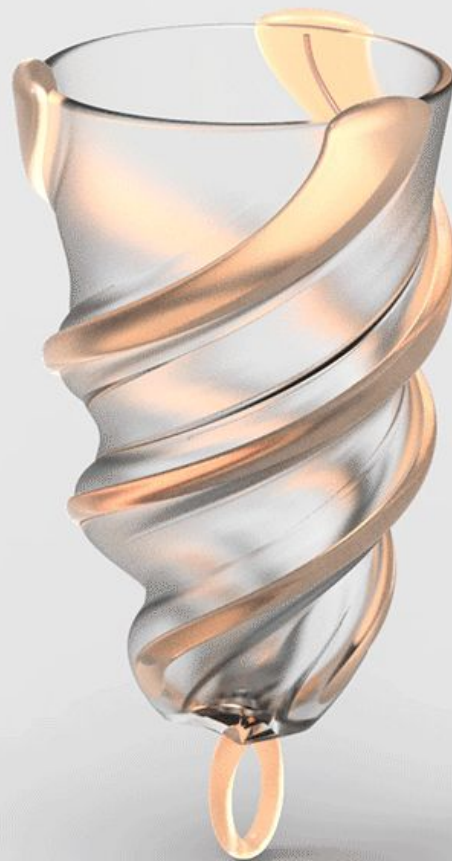




inSpire

smart performance cup

Divyanka Kapoor
Patricia Lai
Lisa Zhu



Problem Space

On average, each woman uses over 10,000 disposable menstrual products, including tampons, pads and panty liners in their lifetime.

Close to 20 billion sanitary pads, tampons and applicators are dumped into North American landfills every year.

The material and plastic package of feminine hygiene products can take centuries to biodegrade.



In one month

22  

In one year

264  

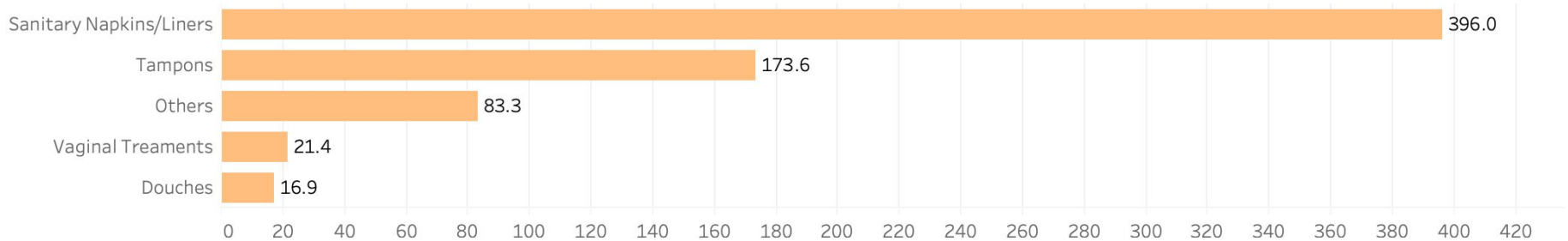
In life

10,560  

Research

Problem Space

Feminine hygiene products sold in US
2018 (in M units)



Source : www-statista-com.ezp-prod1.hul.harvard.edu/study/57876/feminine-hygiene-market/

Research

Interview & Persona



“I can’t imagine putting such a big cup into my body”

“I don’t want to wash it all the time. This is tedious.”

BACKGROUND

Sofia is pharmacist who lives a busy life. She needs to stay in the pharmacy all the time and offer patients pharmacy counseling. As a result, she can't spend too much time on emptying and cleaning the menstrual cup. Also, the toilets in the hospital that Sofia is working at is not always clean, which brings her a concern about the cleaning process in the hospital toilets.

CONCERNS

- The size of menstrual cup is really scary
- Have doubts about putting cup inside of body for 8 hours, and worry that the cup could become a breeding ground for bacteria after using such a long time
- It's not easy to clean the cup in public toilets at hospital. The toilets there is usually not very clean
- Have the feeling that the menstrual cup is not as hygienic as disposable tampon



“I was taught using pads by my mother and my teacher since I have had my first period. I am familiar with using pads and I don’t want to change”

“I am worried that I’ll have toxic shock syndrome (TSS) if I use tampon or menstrual cup”

BACKGROUND

Mandy grew up in a traditional family. Her mother believed using pads is better for a girl who has not gotten married. The school teacher taught her to use pads as well. Mandy keeps the behavior of using pads for 30 years, and she doesn't plan to change it. Also, she is terrified by the size and insertion process of the menstrual cup.

