



portfolio

jade tsao

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Seed  
Connect  
Chibi Vader

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Munchkin  
Coarse

# Who is

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# Jade

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## passions

Education, technology, and of course, making stuff.

## hobbies

Learning javascript and swift 4 (gonna make my own app!)

Making cute accessories, crocheting toys and plushies ( I have an etsy shop!)

Making 3D models to print

Inventing smart home contraptions for my parents

## personality

I have an intuitive nature and a supportive personality, which complements my preference to listen and observe those around me. On the more aggressive side, I also like to play devil's advocate, mostly to open up the floor to different directions and views that otherwise haven't been suggested.

A B-type personality (I'm like playdough, adapts to what is required of me; bends but never breaks).

An INTJ (although this categorization has been debunked as pseudopsychology, still very telling).

I love people who share knowledge.

## weakness

Initiating conversation and cute animals.

# My Experience

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## professional

Kokiri Labs Freelance Contractor  
2017

Coarse LLC Intern  
2016

Munchkin Inc. Intern  
2015

Art Center Teaching Assistant  
2015

## education

Art Center College of Design  
B.S. Product Design  
2013 - 2016

University of California San Diego  
B.S. Psychology & Economics  
2005-2009

## awards

Grand Prize winner - Wearables Designathon  
Emoty



# munio

A kit that promotes healthy pet lifestyle by balancing diet with activity and alerting owners to biometric abnormalities

# Problem

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**85 million**

dogs in the U.S.



**68%**

of pet owners

**MISFEED** their pets



of pets suffer from

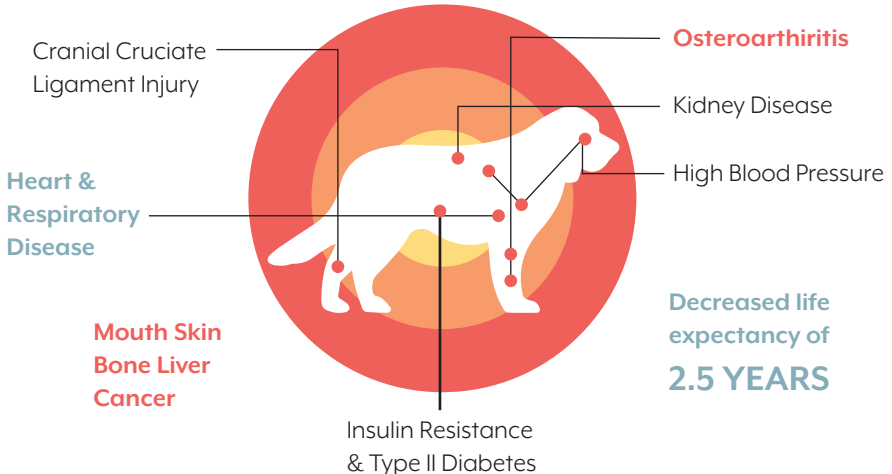
**MEDICAL  
CONDITIONS** their

owners are unaware of

---

**1 out of 2** dogs in the US. are **OVERWEIGHT** or **OBESE**

which leads  
to risks  
of



# Design Criteria



motivates  
exercise



proper  
diet



prevent  
health problems

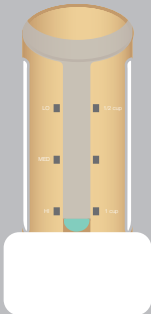


pinpoint what's  
wrong



info at a glance

## Munio Product Set



munio scoop



munio display



munio clip



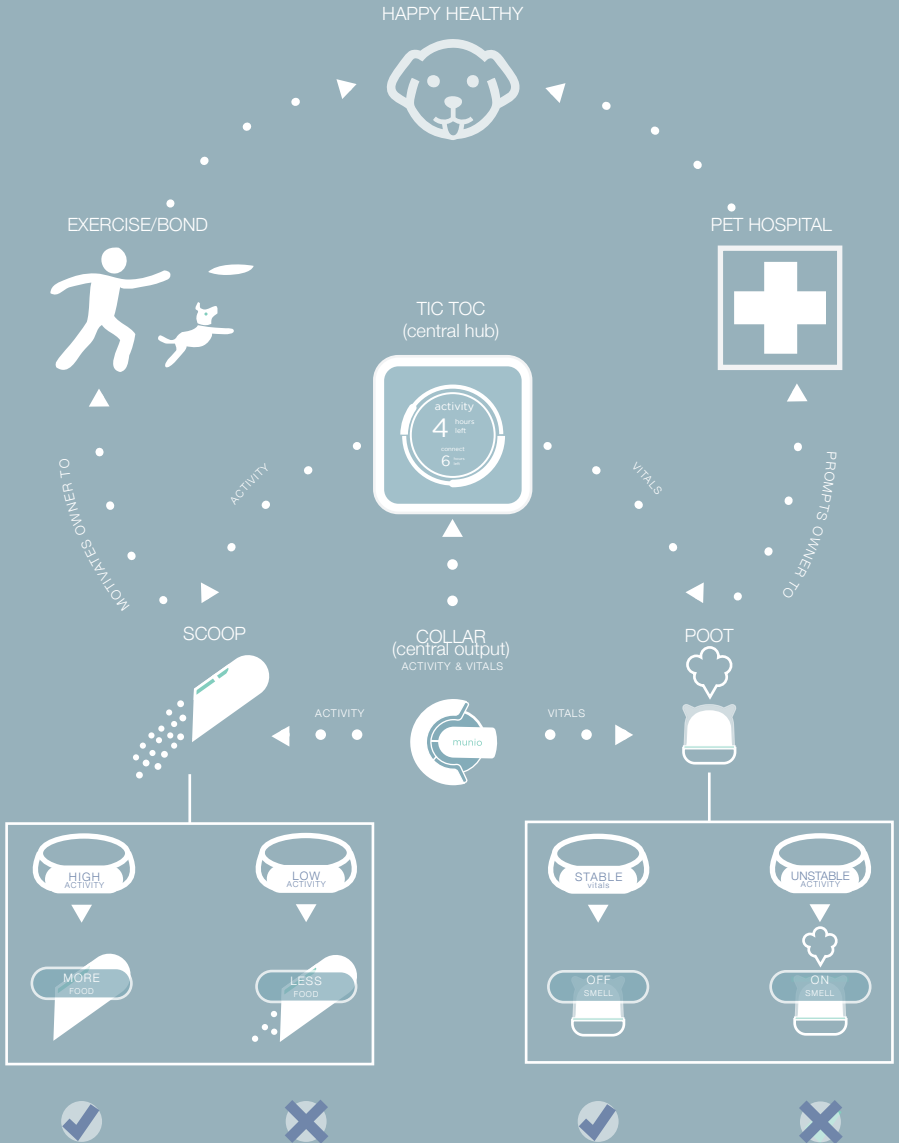
munio pool







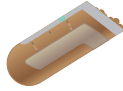
# System Diagram



# User Scenario



Owner picks up Scoop, which auto adjusts food volume



Owner fills Scoop to the top.



Pet eats customized amount of food



Pet weight goal gradually reached



Clip reads abnormal biometric from pet



Phone and Poot triggered



Owner responds sending vitals to Dr. & setting appt



Poot turns off and pet is set to go to the vet



Owner checks Hub and sees alot of inactivity



Owner takes pet out to play



Hub adjusts to new data



Pet gets more activity and more food = Happy



Owner goes to buy food for pet



Uses Munio app to scan barcode

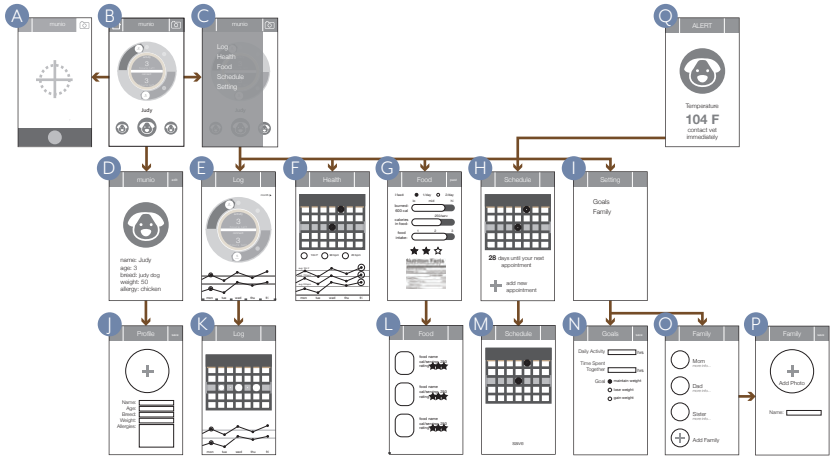


Owner checks nutrition info and pet stats



Pet gets good healthy food for its specific breed





# Wireframe

- A Dog food barcode scanner
J Add new pet
- B Main page with priority Information
K Monthly activity log (shows trend)
- C Slide out menu
L Aggregate of food types and nutrition
- D Pet profile
M Add appointment
- E Daily log of pet activity data
N Goal setting
- F Health abnormality alert calendar
O Other users
- G Pet food data ( serving size, type, etc.)
P Adding other users (family members, roommates etc.)
- H Dr. Appt schedule calendar
Q Biometric abnormality alert
- I Settings (customizing users and goals)



# App Design



shows the percentage & hours completed of activity goal that day.

shows the percentage & hours completed of owner/pet time goal that day.

switch between pet profiles for owners with multiple pets.

pick between different feeding schedule

shows food amount data relative to metabolized energy along with food nutrition.



shows monthly data with hotspots for biometric distress days with details.

allows for swiping back and forth of weekly data to see health trend.

alert screen that only allows for call to vet to exit.







# roboto

The future of digital interfaces that promote interaction between people instead of putting up walls.



