ROMU

With a supercomputer at our fingertips, we are left staring into the palms of our hands.
When does technology free us to look up?

SEE THE WORLD. FEEL THE WAY.

ROMU is an innovative new wearable product designed for seamless pedestrian navigation. The slim-profile armband will guide you to your destination through a series of turn-by-turn instructions in the form of intuitive patterns of vibration. All you have to do is input your target location in the accompanying Android app and send it to the armband via Bluetooth. Gone are the days of staring at a screen to get your bearings – with ROMU you can once again enjoy your journey while still traveling safely and with confidence.

THE ROMU APP

While many mobile apps on the market possess steep learning curves and layers of complexity, ROMU's is streamlined and straightforward so that you can start exploring sooner. The app was also built atop the Google Maps API, meaning there are literally millions of destinations at your fingertips. Just search, select, and go. The app can also provide information such as the number of waypoints passed and total distance remaining.

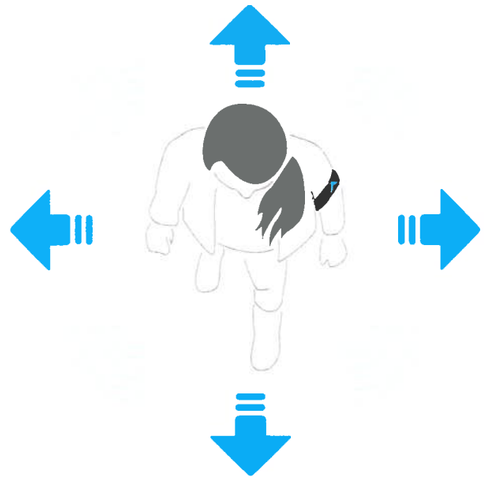
THE ROMU ARMBAND

The armband is a haptic interface device that transmits direction signals via haptic feedback in the form of vibration. It has four nodes, which are triggered in unique patterns to provide clear and intuitive instructions to the user. This system is controlled by a suite of electronics such as Arduino, compass, Bluetooth, and batteries.

A NEW ERA OF NAVIGATION

Using finely-tuned vibrational patterns developed through user-testing, the ROMU navigation protocols are easy to understand and eliminate the need for the conventional reliance on visual maps or audible instructions.

Each motor in the ROMU band is encased in custom-molded silicone to effectively dampen vibration transfer to the band. 3-D printed rigid contact points on the motor surfaces ensure isolation of vibrations directly to the user's skin for more precise, more detectable haptic feedback.



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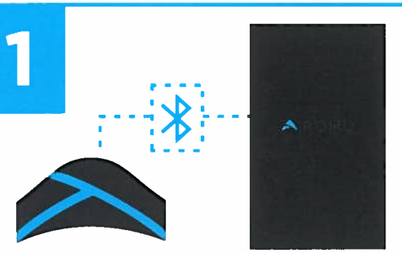

Open the ROMU Android app and establish a Bluetooth connection between the armband and the phone. Search the destination that you would like to navigate to. Google autocomplete will even suggest nearby or common locations as you type!

2

After starting navigation on the phone, the ROMU armband will start providing the turn-by-turn instructions. You will be directed to intermediate waypoints that take you closer to your destination, and notified that you are on the correct path after arriving at each one. Each haptic instruction is unique and repeated periodically.

3

At any point during your journey with ROMU, you may pause navigation instructions using either your phone or with two quick taps on the band. When you're ready to continue, the same gesture will resume communication between the band and your phone.