CONCERNS

- Don't like to put things into the body, especially for big size menstrual cup
- Have doubts about putting things inside of body, and worry that it'll cause infection
- Have the feeling that the menstrual cup is not as hygienic as disposable sanitary products



Emma Ross, 28

Former Menstrual
Cup User

OCCUPATION Researcher

LOCATION Los Angeles

EDUCATION Graduate

USAGE TIME 1 Year

PRODUCT



Pad



Tampon



**Menstrual
Cup**

GOALS & MOTIVATION

- Smaller cup
- Softer material
- Easy to insert
- Easy to take out the cup
- Easy to clean in the public toilets, especially in developing countries
- Easy to carry with when traveling
- Don't need to worry about buying tampons when doing research in other countries
- Don't want to experience the "damp" feeling
- Can exercise and move around when on period

BACKGROUND

Emma is a researcher who conducts ethnographic research frequently. She is always full of energy and open to new things. Because of her job, she needs to travel to different countries very often. The reason why Emma chose to use menstrual cup two years ago was that she couldn't get tampons in a rural area where she conducted research. And she shifted back to tampon after finishing that research.

FRUSTRATIONS

- Always had external thing inside of my body, really felt uncomfortable
- It was not easy to clean the cup when conducting field studies in rural area
- Putting the cup inside of the body is the most challenging part
- It took a long time to grip on the stem and take the cup out
- Don't like the material (silicone), and it made me feel uncomfortable
- Need to stay in vertical position when taking the cup out to avoid blood spilling out

"Keeping the cup in that small shape and inserting was difficult"

"It was uncomfortable when the cup was inside of my body. Taking out was also a big challenge"



Amy Smith, 25

Menstrual Cup User

OCCUPATION Product designer

LOCATION Mexico

EDUCATION Graduate

USAGE TIME 3 Years

PRODUCT



Pad



Tampon



Menstrual
Cup

GOALS & MOTIVATION

- An eco-friendly, sustainable product
- Don't want to experience the "damp" feeling
- Can exercise and move around when on period
- Don't need to worry about buying pads/tampons when traveling
- Lower costs
- Fewer visits to the pharmacy
- More time between changes
- Easy to insert and clean
- Easy to take out the cup without spilling out

