The universal multipurpose household tray designed to promote independence while aging in place
PRESENTING MODU

THREE STAGES
Problem, Research, Solution.

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Often, I would return to China to visit family. Trip after trip to China visiting my grandparents, as I grow older, I’ve watched my grandparents grow older. My grandpa is 92 years old, my grandma is 82. The recent years- as I develop as a product designer, I’ve started to question current product solutions or systems for the elderly—

My grandpa and grandma is very healthy and active- however finds everyday tasks such as cooking challenging. The task of cooking a simple home cooked meal seems rigorous, and daunting- from purchasing groceries from the market, to transporting groceries, to prepping, and cooking. It’s not a easy process. They’re unable to stand for long periods of time, and transporting objects around the home is a challenge. Today, they rarely cook at home, but rely on their “bao mu” or caretaker to cook meals for them.

The market lacks a viable solution for those who would want to stay active and independent in the household. Our research and inspirations for MODU began here.
According to the Population Reference Bureau report, “Aging in the United States,” and U.S. Census Bureau, 2010:

The number of Americans ages 65 and older is projected to more than double from 46 million today to over 98 million by 2060. The 65 and older age group’s share of total population will rise to nearly 24 percent from 15 percent.

“Aging in Place”: 87 percent of adults age 65+ want to stay in their current home and community as they age. Among people age 50 to 64, 71 percent of people want to age in place.

More than one-fourth of women ages 65-74 lived alone in 2014, 42 percent among women ages 75-84, and 56 percent among women ages 85 and older.
Dr. Fisher is a physician, designer, and proactive advocate. Due to her sciatic inflammation in her left leg, it is challenging for her to walk, or stand upright for long periods of time. Living in a single-family home in a hilly part of town is especially a problem while moving up and down stairs. She hopes to maintain her independent lifestyle as she grows older in age.

Paul Nowicki is a current lecturer at San Francisco State University. Paul is constantly working with his hands from drawing or prototyping. Due to physical handicaps he primarily uses a rollator outside, and multiple walkers in the house to complete everyday tasks. Paul commonly finds it difficult to transport items, especially larger, heavier items around the house.

Ramon Bruselas is a veteran, designer, ’83 SF State Alumni, a jack of all trades. Living in a single-family house, Ramon is very active-completing all housework by himself including laundry, and yard work, primarily using a cane to aid himself. Ramon has vertigo, and has a hard time standing up due to his weak back.

June Fisher, 82

Paul Nowicki, 60

Ramon Bruselas, 93
IDENTIFYING THE PROBLEM

“Aging in place:” the ability to live in one’s home and community safely, independently, and comfortably, regardless of age, income, or ability level.

MOBILITY

In the household environment, the primary problem is mobility.

People have difficulty performing everyday tasks from food prep, to laundry, to cleaning. A simple task such as heating up food from the fridge may be a challenge. Individuals commonly use a walker, or cane for assistance, however one may find it challenging to move items from Point A to Point B while utilizing a walker, rollator, or wheelchair.
The “folding walker” and “rollator” are the primary walkers on the market. These traditional walkers are affordable, and highly functional, making these walkers very popular and common in all households. Additionally, these walkers are customizable to the user, and easy to transport. These walkers ultimately enhance the user’s mobility.

**Folding Walker**
Operates independently to allow easy movement through narrow spaces and greater stability. Convenient aid to perform daily activities, a walker can be the ideal solution.

**Rollator**
Wheels make a Rollator a superior option over a standard walker, eliminating the need to lift the device, allowing the user to walk easily.
These food trays accessorizes the common walker, allowing the walker to become an multifunctional tool in the home. While these trays are designed solely for food, these trays can be multifunctional, assisting users with common household tasks. Our team purchased few of these common trays for the walkers. We concluded these trays were basic, restricted to certain brand-name products and not user-friendly.

**WALKER FOOD TRAY**

The tray features cup wells to secure beverages, and raised edges to prevent slide-offs. The tray fits through side bars of standard walkers.

