A Robotic Helper
In Every Home.

DA

Dexterous Actuators

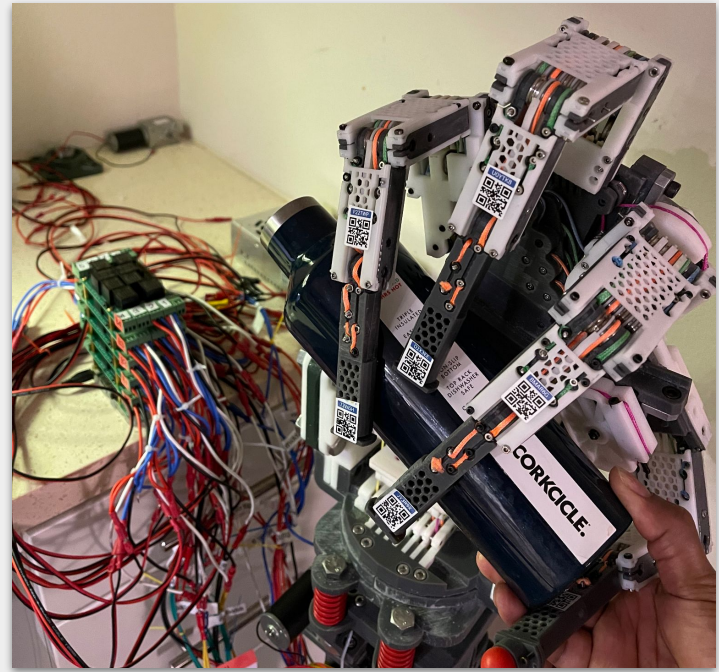**Problem:**Consumer robotics have been limited to vacuum cleaners.

Solution: Bring to the market an inexpensive consumer robotic aid, for regular consumers to perform mundane tasks.
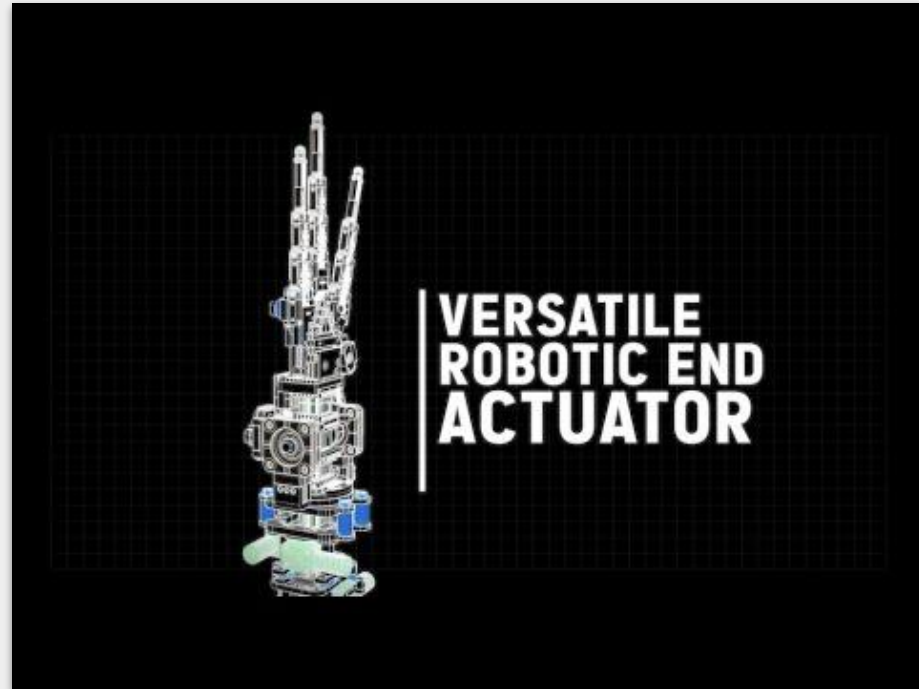
Benefits:
Independence for the disabled.

Frees up time by automating household tasks.

Remotely grasp and move objects.

The Product: (Click to Play Video of Demo Product in YouTube)

VERSATILE
ROBOTIC END
ACTUATOR

Market Size

1.5 million electric wheelchair users in the US. If 10 percent of these users opt for a 2500 dollar robotic aid, that will be worth approx. **400 million dollars**.
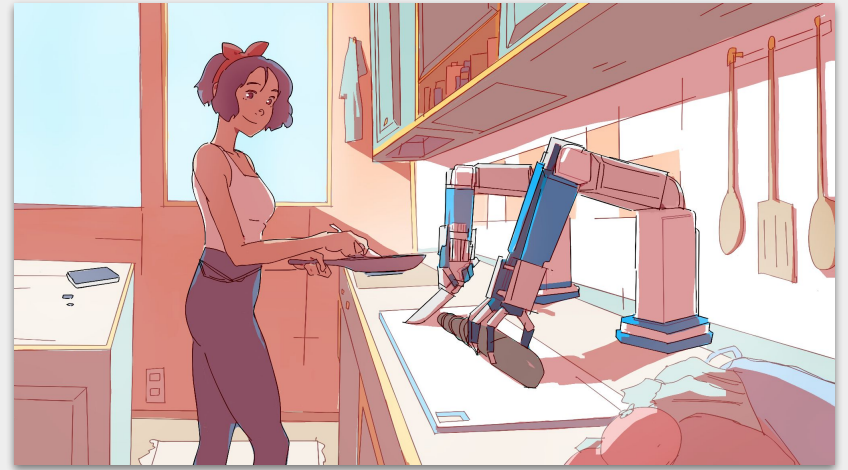
Sources:

"3 million Americans use a wheelchair in the US"

"The electric wheelchair market is valued at USD 2.89 billion in 2021. Exhibits a growth rate of 10.76%."