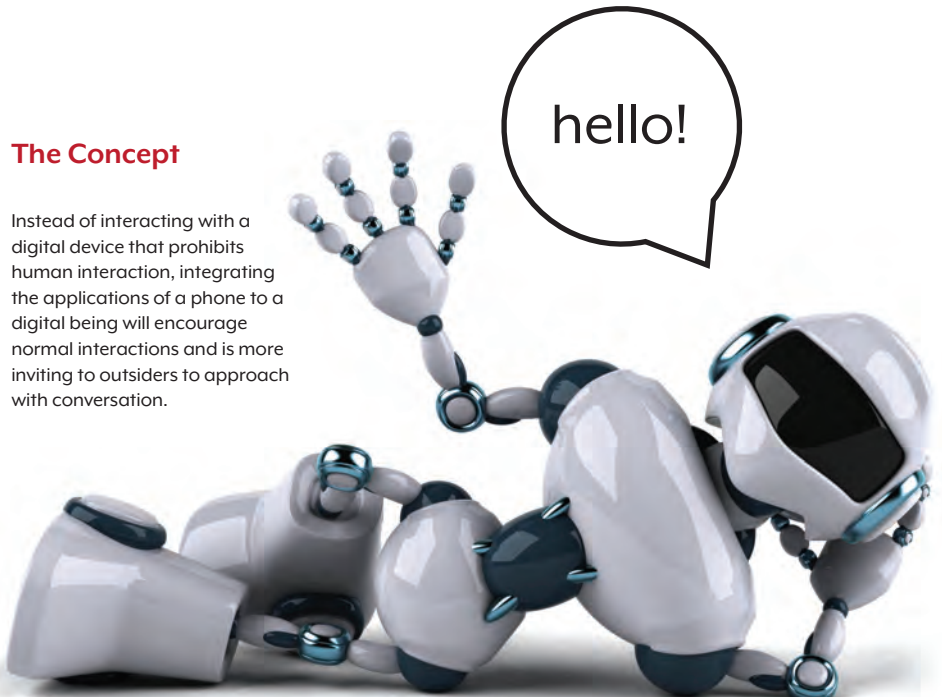


## The Present

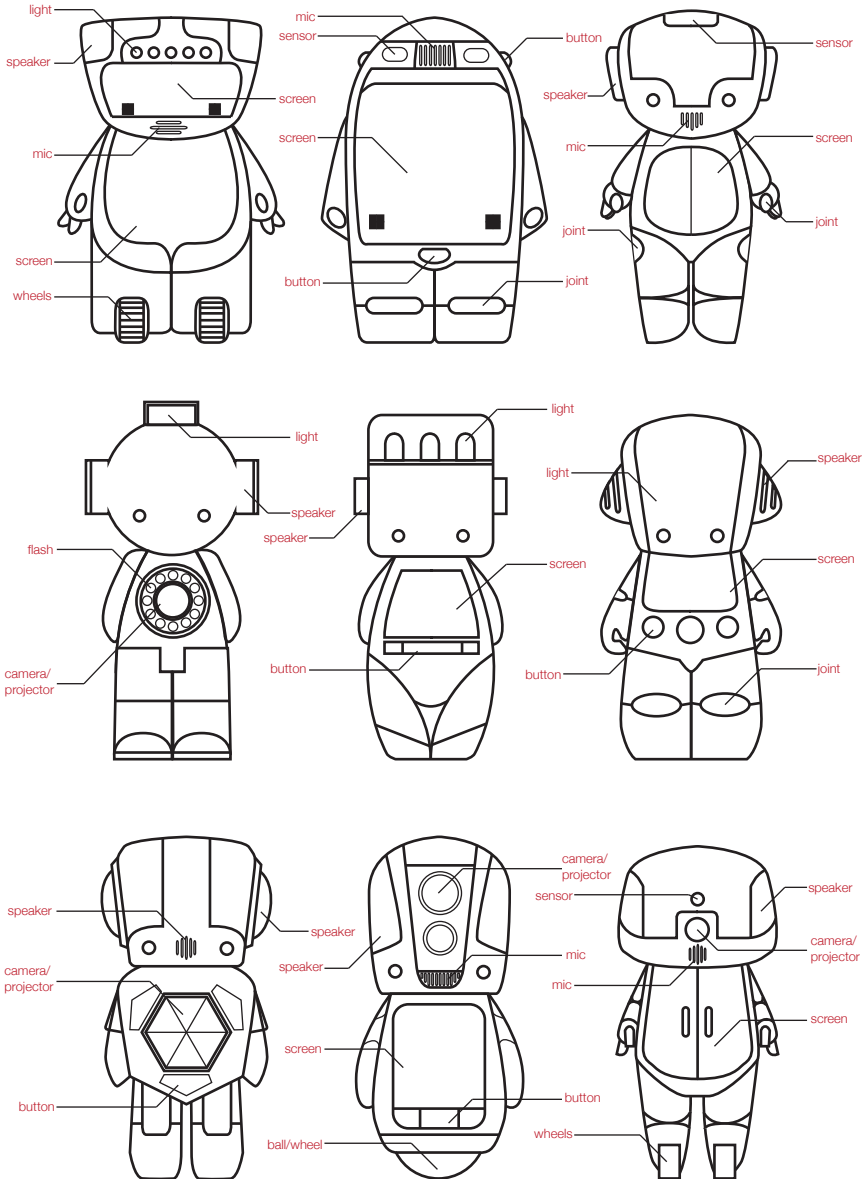
Currently most people in society use their smart phones as their means of organizing their life and staying in contact with people. The detrimental aspect of this is that instead of talking and interacting, we constantly stare at a screen, prohibiting others from interacting with us as well.

## The Concept

Instead of interacting with a digital device that prohibits human interaction, integrating the applications of a phone to a digital being will encourage normal interactions and is more inviting to outsiders to approach with conversation.

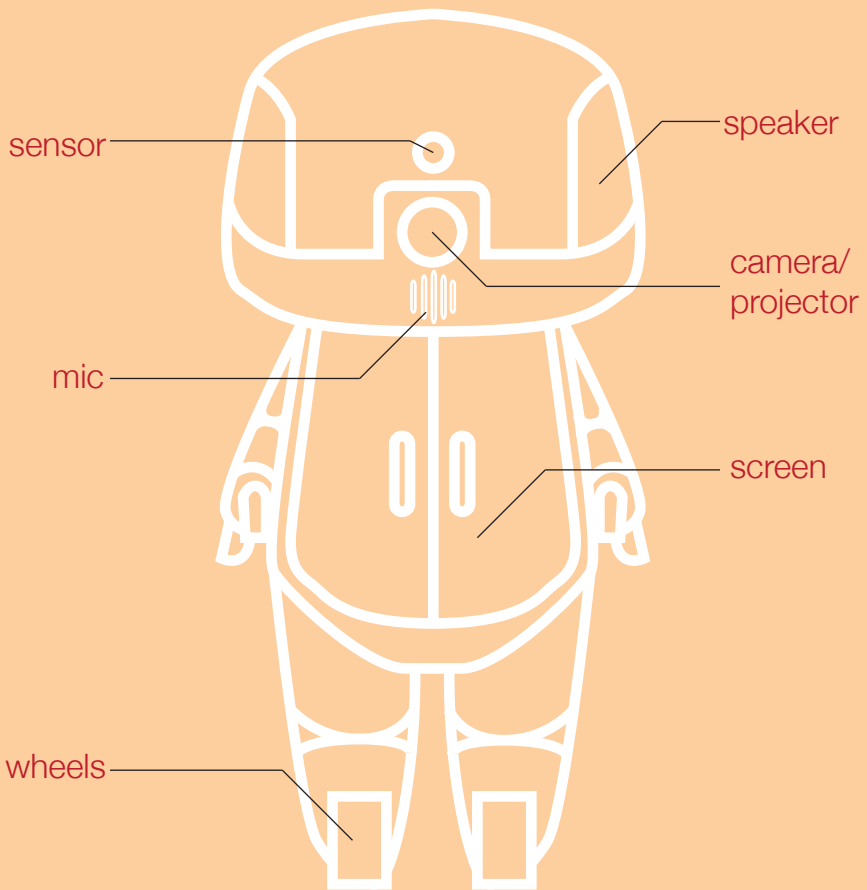


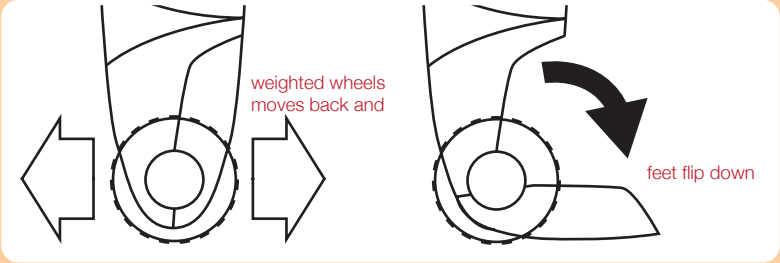
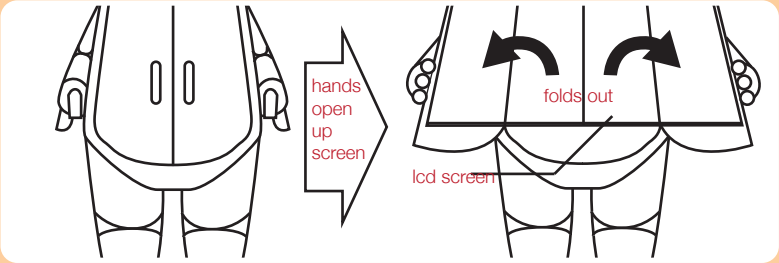
# robot aesthetics & details ideations



