



**K – 2nd Grade Category**

**MI** 2024  
DESIGN PRIZE

## **BRONZE AWARD**

**Jeremiel Alicea-Salvador**



## **“Pack Emergency Truck - PET”**

School: **Roosevelt Elementary**

Teacher: **Juliann O'Brien**

Mentors:

**Jacob Viau**

**Ella Erskine**



### **Design Concept:**

Pack Emergency Truck-PET will be used by anyone that gets hurt on the MI National Park trails. PET will be the first response to an emergency situation. ( example: breathing difficulties, chest pain, loss consciousness', trama, broken legs/arms, etc.)

## Accessories

- Broken limb splints
- Stretchers
- ECG monitor with defibrillator
- Bag valve mask
- Stethoscope
- Haemoglobinometer
- Oxygen machine
- Blood pressure machine
- Diabetes medication
- Full pharmacy
- Band-aids

# P E T

## Pack Emergency Truck

## The Story

PET is a mobile hospital that brings care directly to anyone in need visiting MI national parks. PET can go anywhere after disconnecting from the long-range battery cab, thanks to it's small size and all terrain drive-train. First responders have instant access to a multitude of tools that are stored in exterior panels. Both halves of this vehicle feature solar charging for emergency scenarios.



## **SILVER AWARD**

**Scarlett Wood**



## ***“Mini Boat Rider-MBR”***

School: **Roosevelt School**

Teacher: **Juliann O'Brien**

Mentors:

**Evan Carpenter-Crawford**

**Salina Nicolo**

**SUNDBERGFERAR**



### **Design Concept:**

Mini Boat Rider-MBR is used by anyone that has mobility problems and who can't swim. This will help them to enjoy the water at our MI National Parks and have fun as they are looking at nature.

# mini-boat-rider

Water cannons mounted in the steering pod allow riders to keep each other cool when paddling on hot days!!!

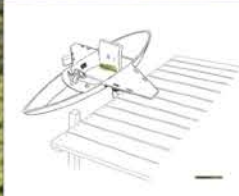
The cockpit incorporates speakers so riders can enjoy music on the water, and a sealed tray to securely hold and store food items.

The steering wheel pivots forward to provide a more open cockpit for entry and exit.

Wings allow the rider to sit for more stable entry into the boat. Multiple handholds provide a variety of grip options.

The Mini-Boat-Rider incorporates two drive modes:  
 • Self-Rowing Paddles  
 • Fintail Stern Drive

Sensors built into the rider's life vest and the seat back form a lockout that prevents riders without the sensor in their vest from engaging the boat's drive systems.



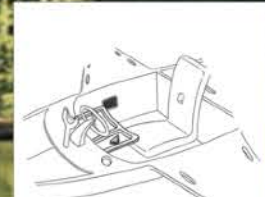
The sides of the boat incorporate outrigger platforms that create an easier way to get into and out of the boat. The user can sit on these and brace the boat against a dock or the shore.



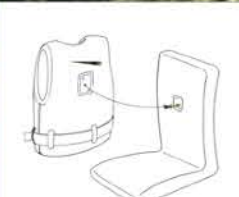
The kayak incorporates two electrically driven drive systems:  
 • Self-rowing paddles  
 • Fintail stern drive



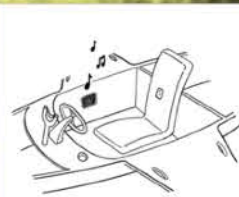
For fun and cooling off the deck integrates a water balloon slingshot!!



A pull-out tray allows provides containment for food items while on the water. This feature can be used both for storage and food service.



Motor remains locked until a sensor enabled personal flotation device is placed in range of the occupant sensor.



Waterproof speakers are integrated into the cockpit to allow the user to enjoy their favorite music while on the water.



***GOLD AWARD***

**Addie Bossory**



***“Exploring the Lake Animals”***

School: **Spencer Elementary**

Teacher: **Gillian McColgan**

Mentorss:

**Austin Clark**

**Olivia Gendron**

**TACTILE**



**Design Concept:**

My design concept is an underwater camera to help people see and experience what life is like for the animals in the Michigan lakes. The camera sends its pictures to screens where people can see them.”

# Exploring the Lake Animals

Discover the underwater world!

Camera rotates 360 degrees for optimal animal viewing experience.

Once the camera discovers an animal a picture is taken and sent to the viewing screen above!



Waterproof case

Screen above water shows the picture captured!





**3rd - 5th Grade Category**

**MI** 2024  
DESIGN PRIZE



# BRONZE AWARD



**Lucy Harris Erin Reichhold Blaire Reed**

## ***“The Hiker-light”***

School: **Hornung Elementary**

Teacher: **Libby Barton**

Mentors:

**Josh Corder**

**Lucy Fata**



### **Design Concept:**

We made this design so it can help people hike safely in any environment. You can have one hand free while holding both a walking stick and a flashlight. This will make hiking safer.