BACKGROUND

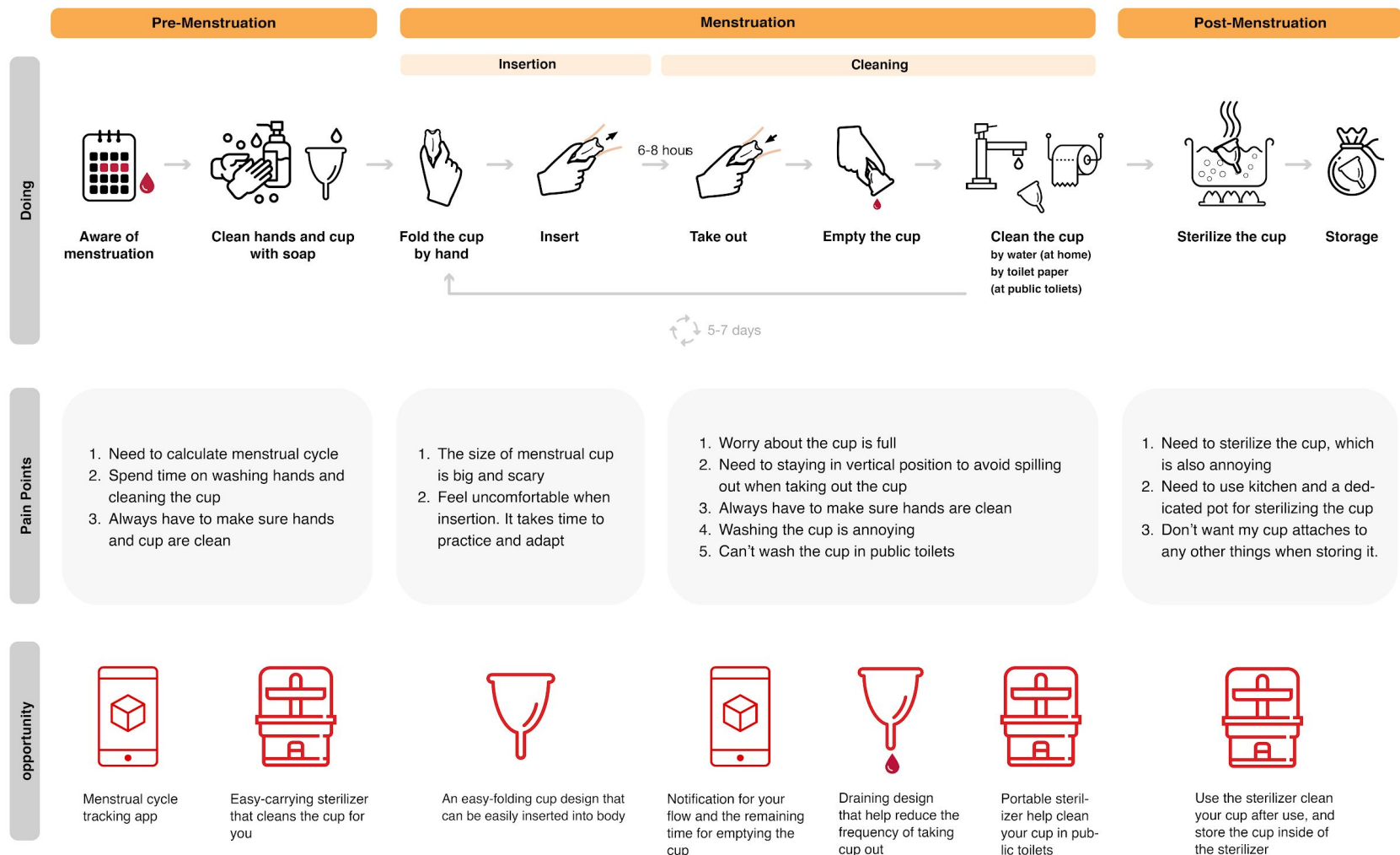
Amy loves her life. She has huge passion for traveling to different countries as well as experiencing new things. Also, she dedicates to environmental protection and designing sustainable products for human beings. As a junior designer, she is really busy with her works, and she especially cares about price/value ratio when making purchases.

FRUSTRATIONS

- Always have to make sure hands are clean
- Sometimes I am worried about the cup is full
- Need to stay in vertical position when taking the cup out to avoid blood spilling out
- It's not easy to clean the cup in public toilets
- It takes some time to adopt the cup. It was not comfortable when using it for the first time. The size and shape are quite scary at the first time
- Need to sterilize the cup by boiling it in the water. I don't like to use kitchen and a dedicated pot for sterilizing the cup, and I don't want my roommates to see I am sterilizing the menstrual cup.

"I don't like to empty and clean my menstrual cup in public toilets"

"I am really afraid the blood would spill out whenever I take out the cup from my body"



Problem Space

Hypothesis

Product Design

Size: the size is scary especially for first-time user.

Insertion process: the insertion process is not easy and sometimes terrifies people.

Sanitary problems & Sterilizer: it's annoying to clean the hand and the cup, especially during traveling or in public toilets.

*We believe that improving the **design of size**, **insertion process**, and **sterilizer** for menstrual cup will increase the percentage of using menstrual cup, which end up with decreasing the generation of feminine hygiene waste.*

Product

Products



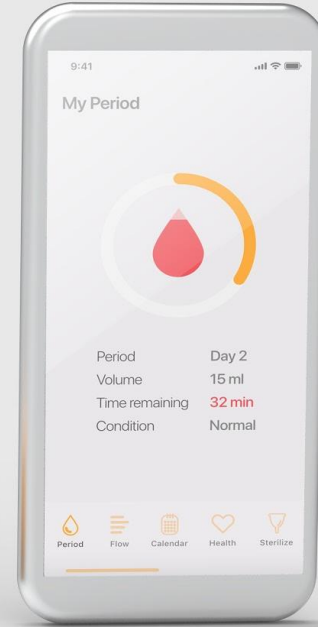
Smart Menstrual Cup

High performance menstrual cup that senses fluid volume and pH.



UV Sterilizer

Rechargeable UV light sterilizer to clean the cup in a few minutes.



Women's Health App

Health App that automatically collects data from the menstrual cup to track period cycles and create analytics for female health.

Product

Smart Menstrual Cup

High performance menstrual cup that senses fluid volume and pH.