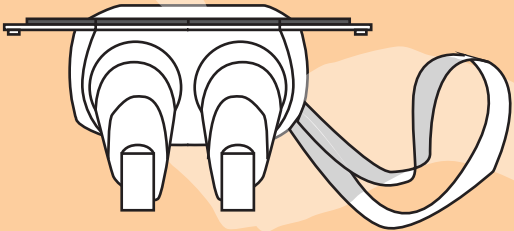
# meet roboto play

your own customizable robot



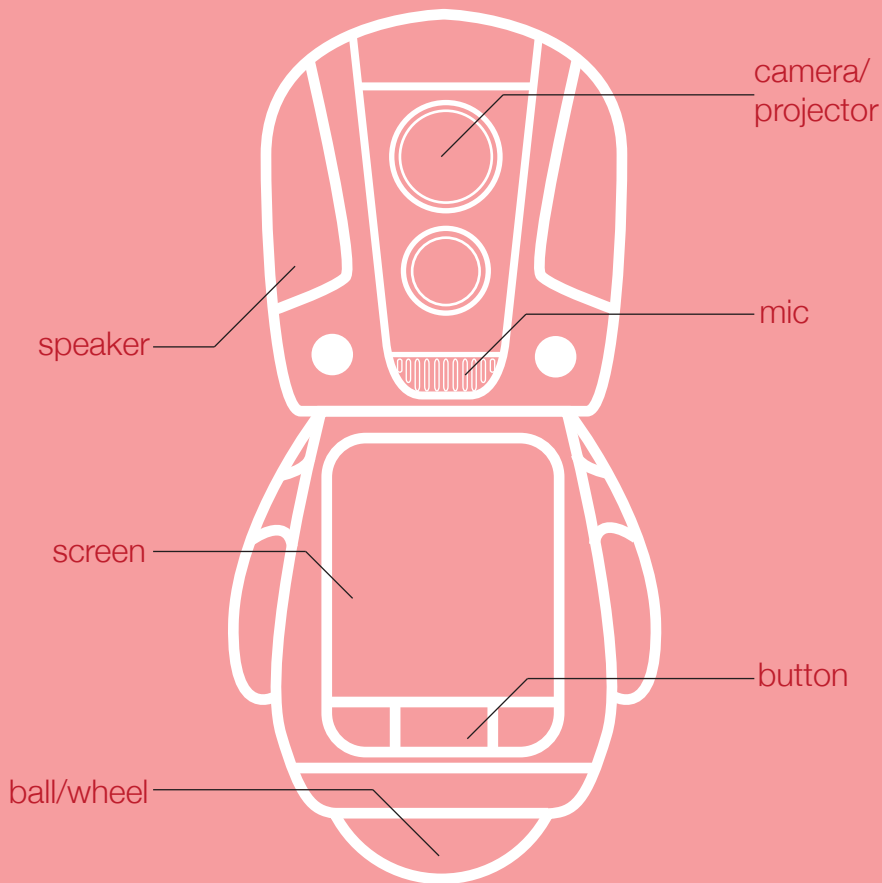


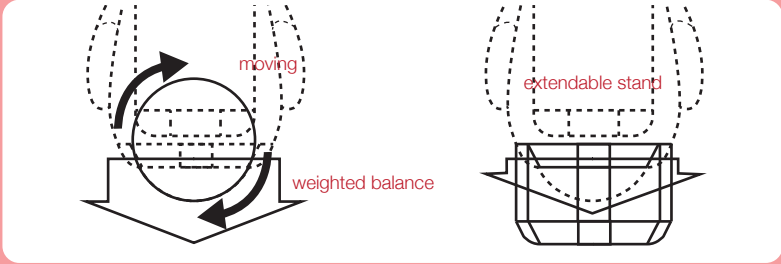
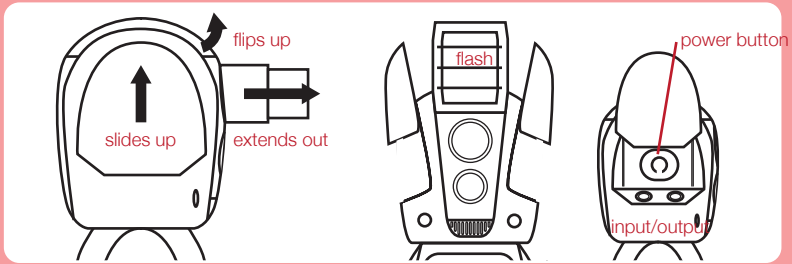
you have activated the LCD touchscreen. To access all your applications please touch the menu button.



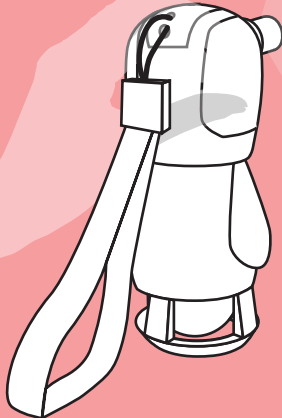
# meet roboto project

your own customizable robot



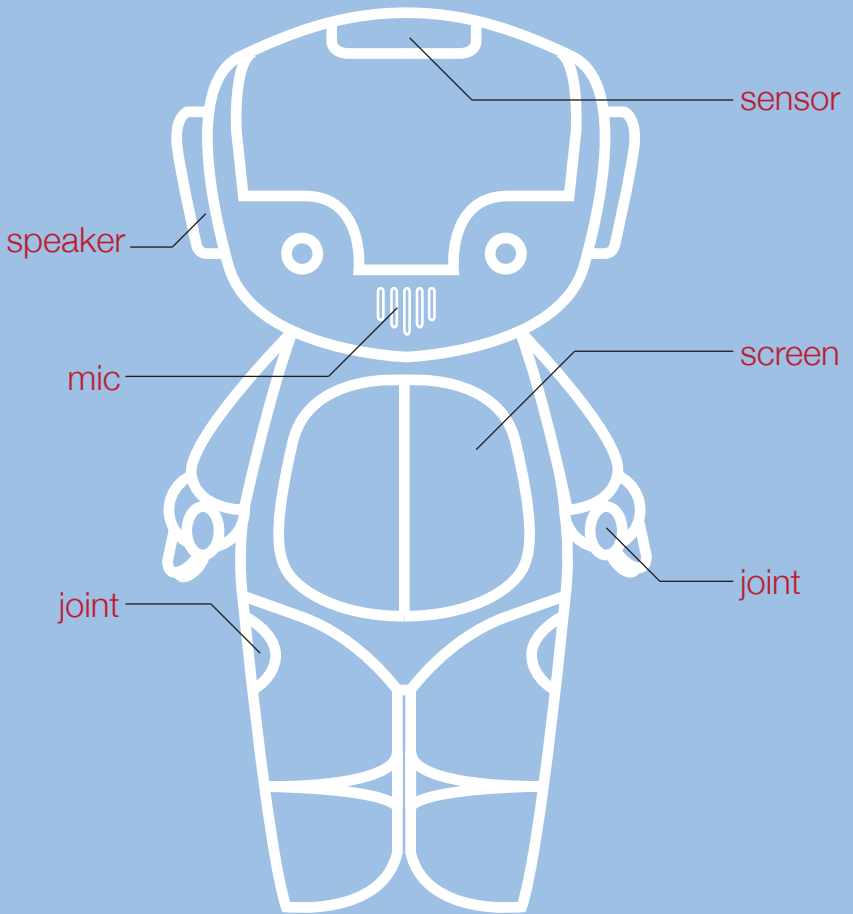


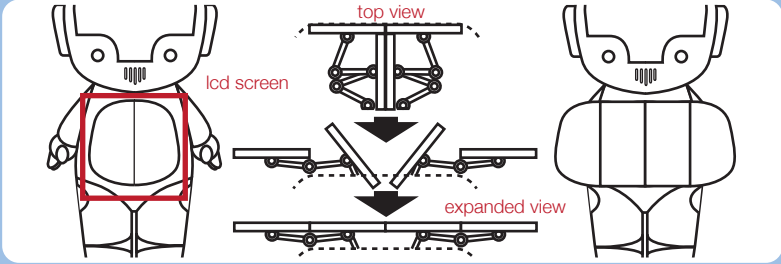
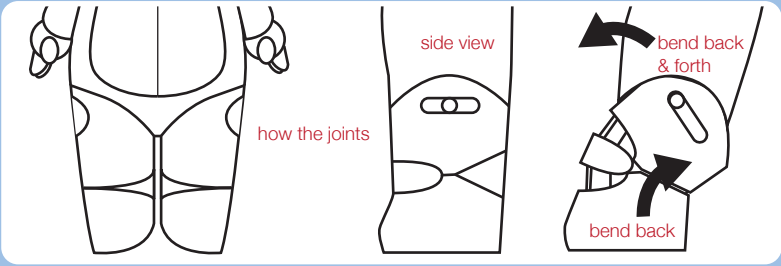
The day you have chosen is the 14th of May 2018 Would you like me to show you the schedule for this day?