# Hike Light

Solar Panels for Charging

On / Off

Secret Compartment for cool rocks

Stickers for coolness

Sliding Grip

Height Adjust Release

Flash Light x Hiking Pole

# LIGHT

# THE

# WAY



## SILVER AWARD



**Addison Hirst**



**Christa Randolph**



**Elina Smith**



**Catalea Rucker-Cruz**

## *“Forest Finder Map And App”*

School: **Oakwood Intermediate**

Teacher: **Sarah Lema and Anna Havemant**

Mentors:

**Matt McPhail**

**Siddharth Chandrashekar**



### **Design Concept:**

Our Forest Finder map and app is an improvement from the 2D maps currently in the National Parks. It supports those with disabilities such as visual and hearing impairments. The app also will allow users to report if there are any hazards on the trails.



**SOLAR PANELS**  
Sustainable, efficient energy and protection of signage from the rain

**DIGITAL TOUCHSCREEN**

**SPEAKERS**  
Audible instructions that provide greater accessibility to trail guides for those who are blind

**NATURAL DESIGN**  
Wood-like appearance and design to help the signs blend in with the rest of the forest



**INCREASED ACCESSIBILITY FOR THE DISABLED**  
For the blind - instructions in braille asking them to press the button below which would activate the speakers for audible guidance

For those in a wheelchair - A lever that would lower the screen height for better viewing angles



## **GOLD AWARD**



**Finley Soderholm**



**Abe Kupke**



**Ivan Glarner**



**Cambrea Farner**

## ***“The All Terrain Train - T.A.T.T.”***

School: **Lakewood Elementary**

Teacher: **Jennifer Hopkins & Casey Wollenzier**

Mentor:

**Josiah LaColla**

**Anika Tyson**

**SUNDBERGFERAR**



### **Design Concept:**

T.A.T.T. is a dune buggy style train with connecting cars. It has fat boy tires and large retractable windows. The train can run by solar power or an electric charge. Riders are able to get on and off using retractable ramps.

Coming Soon to a  
National Park  
Near you



On-Board tour-guides



Access ramps for everyone

Silent battery-electric propulsion

Upper deck houses entertainment,  
lounging and park-viewing spaces.

Lower deck features sleeping chambers  
and restrooms.

Now everyone can experience all National Parks -  
in **Comfort, Safety, & Convenience.**



The National Park Service Presents...  
**The All Terrain Train**



Keep the entire family  
entertained and informed with  
on-board view-screens,  
playgrounds, and dining areas.

A photograph of two hikers with large backpacks walking on a rocky trail. The hiker in the foreground is wearing a blue shirt and shorts, while the hiker in the background is wearing a grey shirt and light-colored pants. The trail is surrounded by tall grasses and shrubs, with a body of water and trees visible in the background.

**6th– 8th Grade Category**

**MI** 2024  
DESIGN PRIZE

## **BRONZE AWARD**

### **Sireena Mustafa**



## ***“The Trailblazer”***

School: **Washtenaw Int. Middle Academy**

Educator: **Tammy Church**

Mentors:

**Ryan Featherstone**

**Jillian Rampersaud**

**tekna.**



### **Design Concept:**

The Trailblazer is a futuristic wheelchair design that is supposed to help people camp easily and explore the Michigan national parks. I wanted to make this so people that might think they can't camp because of a disability can.

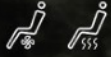


**TRAILBLAZER**

# EXPERIENCE THE ULTIMATE FREEDOM

This off-road wheelchair seamlessly transitions from daytime adventures to a comfortable "tent-mode" bed at night, eliminating the hassle of transfers.

reclining heating  
and cooling chair



ergonomic brake  
and drive lever

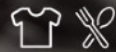
control panel with  
navigation, games, etc

all-terrain  
tread

foot plate

collapsible tent

non-essentials  
storage unit



quick access storage



**SILVER AWARD**

**Finn Richardson**



**“Butterfly Skooter”**

School: **Washtenaw Int. Middle Academy**

Teacher: **Tammy Church**

Mentors:

**Jessie Johnson**

**Jhanavi Nirmal**

**SUNDBERGFERAR**



**Design Concept:**

The concept of my design is a scooter and a ski if they morphed together. The scooter would be for riding on terrain on national park trails or paths. The ski would be for skiing on snow in said national parks!