**MARKET RESEARCH**

**ROLLATOR FOOD TRAY**

This plastic food tray fits on the plastic and rubber seat of an rollator. The tray carries food, drinks, and various personal belongings.
My experience with this is not at all what I expected! It is not at all stable with carrying anything on it. I believe that it should come with some kind of rings to attach to the legs of the walker, that would in effect keep the tray from tilting.

...there were no holes in my Walker Seat. I called to check on it and found out that it goes to another type of Walker Seat. I was very much disappointed because of what the add told me in the beginning. I told the guy on the phone that I would keep the Tray, thought maybe I could find a way to sit it so it would not slip or slide while moving. Have not accomplished my goal as of yet.

This tray makes it easy to transport things that roll or that tend to fly away because it has a lip around the edge... it's so nice to be able to help my wife again by moving things to the table!...I just lift the tray up and place it into the basket. Easy!
THREE DESIGN DRIVERS

Three design drivers for MODU.

UTILITY
“quality of being useful or advantageous factor or feature”

MODULAR
“composed of standardize units or sections for easy constructions or flexible arrangement”

UNIVERSAL
“applicable everywhere or in all cases: general”
MODU focuses on three key environments: the kitchen, living space, and bathroom, with varying spaces from studios, condos, and single-family homes.

**KITCHEN**
MODU focuses on the process of food preparation to consumption. Centralizing all food-related needs in one location.

**LIVING SPACE**
MODU is essential in the living space, where the core of the user may spend their time. MODU may assist in many needs.

**BATHROOM**
MODU is an accessory for toiletry organization, and provides assistance to the user when bathing or showering.
The sections per bento box arrangement allows the box to be highly modular and custom.

Our ideas were driven by three inspirations.

SERVICE TROLLEY
The service trolley transports, centralizes, and organizes goods depending on user’s needs.

OUTDOOR COOKWARE
Outdoor products, particularly outdoor cookware focuses on minimalism, and utility.
RESEARCH
CONCEPTS
The beginning stages of MODU - our ideation and iterations
MODU is designed to assist those who face challenges in mobility; the product is designed to promote independence in the home environment. The intent is to create a universal tray, along with an ecosystem of accessories that is highly modular, and customizable per user for existing products on the market such as the walker, rollator, and wheelchair, because these solutions are widely used. Ideally, MODU and its ecosystem would have its own redesigned walker to further customize the system for the user. We aspire for users to become more independent and confident to complete everyday tasks around the house, ultimately improving the quality of life, and enabling users to age in place.
SOLUTION

THE PRODUCT
The Externals include: the "cradle," body, and lid. The "cradle" and lid can be customized according to the user needs. User is able to access MODU's contents by pushing the lid forward.
The Internals include two layers of modular boxes (3x6, 3x9, 3x12, 6x12, and 6x6), and varying depths.
These Internals are some example variations of the modular boxes (3x6, 3x9, 3x12, 6x12, and 6x6). The user has complete autonomy to arrange the boxes, and add dividers or lids as desired.
SOLUTION

STORYBOARD

Demonstrating MODU’s experience, capabilities, and environments

Demonstrating the process of how MODU would be opened

This column shows MODU’s internals, its potential arrangements, and storage capabilities.

Displaying MODU in multiple home environments
In this particular session, we examine how Paul utilizes the common food tray on the market as a workspace, studying aspects of the advantages and disadvantages of the food tray.
During our user-testing sessions with Paul Nowicki we examine MODU’s ergonomics, and the potential accessories for the internals. We studied how Paul would move MODU, the internal components, and the process of utilizing the top. Paul stated his Kitchen counter top is 50% used for storage, and compared how MODU can be designed for order and arrangement in a user’s life.
The next step is creating the "ecosystem." The "ecosystem" are accessories the user may choose to add to customize MODU to meet their needs. The ecosystem enables the user in all aspects of daily activity, within the three environments: Kitchen, Living Room, and Bathroom.
THE PRODUCT ECOSYSTEM

SOLUTION

KITCHEN
- Eating
- Cooking
- Food Preparation
- Self-Care

BATHROOM
- Bath
- Self-Care
- Productivity
- Portable Battery

LIVING SPACE
- Productivity
- Entertainment
- Chores
- Small Management System
- Cutting Board
THIS IS MODU
DESIGN FOR ALL