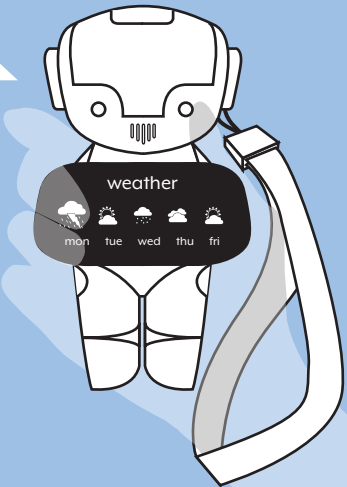
# meet roboto plan

your own customizable robot

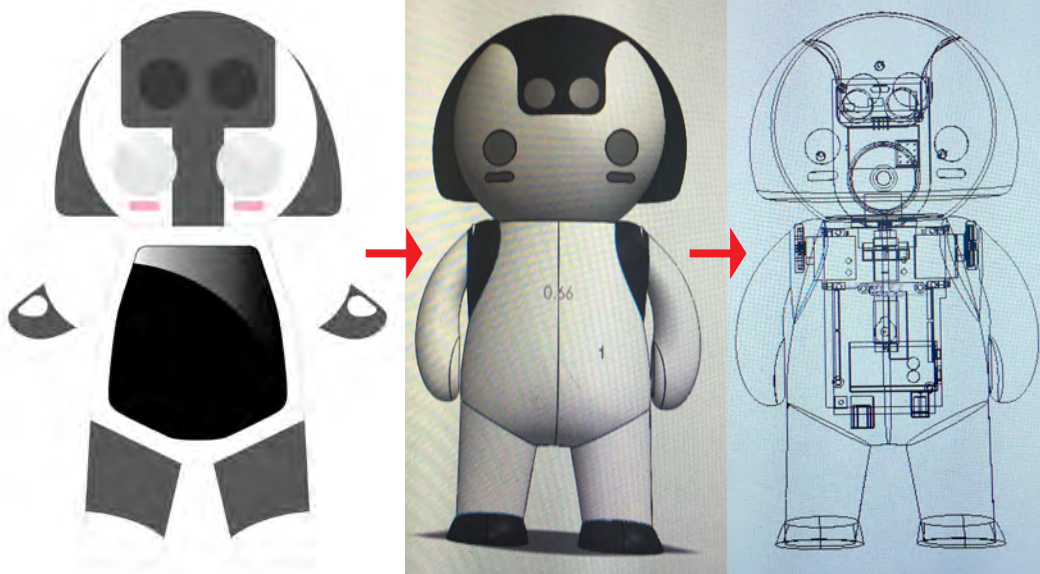




The weather today is cloudy with a chance of thunderstorms. Would you like the forecast for the rest of the week?

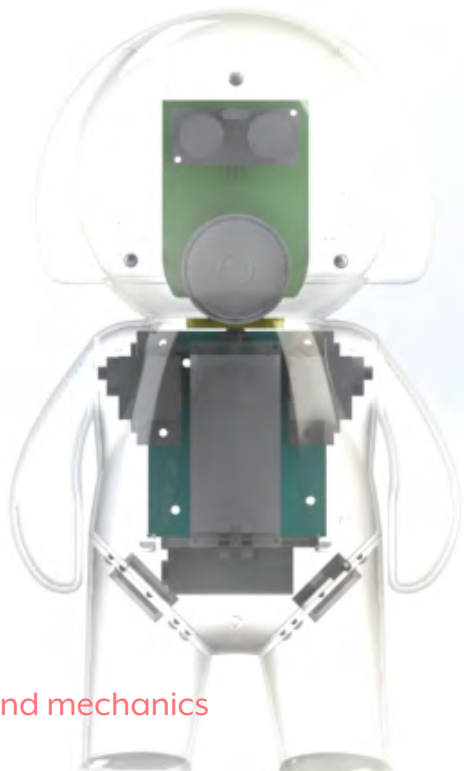
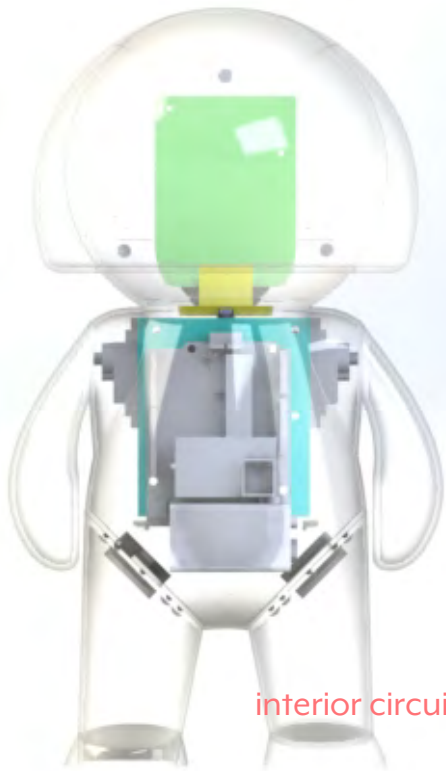




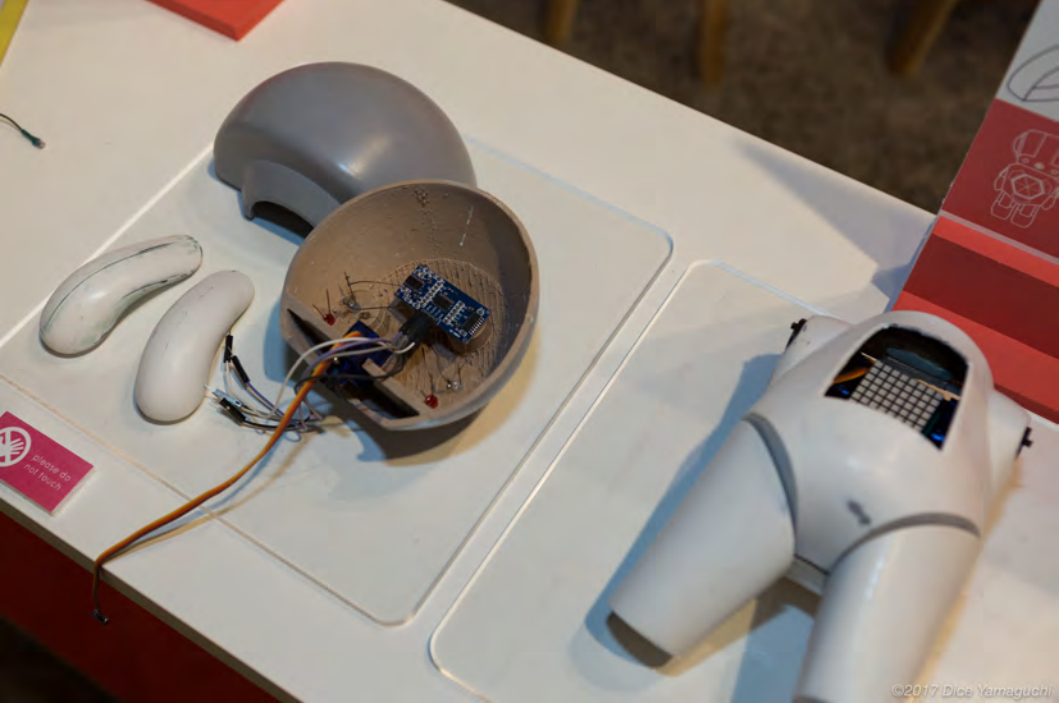


## Prototyping Phase

3D modeling and building



interior circuitry and mechanics





# meebie

Giving families more positive interactions by enabling kids to become more autonomous and learn responsibility by starting to take care of themselves.

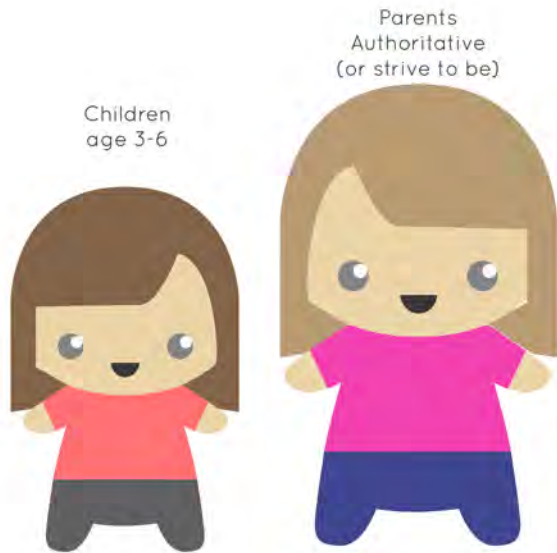
# What is Meebie?

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Meebie is digital device that is a hybrid of a role playing avatar game as well as a communication device between parent a child that facilitates caretaking, chores, and responsibilities.

## Who is it for?

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## What does it do?

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1

Enables children to have more autonomy and learn responsibility.

2

Gives parents insight and indirect control over their kids wants and needs.

3

Enables children and parents to have a more amicable relationship by removing some of the daily discipline that creates tension.

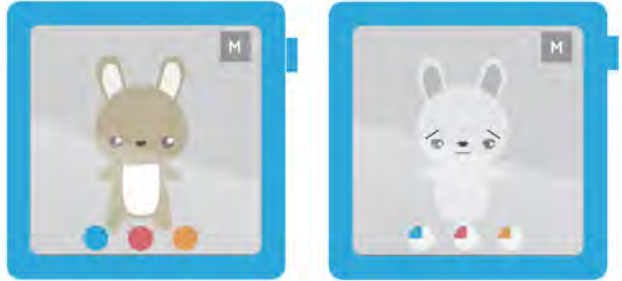
# How?

Daily reward/point system to keep your avatar alive.

Parent can assign the amount each activity is worth.

Avatar dying results in loss of previous rewards attained.