TRAIL RIDE MODE



SNOW SKIING MODE

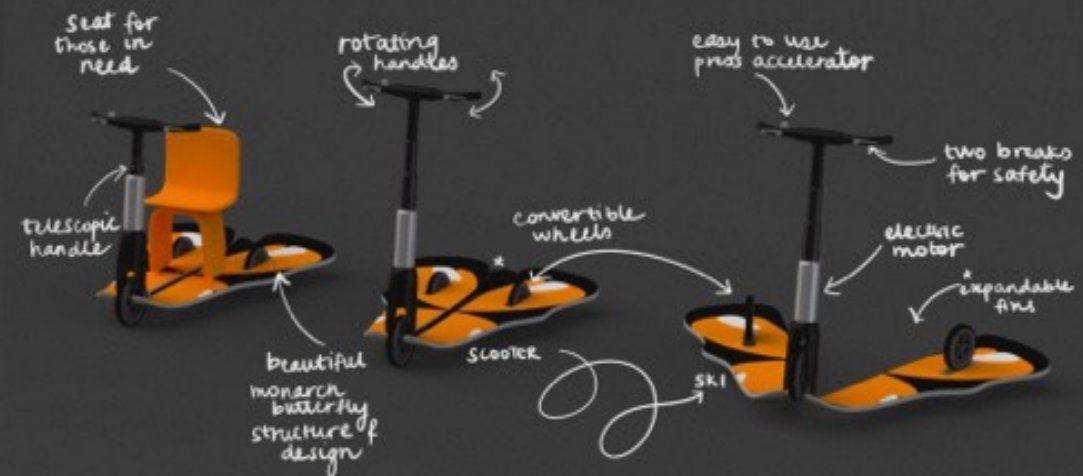


# BUTTERFLY SKOOTER

CONCEPTUALISED BY FINN RICHARDSON

SKOOTER WHICH CONVERTS INTO A SKI!!!

A VERSATILE DESIGN FOR BOTH KIDS AND ADULTS COMBINED WHO LIKE ROAMING AROUND NATURAL PRESERVES. WITH ADJUSTABLE HANDLES TO FIT THE COMFORT OF THE USER.



***GOLD AWARD*****Nelson Davis*****“Land, Air, Water L.A.W. MOTO”***School: **Washtenaw Int. Middle Academy**Teacher: **Tammy Church**

Mentors:

**Josiah LaColla****Eve Earl****SUNDBERGFERAR****Design Concept:**

The design would be very similar to a motorcycle. The wheels would have three modes: normal, grip mode, and flap mode, where flaps would extend, and be held in place by the spikes from grip mode. There would be wings that would stay folded against the side of the vehicle unless you activate air mode, when they would extend and lock in place.



- Adjustable full-coverage windshield;
- Wings fold and stow along body;
- Wheels fold up to form eVTOL fans;
- Pontoons fold up out of water;

# L A W moto

land air water

Experience an exhilarating  
tour through the  
National Park System



- Hydrogen fuel cell power;
- Fuel stored in pontoons;
- Tires feature retractable Paddle Treads.



**9th– 12th Grade Category**

**MI** 2024  
DESIGN PRIZE

# **BRONZE AWARD**

**Aubrey Lauer**  
**Anna Schaffner**



## **“Backbrella”**

School: **Clinton High School**

Educator: **Ron Schaffner**

Mentors:

**Ryan Featherstone**

**Royce Kaebren**

**tekna.**



### **Design Concept:**

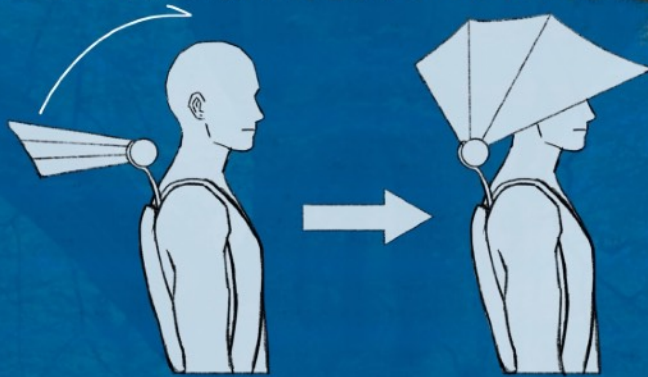
Our design can be used by anyone including the elderly or the blind to keep their hands free to use a cane or brace their fall. It allows them to enjoy national parks and makes it easy for everyone. It’s a vest backpack with a button that causes a shell-like umbrella to cover them and their gear from rain or snow.



# BACKBRELLA

Experience the outdoors hands-free & hassle-free

A back-mounted sunbrella, made for those who want to block out the sun without sacrificing the usage of their hands.



Built-in backpack to carry water bottle, first aid, food, etc.