Product

Design Principles

Easy

Most menstrual cups are hard to use and time consuming. We are trying to fix the pain points for insert and pull out, as well as cleaning the cup.

Performance

Our menstrual cup is designed to be flexible for the woman on the go. This cup will be portable, structural, and flexible.

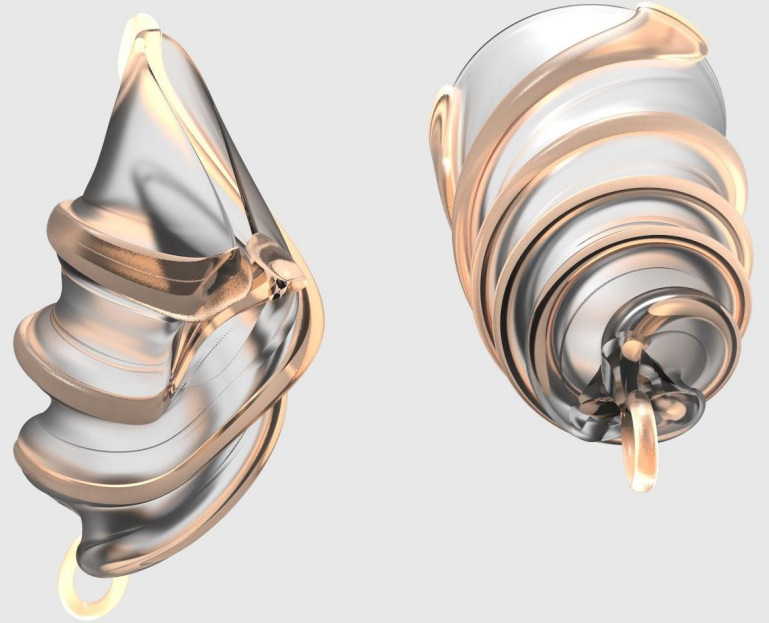
Smart

We want to automatically track the cycle of the period. We will use a capacitor and pH sensor to track fluid volume and pH levels.

Product

Easy

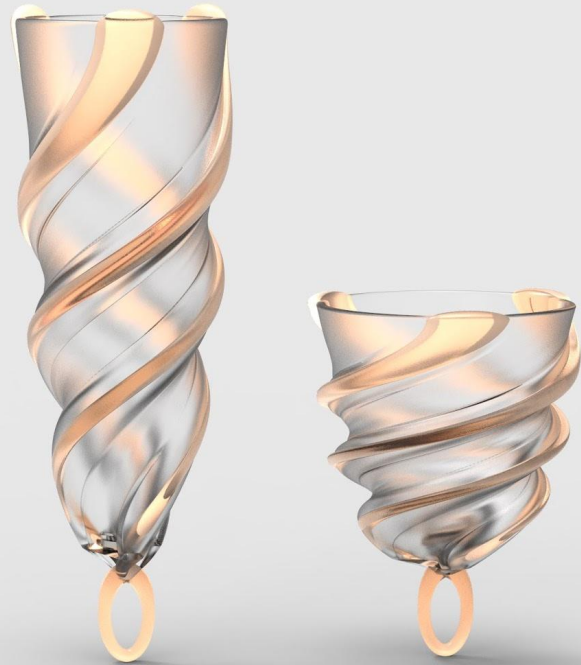
Most menstrual cups are hard to use and time consuming. We are trying to fix the pain points for insertion and pulling out, as well as cleaning the cup. Our cup will be easy to insert due to the flexibility of the thin material and a reorganized structure, and easy to pull out with a twist mechanism.



Product

Performance

Our menstrual cup is designed to be flexible for the woman on the go. The twist structure cup will be portable and rigid, yet flexible.