Parents can implement "Time Out" for misbehaving.



health



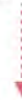
walking



activity



extracurricular activities



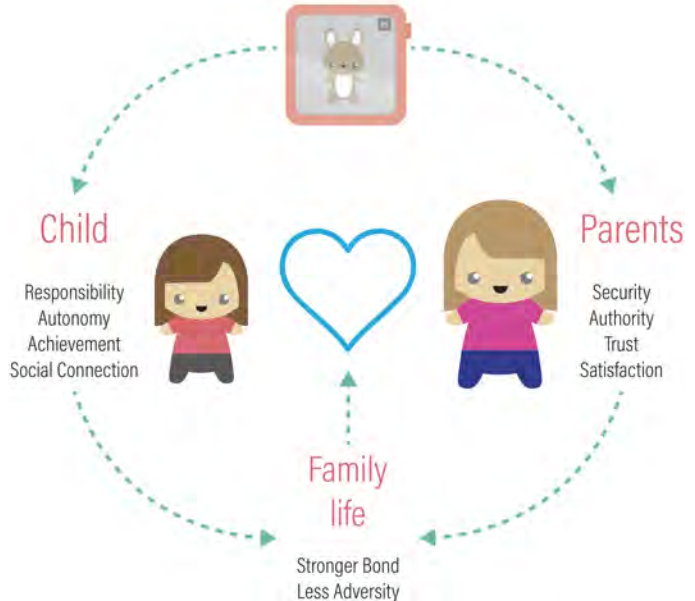
work



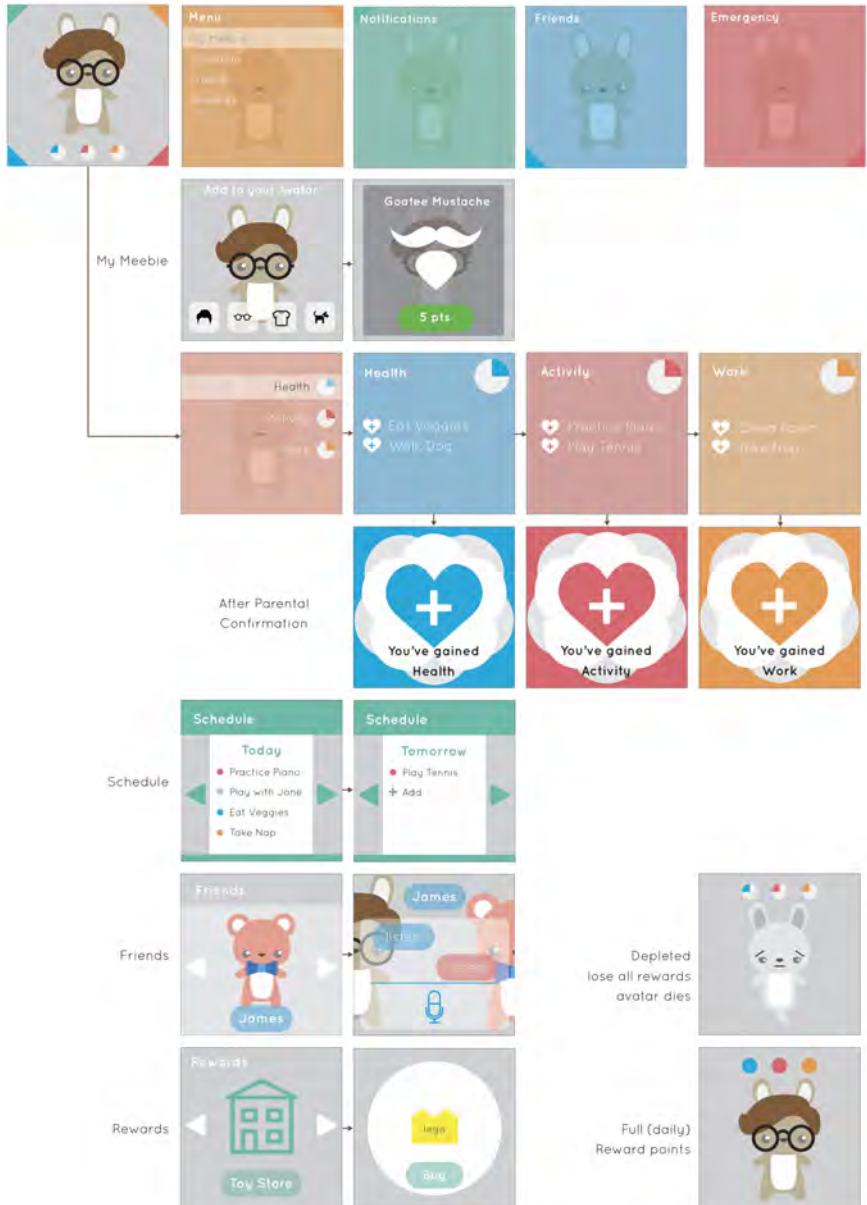
chores homework



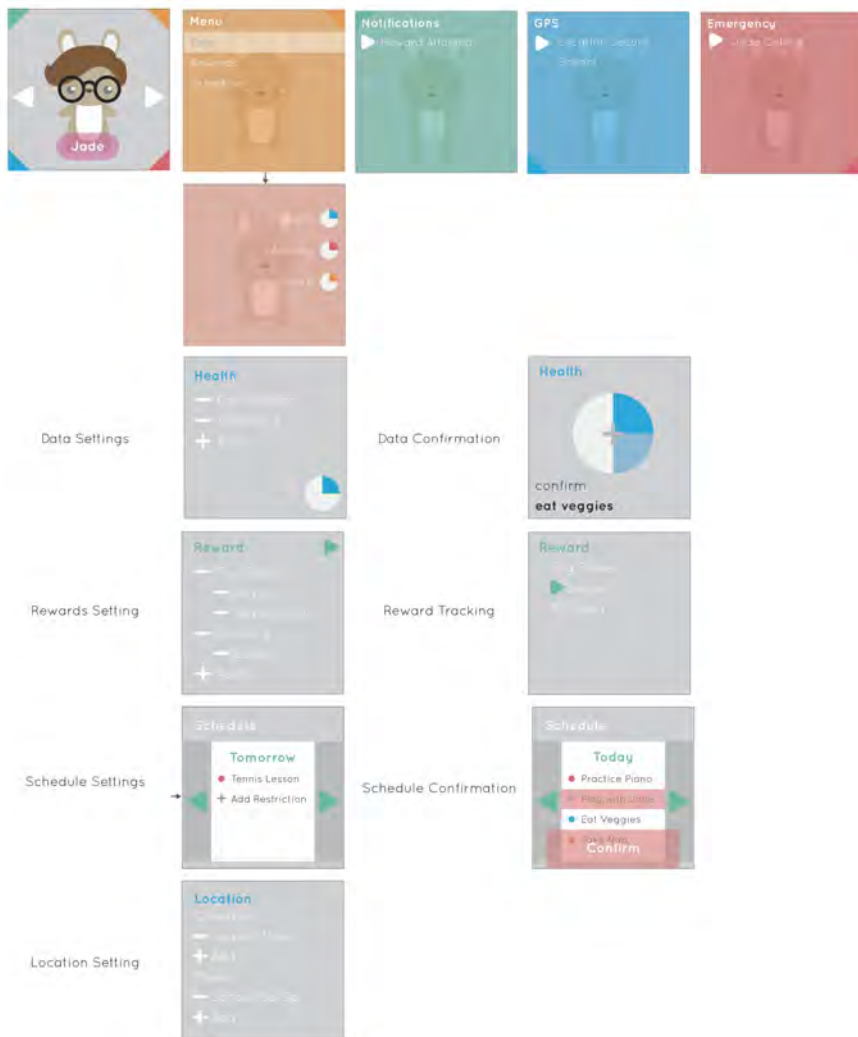
# System Diagram



# Wireframe - Kid



# Wireframe - Parent



what



what

could



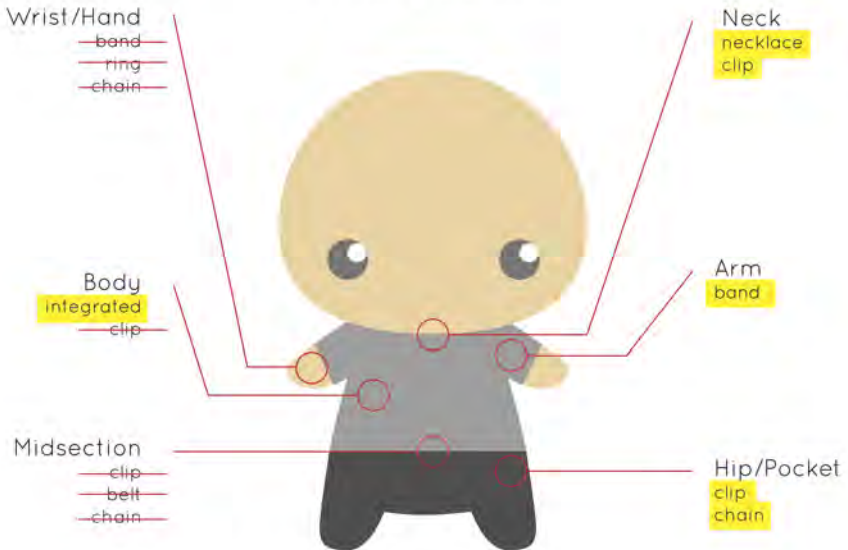
should

it be?



it be?