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Aura

An Outdoor, Soothing, Immersive Experience

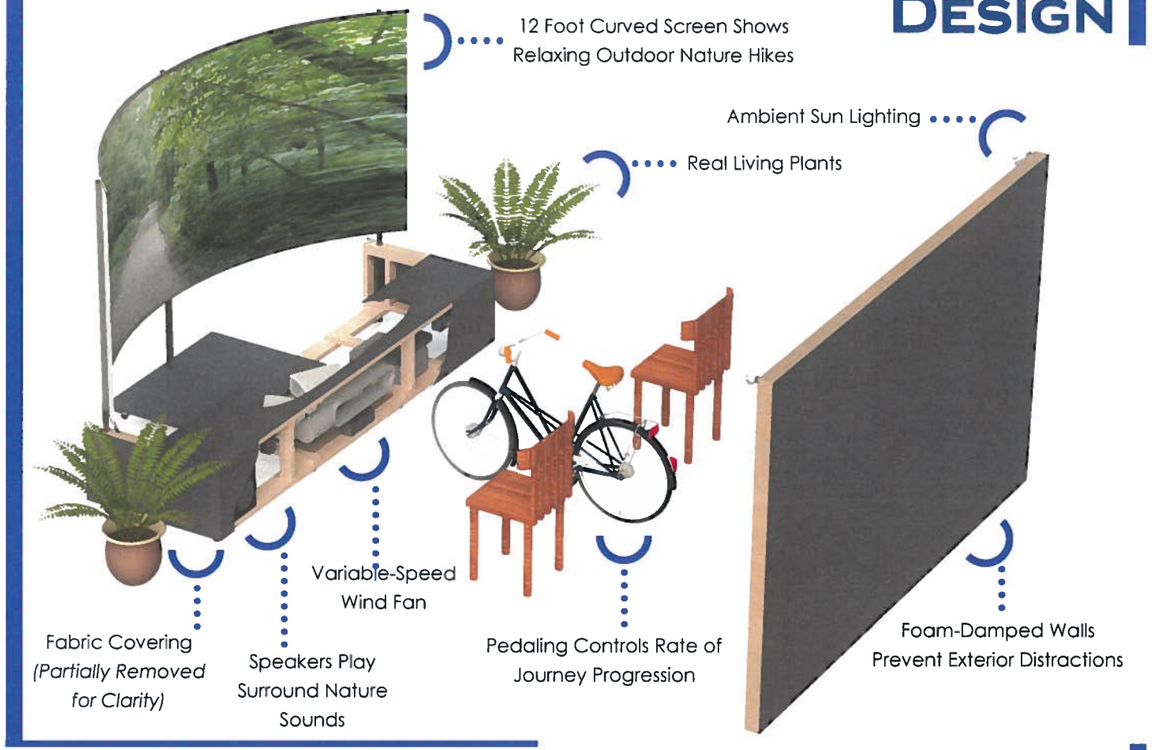
Background

Japan is experiencing a rapidly-aging population: 25% of individuals are over 65-years-old, expected to grow to 38% by 2050. A similar trend is occurring in the United States with over 40 million living seniors. US adults age 65+ commit 20% of all suicides, while representing only 13% of the population. The Geriatric Mental Health Foundation linked depression as the cause or effect of many illnesses, including dementia, stroke, and cancer. New techniques and systems are needed to combat senior depression.

Vision

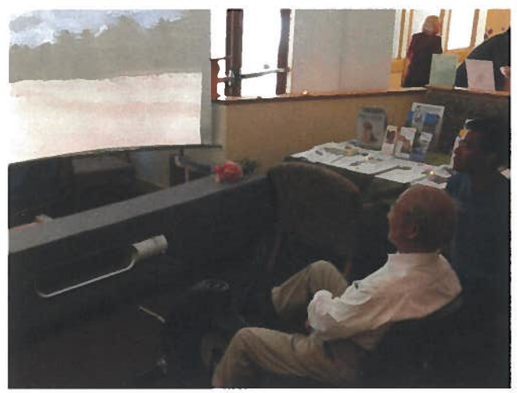
Aura addresses the major problem of senior depression through immersive outdoor multimedia experiences, improving their satisfaction with life. By allowing for simulated group travels to foreign lands, users are encouraged to utilize National Institute of Health approved self-help techniques. Managing stress through distractions, sharing experiences with friends and family, and engaging in visual reminiscence therapy all contribute to lessening the burden placed upon healthcare professionals.