Reflective waterproof nylon material

Spring-loaded release mechanism

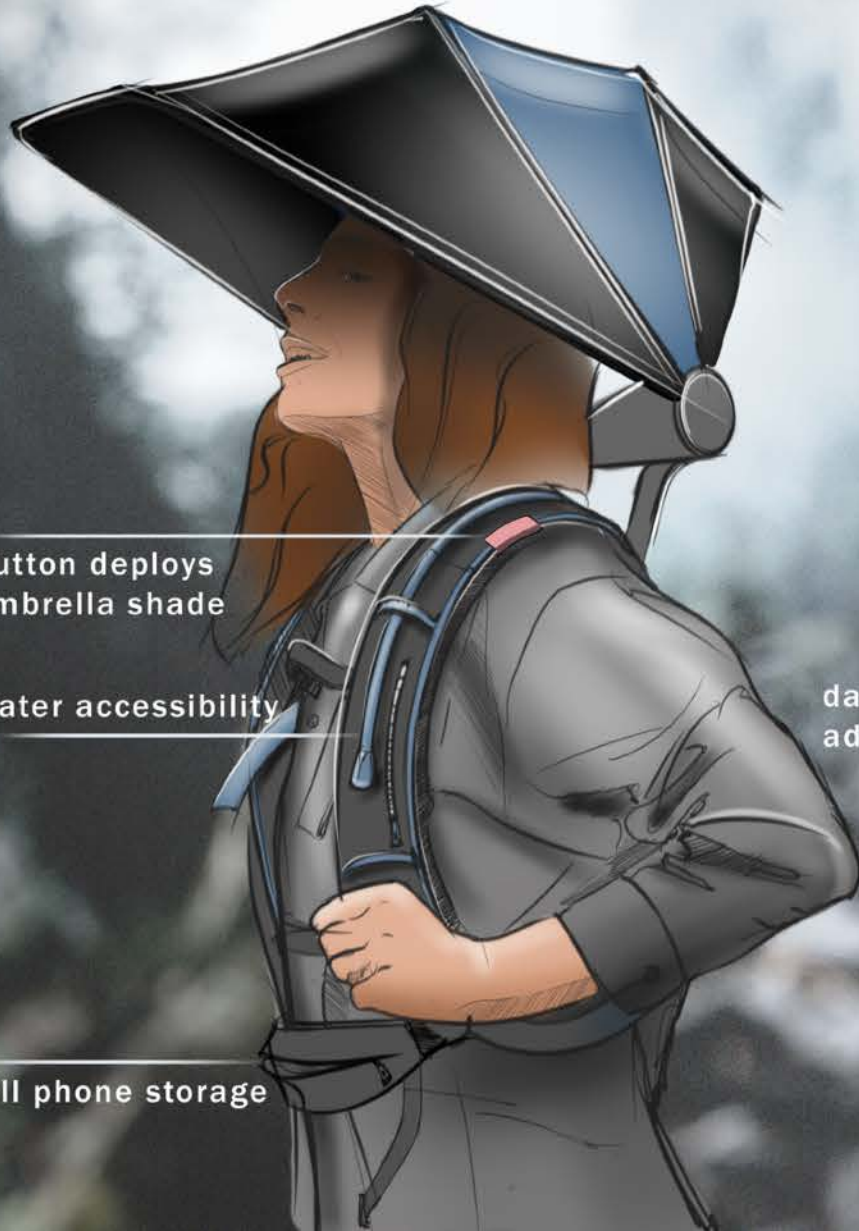
Tube connected to water bottle inside backpack

Pull to release Backbrella



# BACKBRELLA

Enjoy the wet outdoors with the HANDS FREE backbrella. A deployable umbrella that allows for a dry Michigan Adventure.



Button deploys  
umbrella shade

water accessibility



cell phone storage



Deployable shade  
keeps you and your  
gear dry

day pack for  
additional storage.

## SILVER AWARD

Yara Sheikh Qader      Jovana Dokic  
Samantha Schwartz      Parker Woodin



## *“Refillable Water Stations”*

School: **Adlai Stevenson High School**

Educator: **Mark Lacombe**

Mentors:

**Arthur Brown      Grace Ellison & Lauren Hinzmann**



### **Design Concept:**

What makes our Refillable Water Station eco-friendly is that it uses a water tank that is above ground instead of underground pipes. There are two buttons, one for a free water fill, and for those without a bottle, one button for a metal water bottle for \$2.00 USD (water fill still being free).  
The water is filtered inside of the machine.”