### Meebie Placement

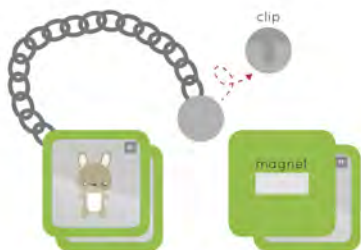


### Considerations

- front facing
- safety precautions  
(dangling, pulled off, security)
- accessibility
- storage



Hip/Pocket  
clip  
chain



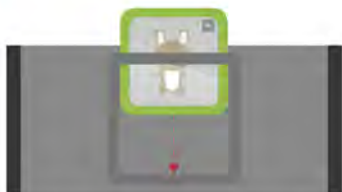
Body  
embedded



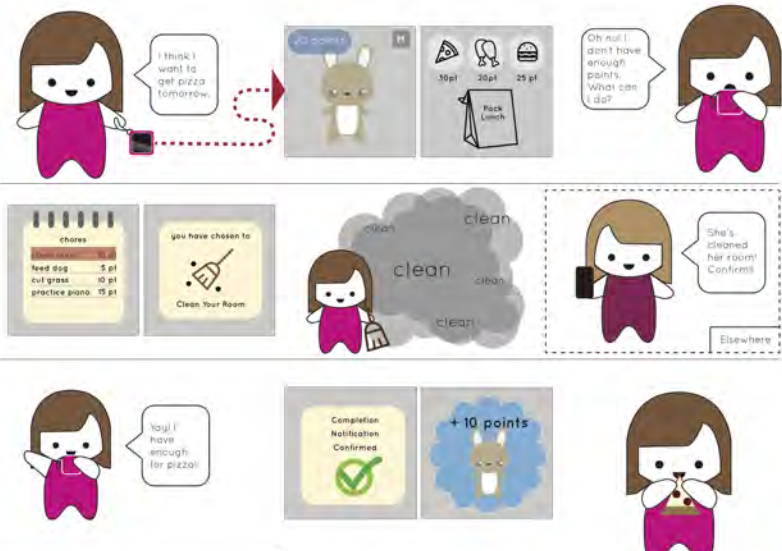
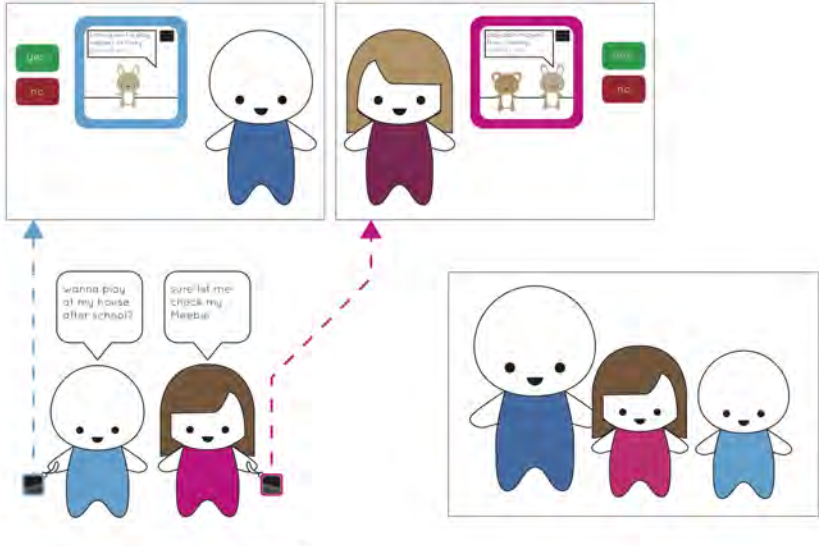
Neck  
necklace  
clip

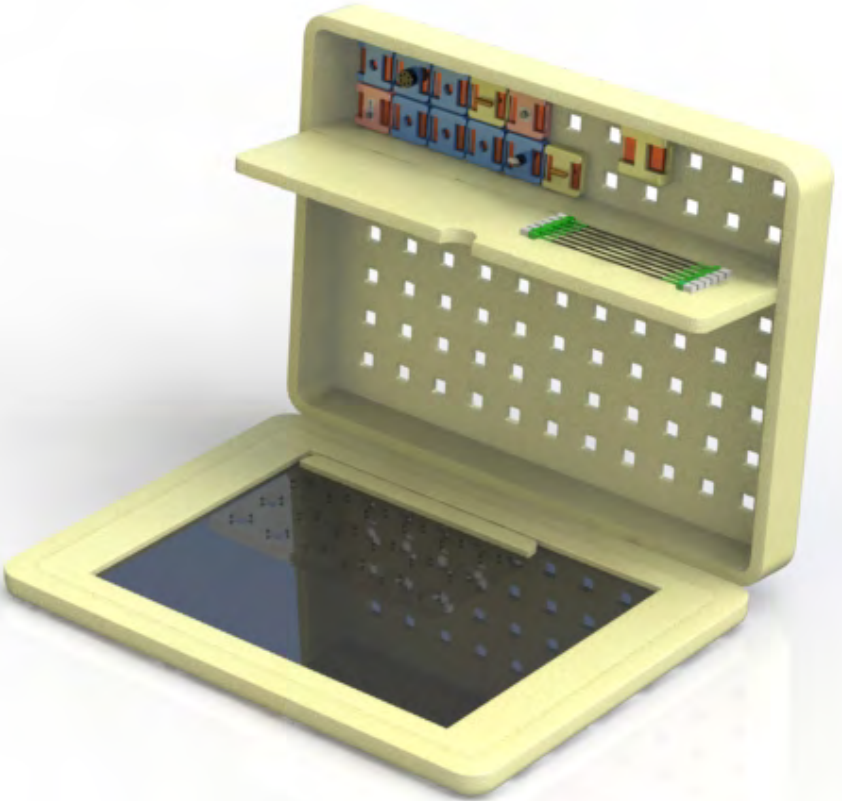


Arm  
band



# Scenarios

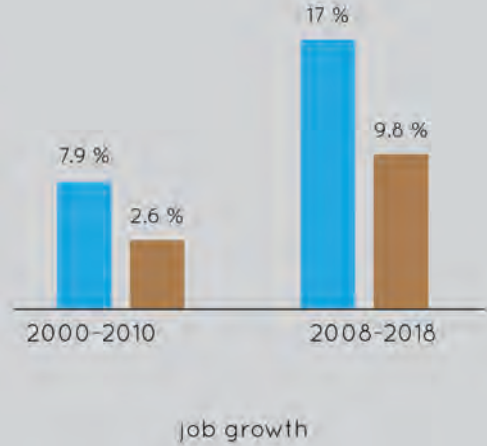




# seed

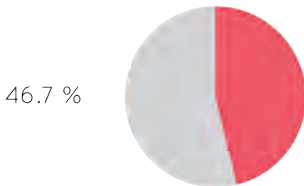
A tool for children to learn the fundamentals of electronics education in order to cultivate talent and interest in the STEM fields.

# Research



source:  
Journal of Engineering Education  
Career Academy Support Network  
The Information Technology and Innovation Foundation  
U.S. Department of Commerce  
U.S. Department of Labor Bureau of Labor Statistics

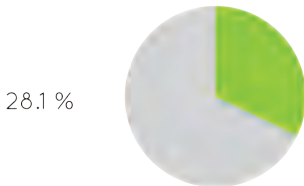
percentage of college graduates with STEAM



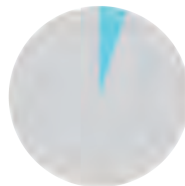
china



s. korea



germany



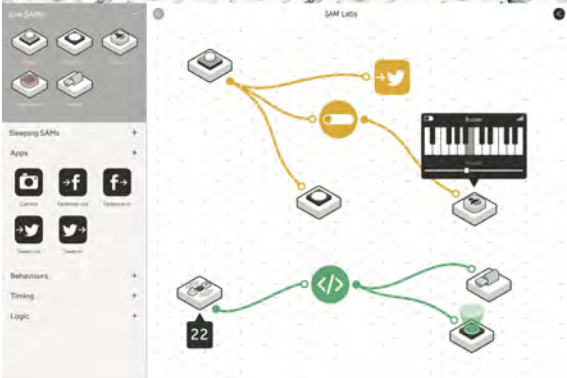
united states



# Observation

## Breaking Barriers

Products on the market simplify the complexity of the learning material in order to break the barrier of intimidation.

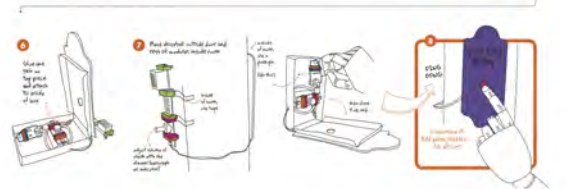


## Too much simplification

The balance of simplification and complexity of electronics is not achieved for educational purposes.

## Do they understand?

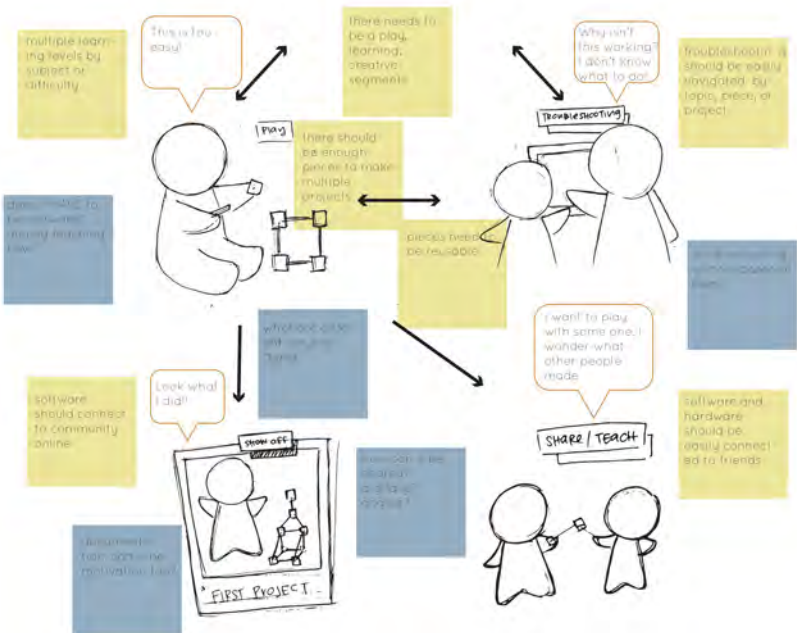
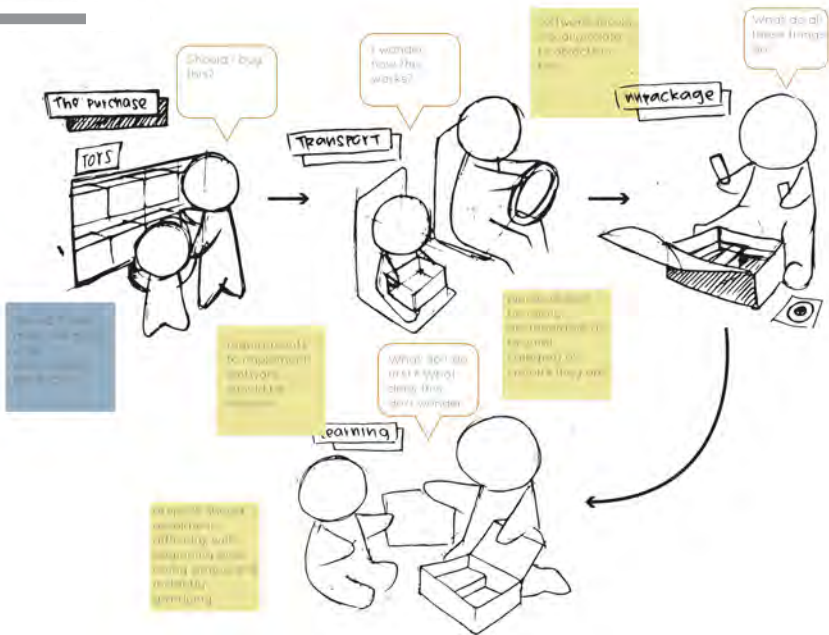
Even if they can see the electrical components in toys, they don't actually understand why it's happening.