Product

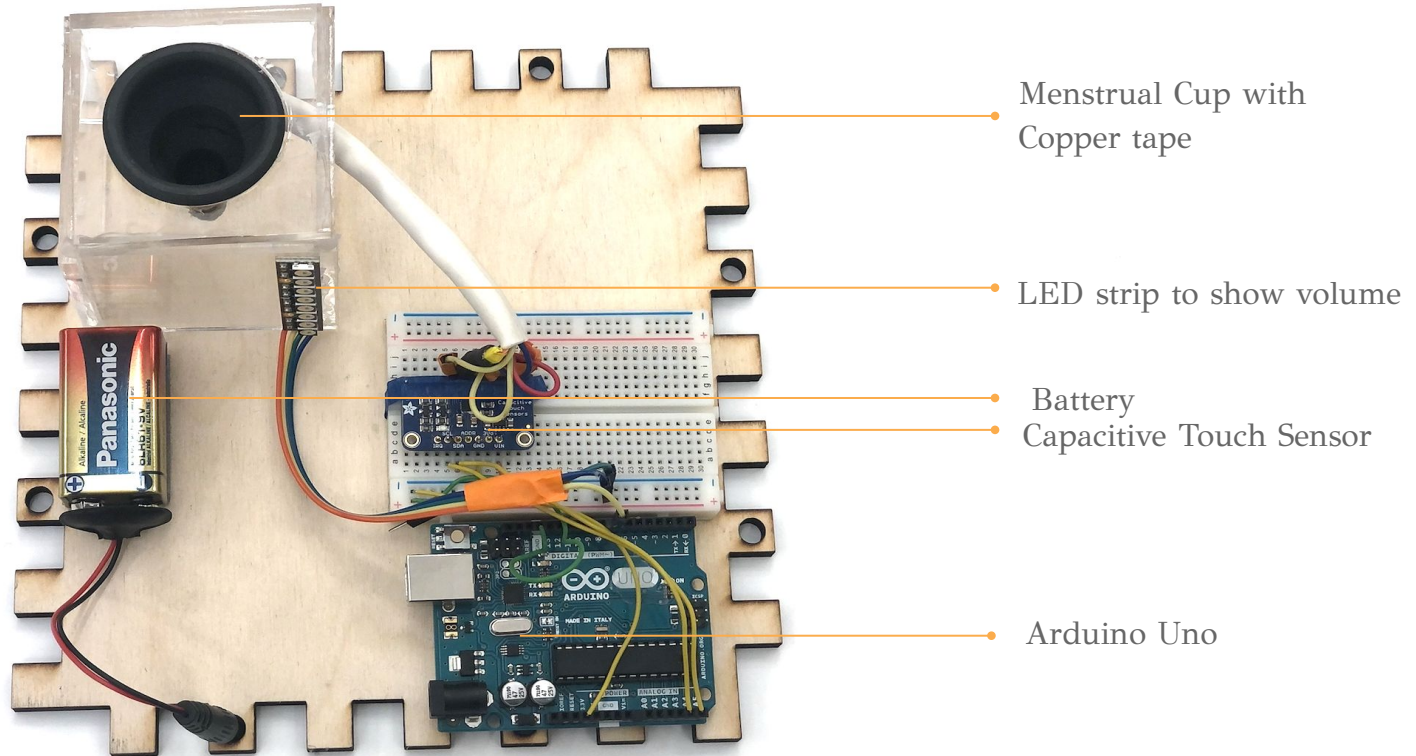
Smart

We want to automatically track the cycle of the period. We will use a capacitor and pH sensor to track **fluid volume** and **pH levels**. This cup will come with a long lasting battery and a copper wire embedded inside the silicone.