# WATER REFILL STATION

FOR MICHIGAN'S PARKS



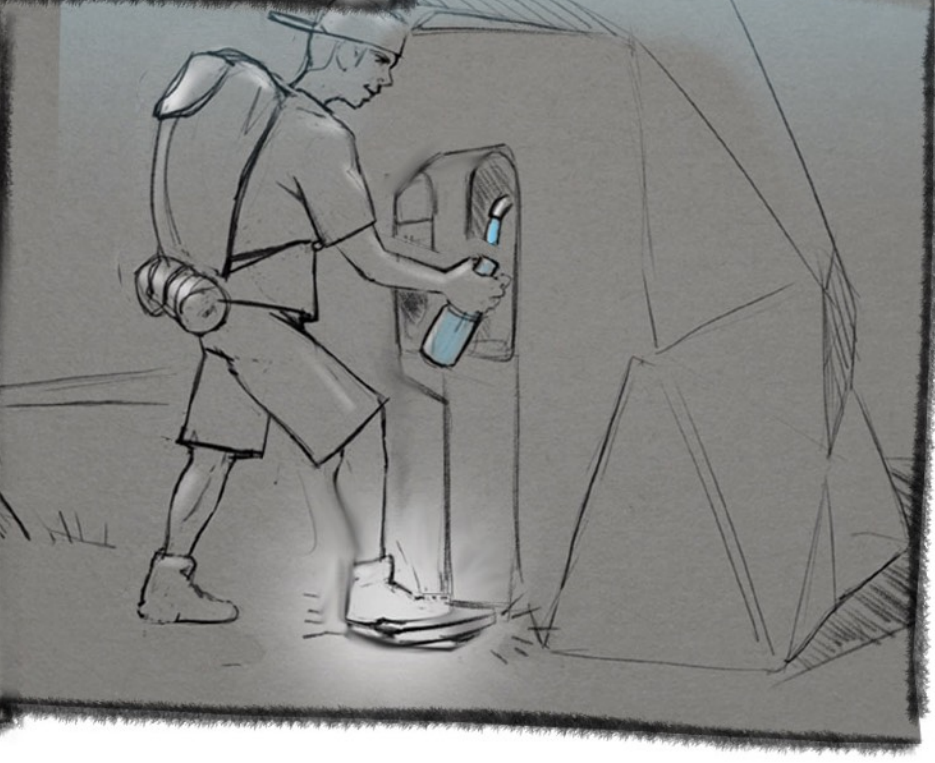
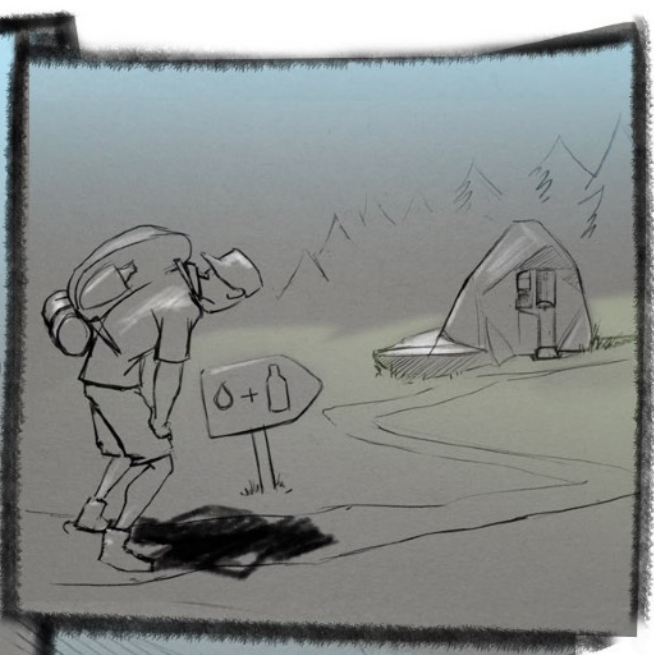
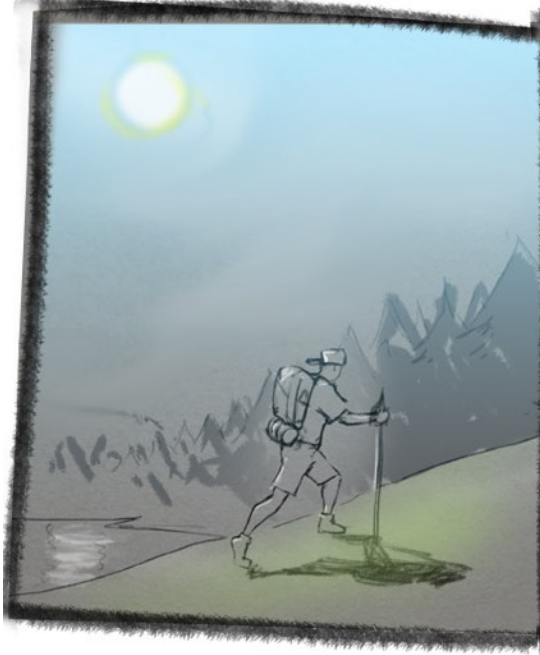
Bottles available for purchase if visitors forget their own

Once purchased, bottles are easily accessible through back panel



Rock Reference:  
PICTURED ROCKS  
Alger County, MI





**GOLD AWARD**

**Cole Hillegonds**



***“The Fleener”***

School: **Clinton High School**

Educator: **Ron Schaffner**

Mentors:

**David Byron   George Chen & Giselle Valade**

**SUNDBERGFERAR**

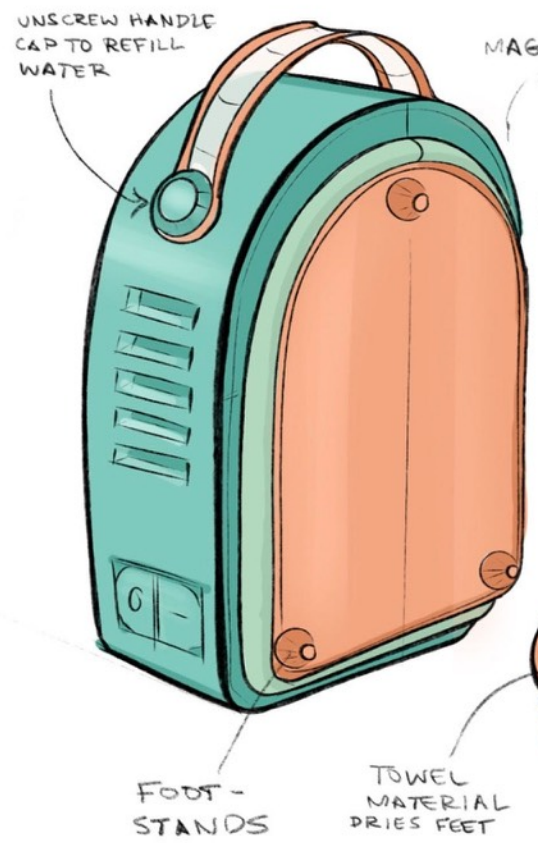


**Design Concept:**

My design is a two-compartment foot washer system that washes off sand from your feet on one side and then dries your feet on the other side. There is a water reservoir that is refillable so that you can supply the water for the nozzles. On the right side, the air blowers dry your feet once you set the dial to the intensity you prefer. This whole system is battery-powered and rechargeable.