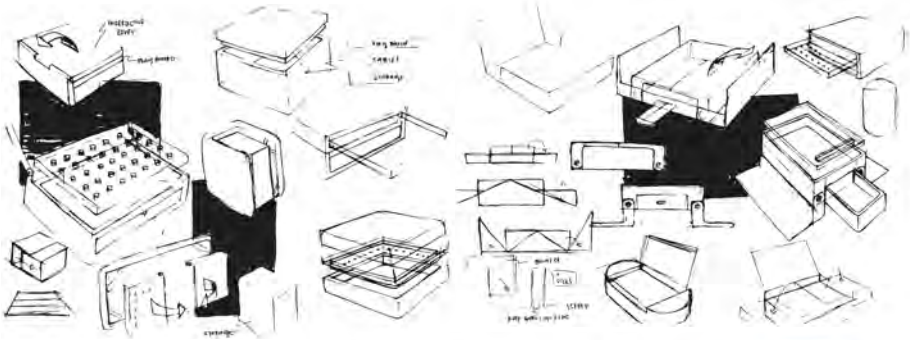


## Igniting passion

Balance of rule-following and creativity must also be achieved to ignite passions and continuance in the field.

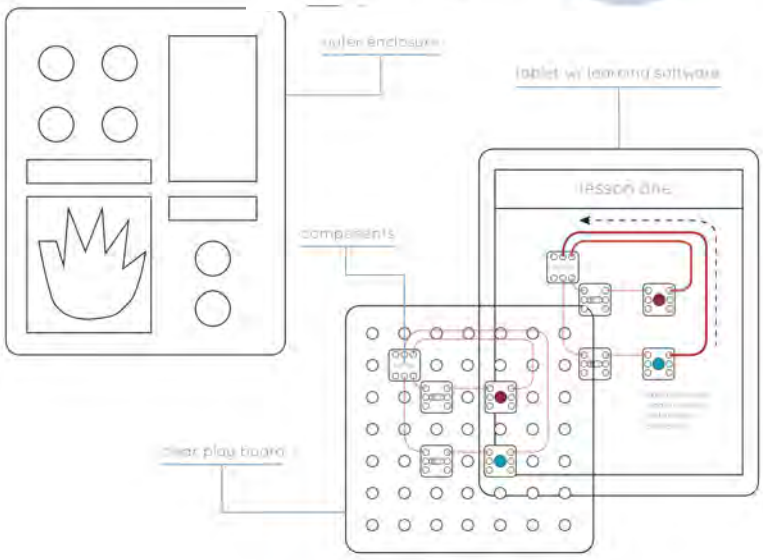
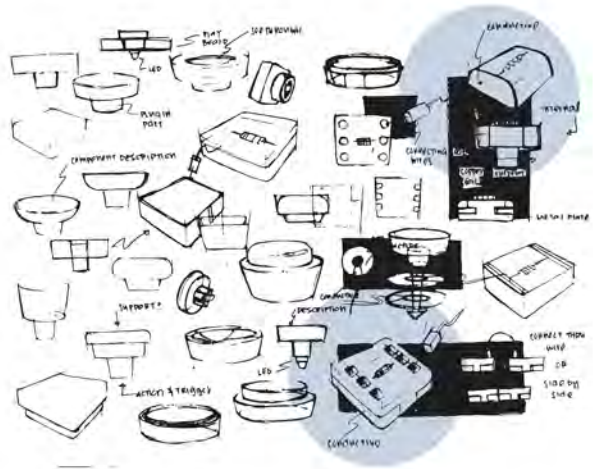
# User Scenario Case



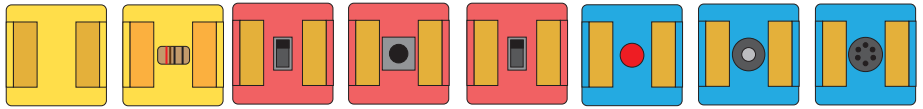


# Concept

**Layered Learning**  
Instead of trying to separate or simplify the complexity of circuitry, the product combines two levels, the physical and digital, to help kids learn how things actually work by allowing them to see the “hidden magic” behind electronics.



# Color Coded Components



yellow

support components

red

trigger components

blue

action components

one

A

Connecting wire between the positive and negative results in a short circuit (BAD)

6 Volt Battery

need help?

A cartoon mole character is shown at the bottom right of the page.

one

B

Short circuits can cause overheating, explosions, and can be very dangerous.

This happens because there is nothing along the circuit to limit the current, causing it to run at full power, back to the battery, causing it to overheat.

need help?

A cartoon mole character is shown at the bottom right of the page.

one

C

There must always be something to limit the current before it goes back to the negative.

In this example we are using a resistor and an LED.

Components that limit the current along the circuit are called LOADS.

need help?

A cartoon mole character is shown at the bottom right of the page.

## Step by Step Lesson Plans

On the digital interface, the software has a step by step lesson plan that eases the child into electronic education, animating the underlying actions of electrons and “showing” them why electronics work, while they have the physical components in their hand to directly connect the idea and the electronic part they are using.



# Layered Learning

lesson 4

## Lighting LEDs with Buttons

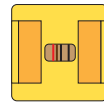
side view  
inside

B

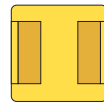
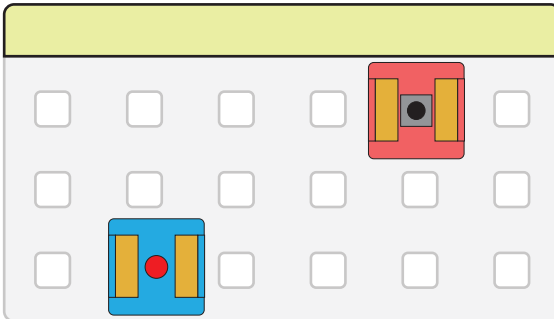
the resistor comes after, the 3V from the battery has to be reduced so not to burn out the 2V LED

need help?

User Interface



Physical play board and components



# 3 Core Sections

electricity

++>>>

**Hello there!**  
Today I'm going to teach you some stuff about electricity!

lesson 1

A

need help?

A

Lighting LEDs with Buttons

side view  
inside

B

need help?

the resistor comes after, the 3V from the battery has to be reduced so not to burn out the 2V LED

lesson 4

Laser Gun  
Need: red LED, resistor, button, battery, paper, tape

Project created by James

Create

easy

medium

hard

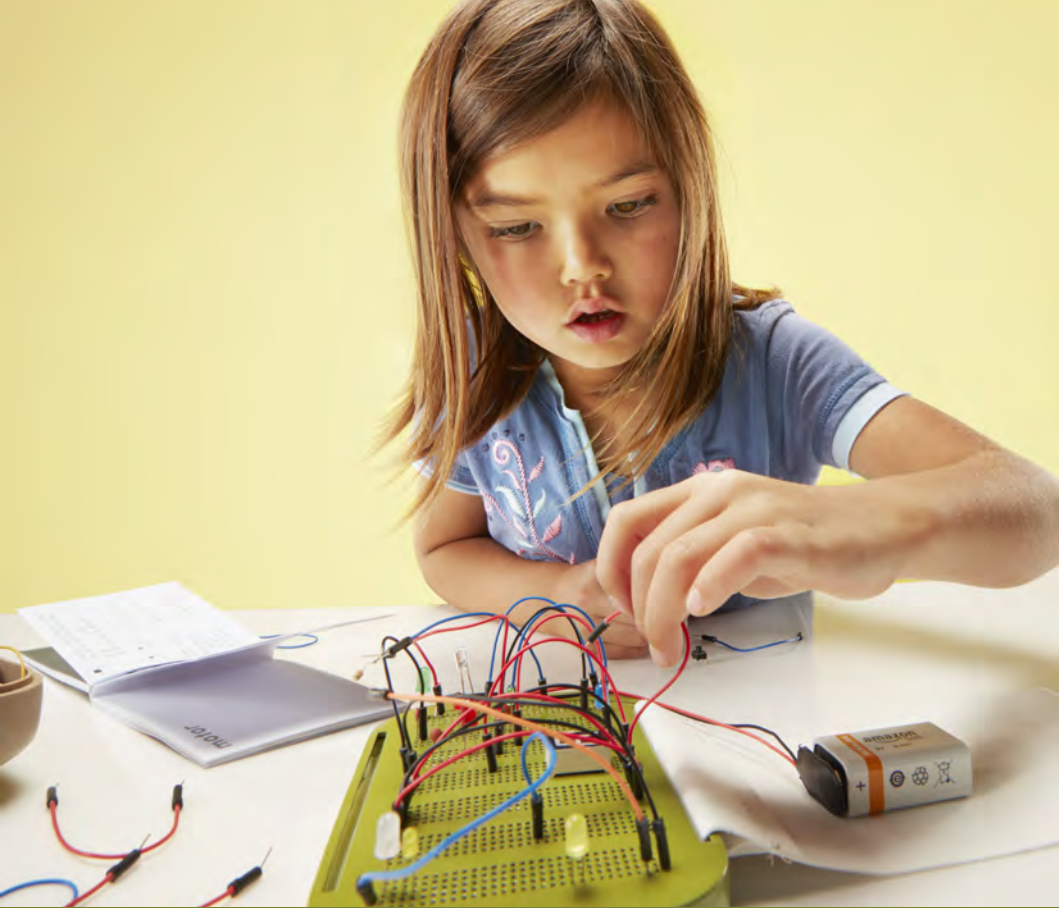
upload

need help?