Product

Functional

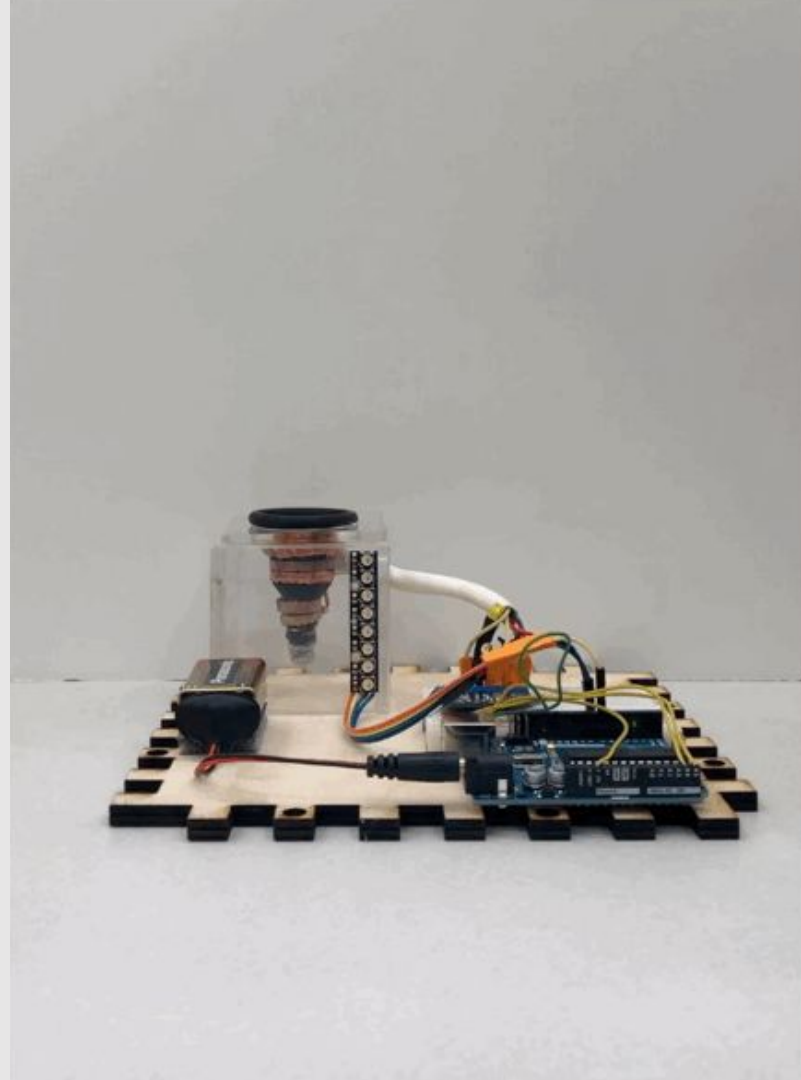


Product

Functional

inSpire uses capacitive sensing to measure the volume of fluid in the menstrual cup.

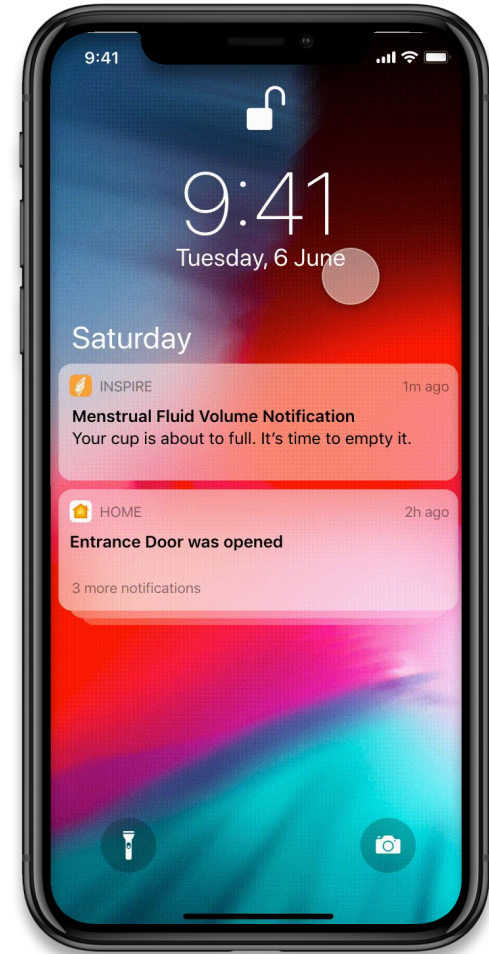
Once the volume reaches 16ml, a notification is sent via bluetooth to the user's device to alert them that their cup is almost full.



Product

Health App

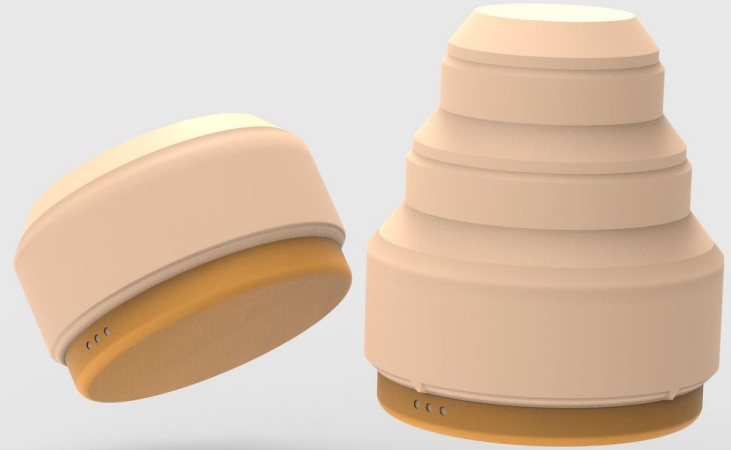
Health App that automatically collects data from the menstrual cup to track period cycles and create analytics for female health.