Design



User Testing

"This would be a great way to engage with [my mother]; it's hard to find ways to do that with her dementia." - John



STANFORD ME 310, SPRING 2014

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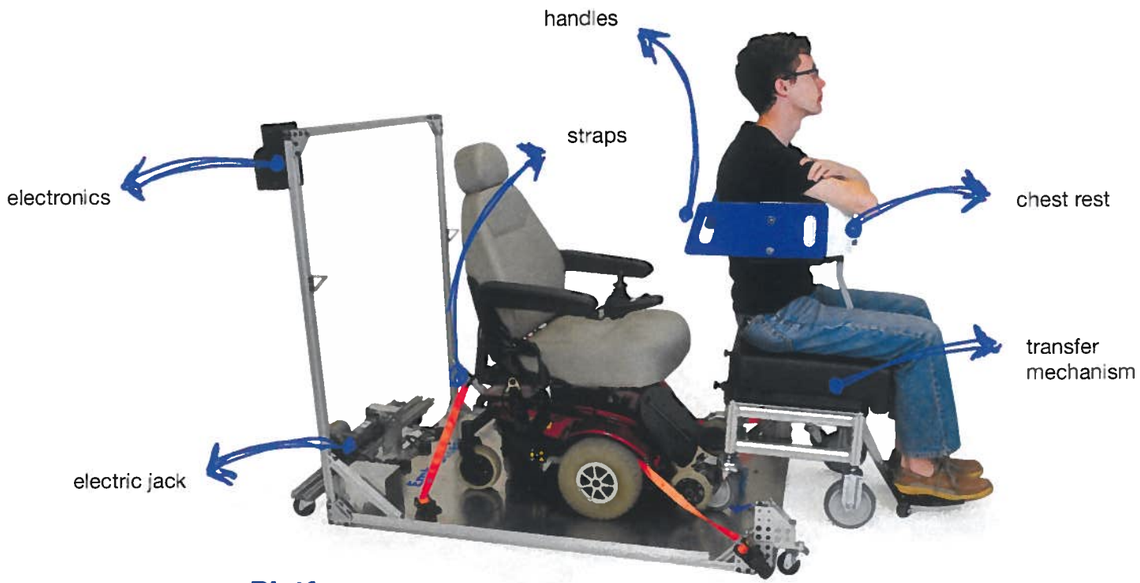
Embraccess

peace of mind - independence - control

Problem

For wheelchair users, air travel is a stressful and uncomfortable experience. Since 60% of wheelchairs are damaged during the flying experience, users are constantly worrying about whether their wheelchair will make it safely to their destination. Additionally, users suffer as they have to perform uncomfortable and unsafe transfers between their wheelchair, the aisle wheelchair and the airplane seat (e.g. on entry or disembarkation, or to use the toilet).

Redesigning the flying experience



Platform **Aisle wheelchair**

We are giving wheelchairs users the **piece of mind**, **independence** and **control** they deserve through the use of a rigid platform for their wheelchair and a safer, more comfortable transfer process.

Credits

M310 EMBRAER USP Stanford

Details

Platform

Easy and consistent way of moving any type of wheelchair.

Straps already used in other forms of transportation secure wheelchair down.

RFID for the handler to check in and an accelerometer that detects falls or hard impacts.

Handler lowers the platform's wheels to smoothly roll it from one location to another.

Aisle wheelchair

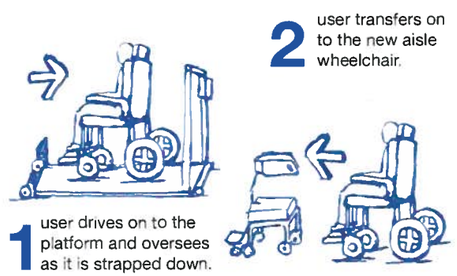
Lateral transfer mechanism makes transferring from chair to chair smooth and easy.

Provides mobility in small places and allows users to go to the restroom.

Frontal support increases wheelchair user's comfort, stability and safety.

Ajustable handles facilitate assistance from companions and flight attendants.

New experience



1 user drives on to the platform and oversees as it is strapped down.

2 user transfers on to the new aisle wheelchair.

3 handler rolls the wheelchair platform away to the cargo hold.

4 flight personnel assists wheelchair user down the aisle.

5 user laterally transfers themselves onto their airplane seat.

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