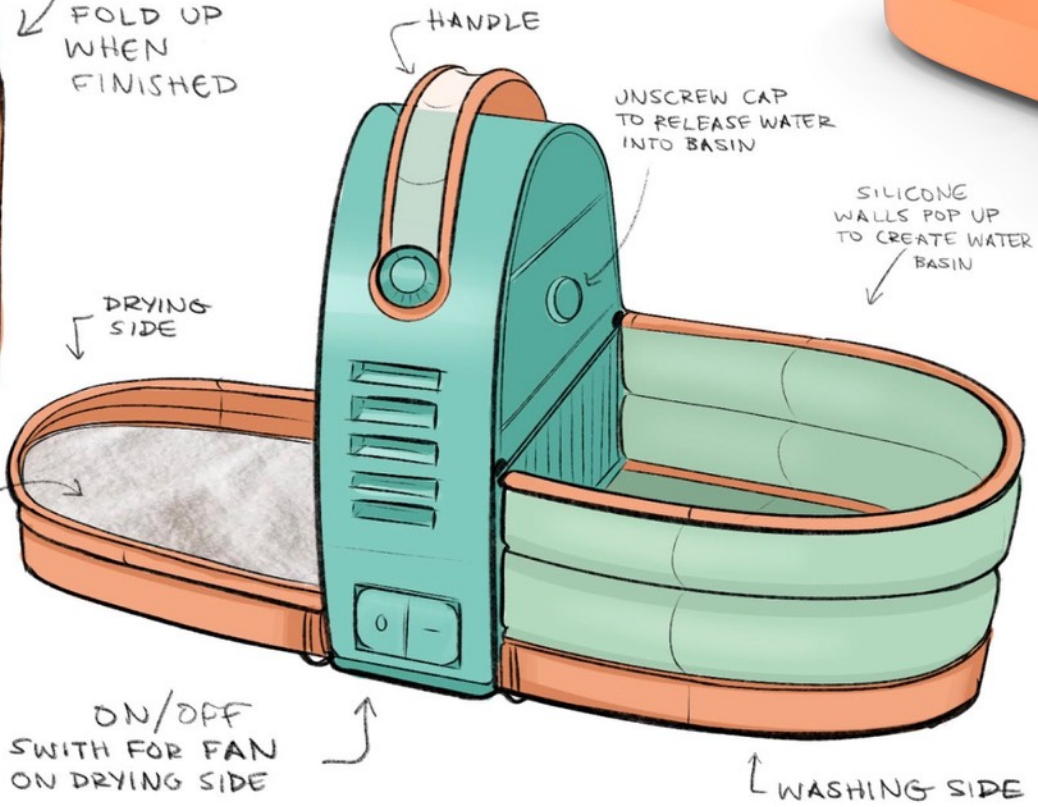
# FLEENER

Portable Powered Foot Cleaner

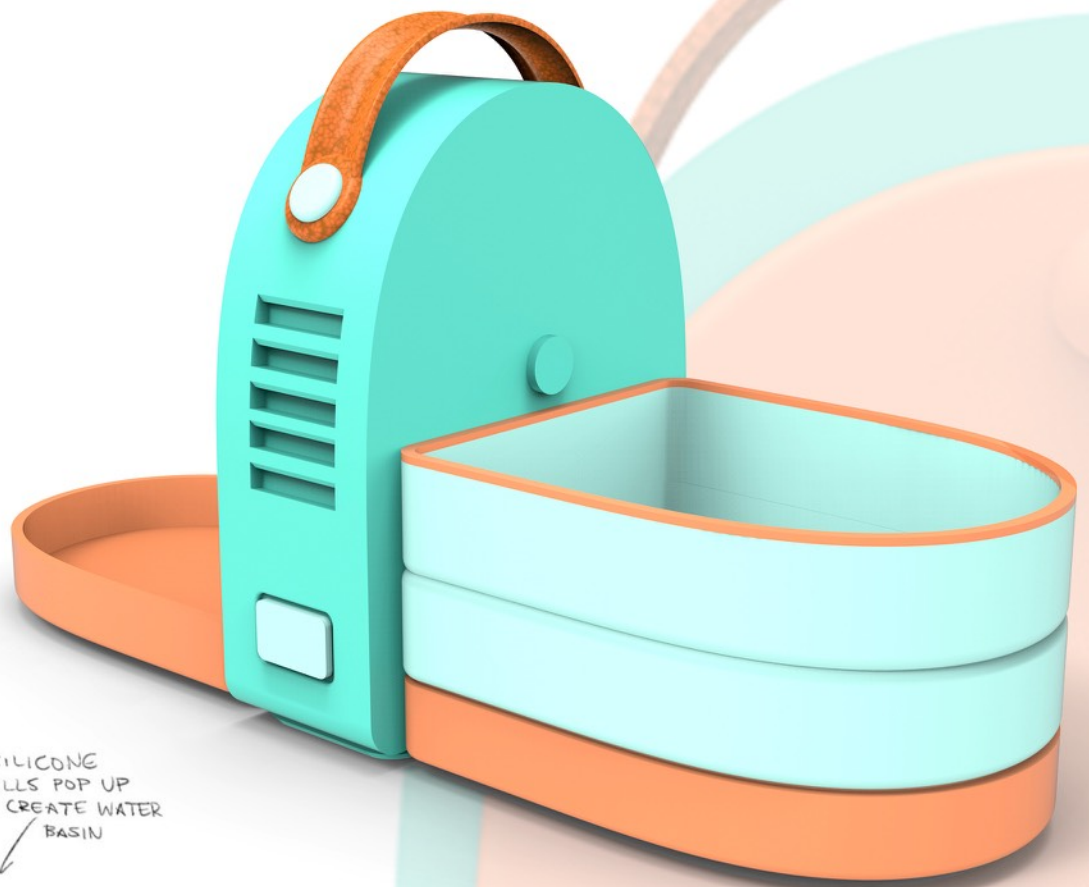


MAGNETIC SNAP UPS

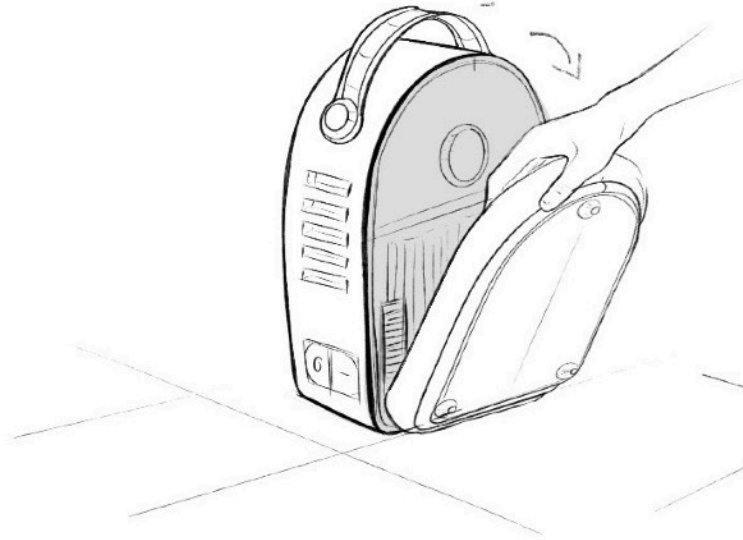
BOTH SIDES FOLD UP WHEN FINISHED



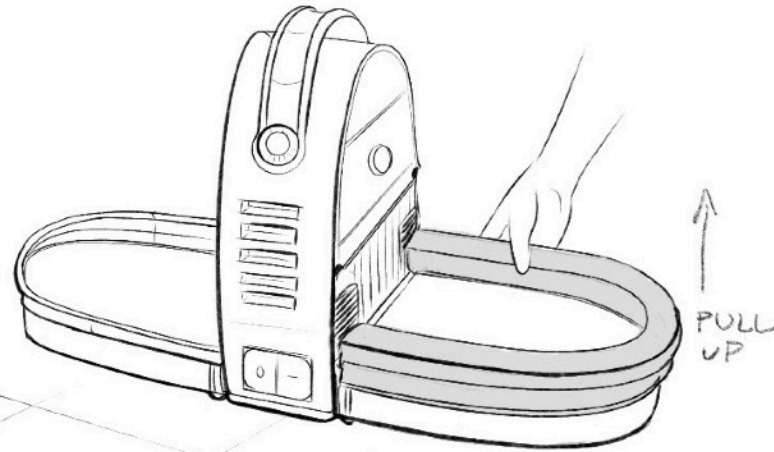
SILICONE WALLS POP UP TO CREATE WATER BASIN