Product

UV Sterilizer

Rechargeable UV light sterilizer to clean the cup in a few minutes. The case will be collapsable, and there will be a USB port for charging as well as a wireless charging at the base



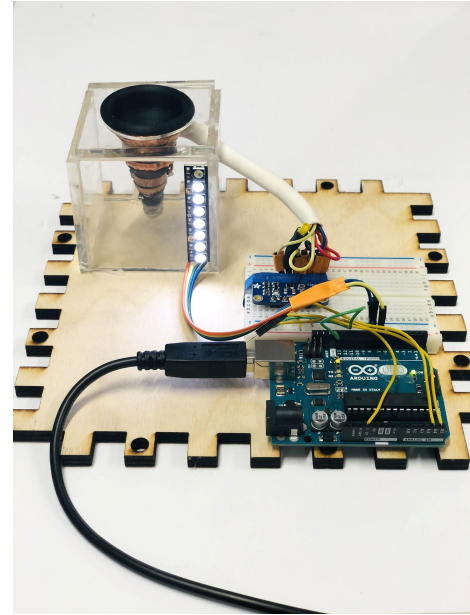
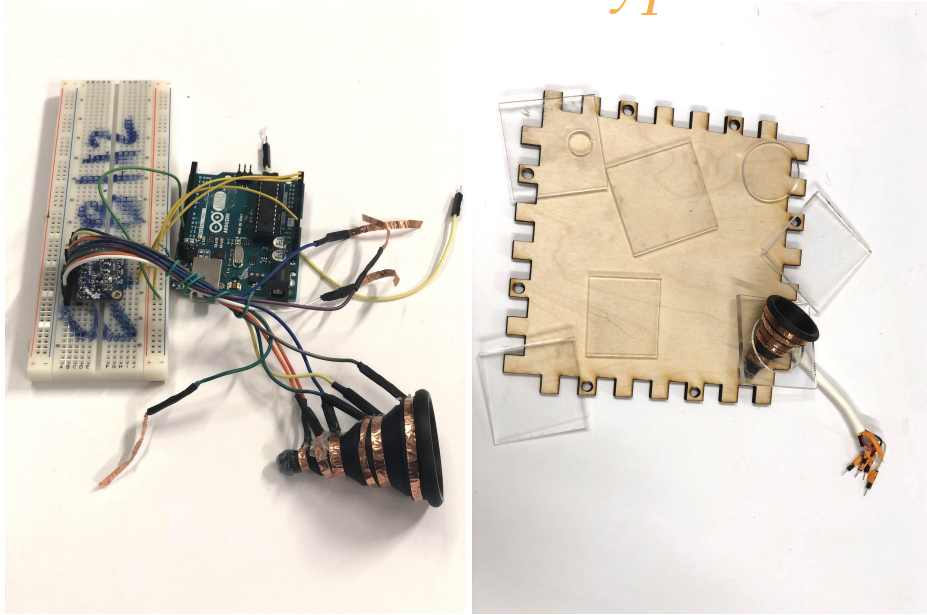
Process

Design Prototypes



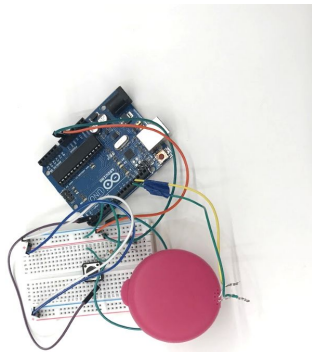
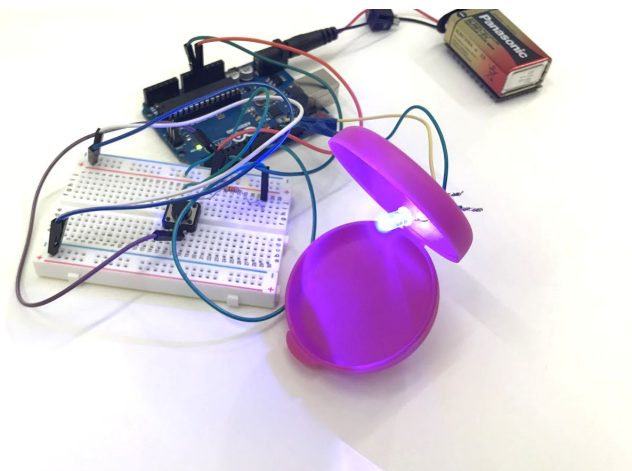
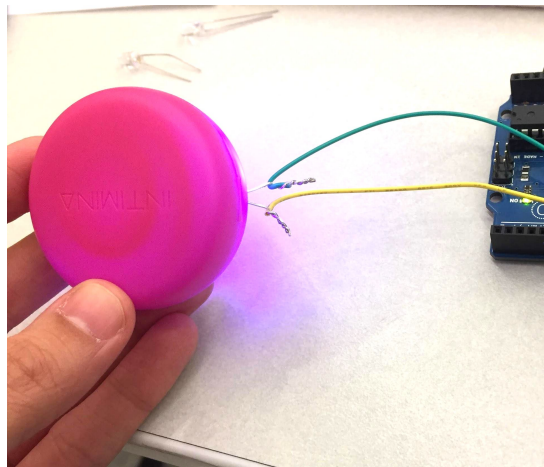
Process