Est. 55% of wheelchair users in the US use electrics

Market Size

IRobot ships **40 million** Roomba vacuum cleaners **per year**. If 1 percent of those users opt for a 2500 dollar home automation robot, then market is worth approx. **1 billion per year**.

Market Size

The world wide market for robotic grippers is **1.6 billion dollars per year**. If we capture 10% of that market, that provides **160 million dollars in revenue per year**.

Source: "The global robotic gripper market was valued at US$ 1.6 B in 2022"

Why Now?

A number of companies- e.g. Tesla, Dyson - have been teasing consumer robotic helpers recently.

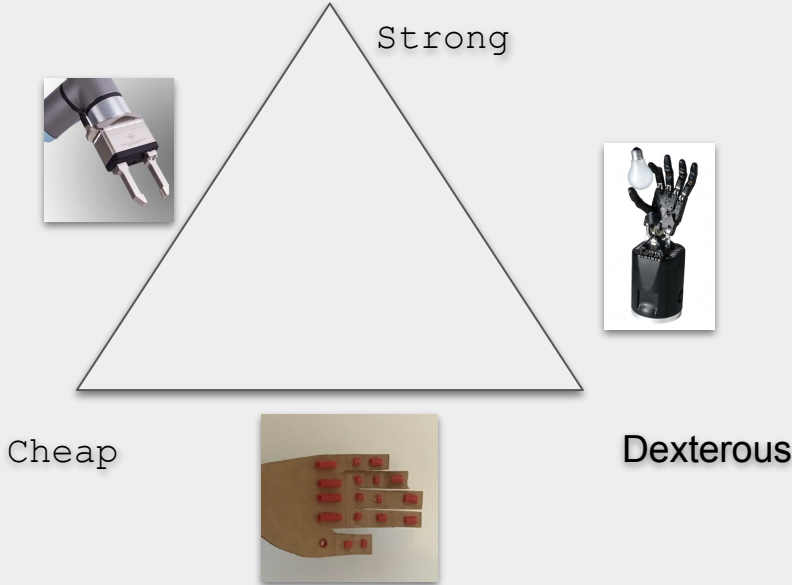The public is socialized and excited for such a product.

The market is ready.

The necessary machine learning cloud infrastructure is now available, allowing the **hosting of the necessary AI services** at reasonable cost.
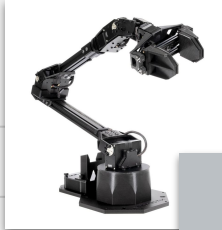
Competitive Advantage

Robotic hands in the market are a trade off between **strength, dexterity** and **cost**. Pick any 2 of 3.

WE OFFER 3 KINDS OF SERVICES
GOOD · CHEAP · FAST
BUT YOU CAN PICK ONLY TWO
GOOD & CHEAP WON'T BE FAST
FAST & GOOD WON'T BE CHEAP
CHEAP & FAST WON'T BE GOOD

Strong

Cheap

Dexterous

Through a multi-year R&D effort we have developed the hardware that has all three qualities.

Competitive Landscape

Company / Model	Price (approx. dollars)	Working Payload	Degrees of Freedom (hand + wrist and arm)	
Trossen/ViperX 300	$5000	1.5 lbs	1 + 5	
Shadow Hand w/ Arm	>$50000	9.0 lbs	24 + 5	
Kinovaro/Link 6	$12000	1.0 lbs	1 + 5	
Niryo/NED2	$4000	0.6 lbs	1 + 5	
RobotIQ/3 Fingered	$18000	5-22 lbs	9	
Proposed Product	approx. $2500	5-10 lbs	15 + 5	

Competitive Advantage

First to **consumer** market.

Consumer Appliance Prices Point - around 2500 dollars.

Easy to use. A non technical person can use it to do useful things.

Business Model

We will manufacture and sell robotic helpers for around 2500 dollars each.

We will license the machine learning models needed to make it easy to use.

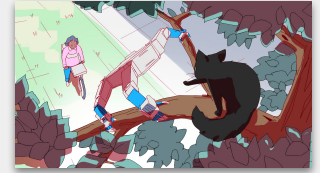We will sell them to:
  Home consumers to help around the house.
  R&D centers.
  Product developers for integration in to new solutions.
  Manufacturers to automate their factories.

This business will have a margin of up to 30% per unit.

Milestones

12 months

Setup Lab.Complete load, vibration and environmental testing.

Complete Machine Learning Models for grasping for common objects.

24 months

Setup manufacturing workflow.

Finish customer support back-end.

Finish user interface and Control Software

36 months

Complete natural language task library. e.g. "Cut the lettuce", "Wash the dishes"

References

Bill of Materials:

https://docs.google.com/spreadsheets/d/1H83DfsZ1CISSjoe77Q5DdN7oGW4mDSNGr1xzJc_anxc/edit#gid=506630395

Supported Grips and Other Details:

https://github.com/janakagoon/kisa/wiki/A-Versatile-Robotic-End-Actuator

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