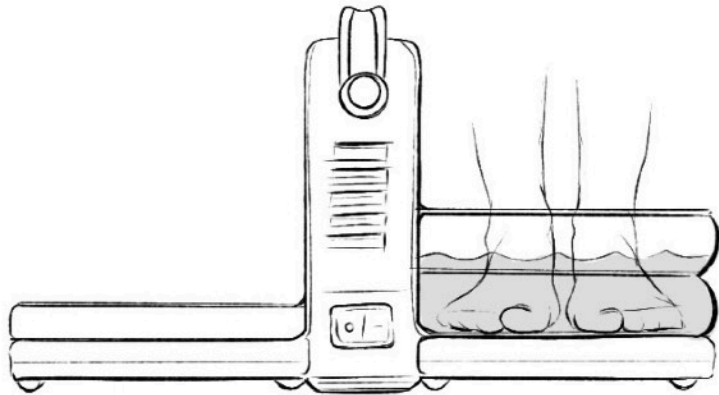
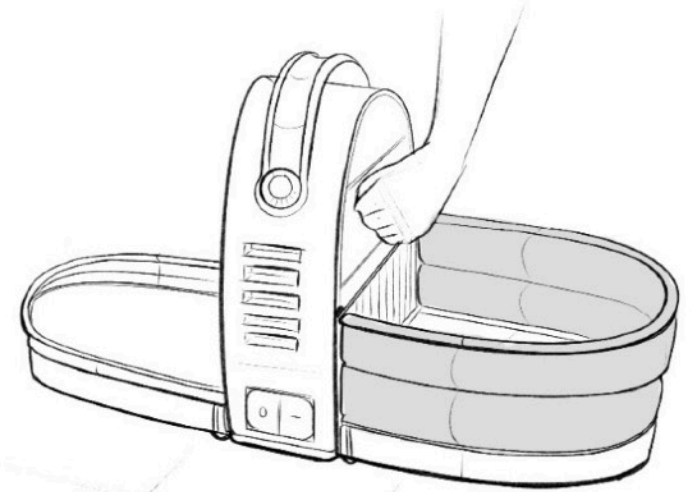
① OPEN BOTH SIDES OF PRODUCT BY GENTLY PULLING TO RELEASE MAGNET SNAPS



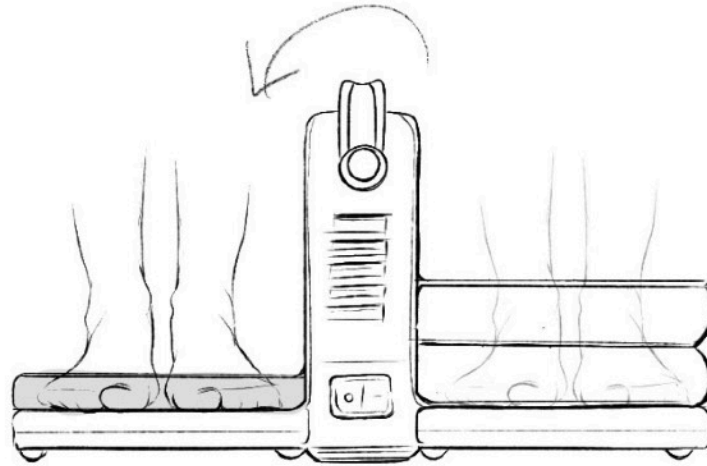
② POP-UP SILICON WALLS ON THE "WASH" SIDE



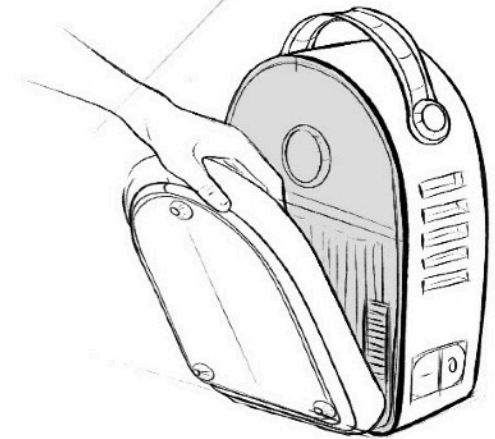
③ UNSCREW CAP TO RELEASE WATER



④ AFTER BASIN FILLS WITH WATER PLACE FEET INTO "WASHING" SIDE



⑤ AFTER FEET ARE CLEAN PLACE FEET ON DRYING SIDE, WHEN DRY, PUT ON SHOES AND DUMP OUT WATER



⑥ WHEN FINISHED FOLD SIDES BACK UP