Functional Prototypes



Process

Functional Prototypes



Menstrual Cup

- **Environment**

- **Consumer**

- One cup can last 5 years. Each cup diverts at least 11000 tampons and pads from the landfill.

- **Production**

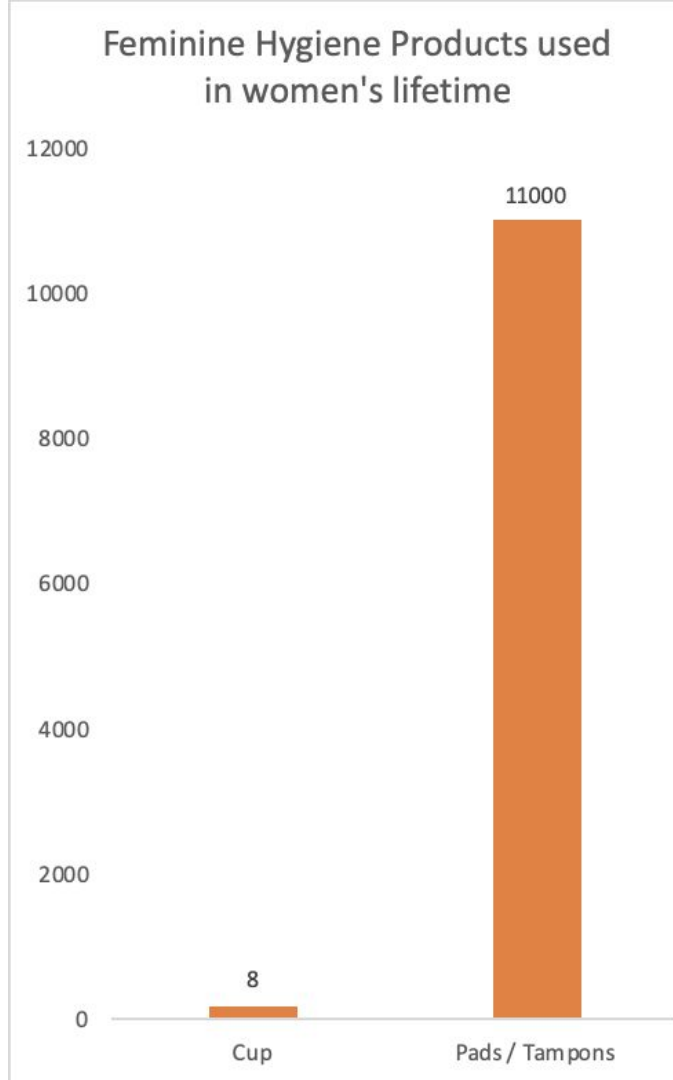
- Reusable cups help in saving energy/resource consumption used during the manufacturing process.

- **Health**

Using a menstrual cup is safer for a women's health. Tampons and pads absorb 35% of the natural moisture causing a pH imbalance. Tampons also leave behind fibers and can cause Toxic Shock Syndrome.

- **Financial**

A one time \$20-\$40 purchase that lasts for 5 years.



Impact

inSpire

- **Design**
 - Fluid drainage system
 - Tighter swirl for easy insertion and removal
- **Functionality**
 - Wireless Charging
 - Bluetooth sync with devices
 - pH sensor
- **Data Visualization**
 - Predictive cycle analysis through Machine Learning
 - Anomaly detection through flow volume, pH etc
- **Education**
 - System design for teenagers to be educated about Menstrual cups