**Introductory Lessons:**  
Fundamental concepts for in depth understanding of electronics

**Application Lessons:**  
Real-time explanation of behind-the-scenes circuitry process as kids play with the components

**Creativity Corner:**  
Interconnected community sharing of projects and ideas



# connect

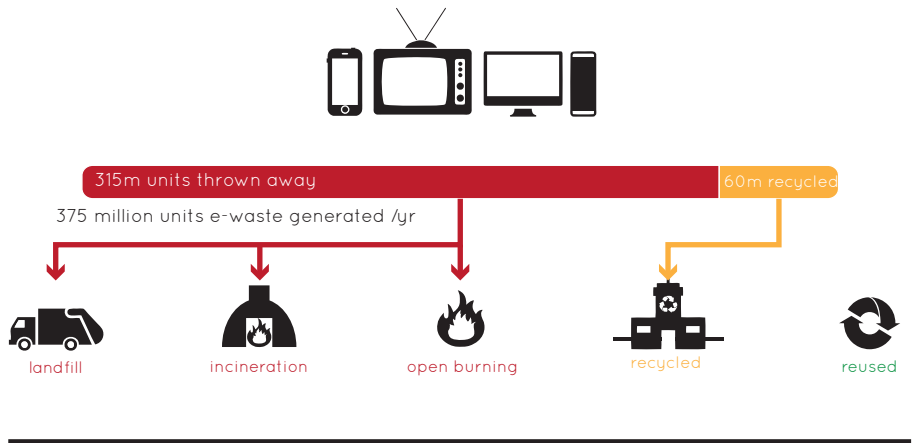
Enable people, especially young children, to learn circuitry and give value to electronics parts as pieces that have potential to become components of some other incredible creation.

# In 2010, Americans threw away **142,000** computers & **416,000** mobile phones a day.

In precious metals that are in electronics, that's **\$60 million worth of gold/silver** yearly.

Recycling 1 million laptops saves energy equivalent to the energy used by **3600 homes** in the US annually.

Most of the components of E-Waste are electronic equipments that **can be re-used** and recycled for materials recovery.



**valuable elements lost**

- aluminum
- silicon
- titanium
- scandium
- copper
- magnesium
- iron
- tin

**hazardous compounds created**

- yttrium
- chromium
- antimony
- cadmium
- selenium
- chromium
- mercury
- americium
- nickel
- europium
- barium
- arsenic

**result of exposure**

- mercury — brain damage
- lead — liver damage
- chromium — nerve damage
- cadmium — eye injury
- arsenic — kidney damage
- lung cancer
- kidney failure
- death

## Insights

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People throw away used electronics because they don't know what else to do with them.



Because of how cheap electronics are, people will throw away whole products even if only one part is broken.



If people knew the value of electronic parts, they would re-use them.

## Opportunities

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1

Educate children globally about how to build electronics, and how they work.

2

Elongate the use of the electronic product.

3

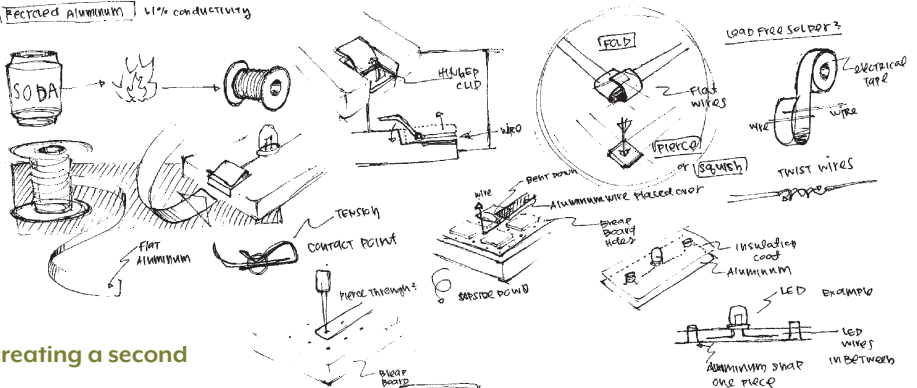
Enlighten people on the re-use of old electronics parts.

4

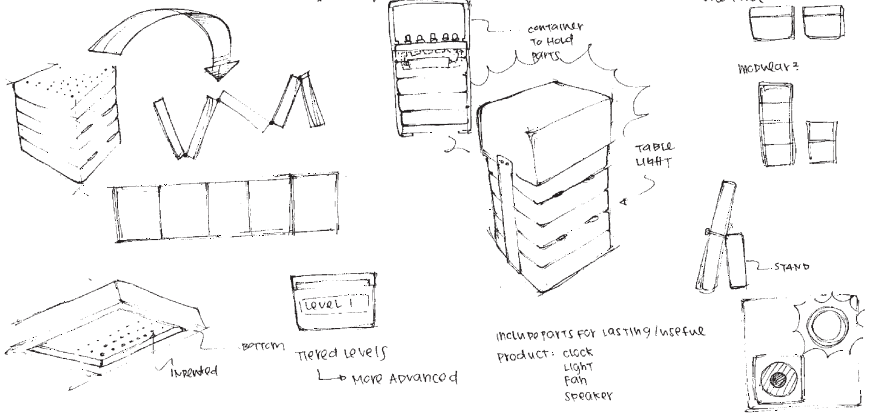
Create products in a way where it's extremely easy to take apart and replace the worn down part.

## using recycled/more available

Recycled ALUMINUM 1% conductivity



## creating a second

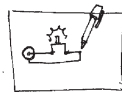
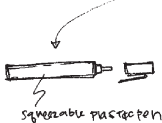
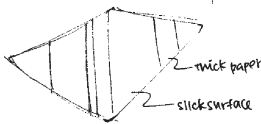


## cheaper material with global

cheaper alternative

Breadboard - paper?

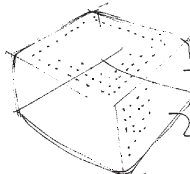
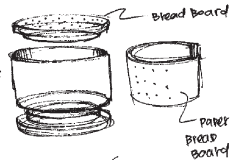
ink - ink: Graphite + glue + paint = conductive paint



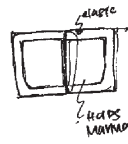
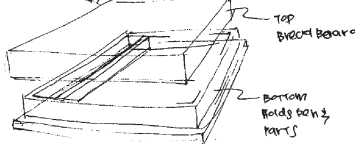
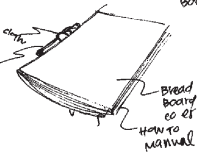
DRAW WIRES



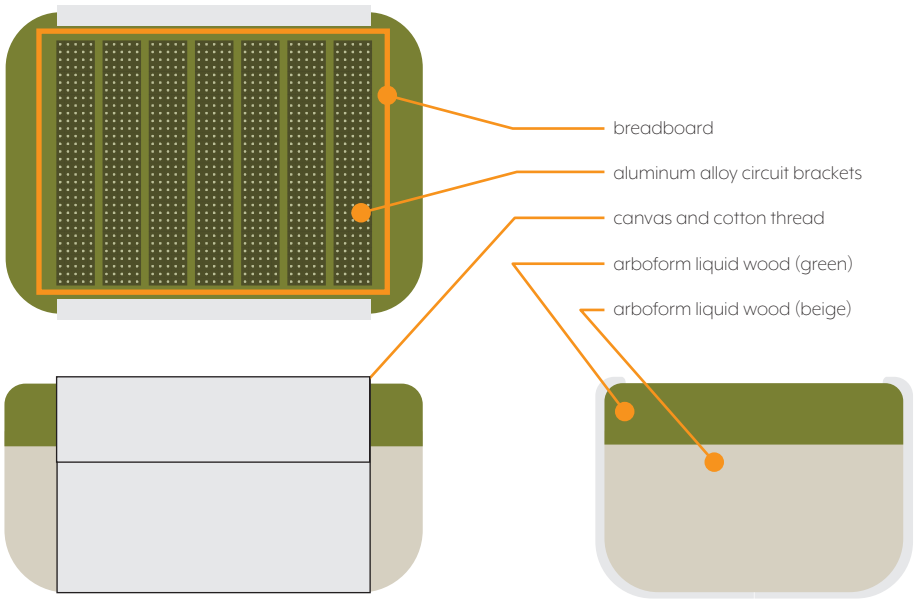
PARTS OFF



Box holding part  
whole container is bread board



## the box



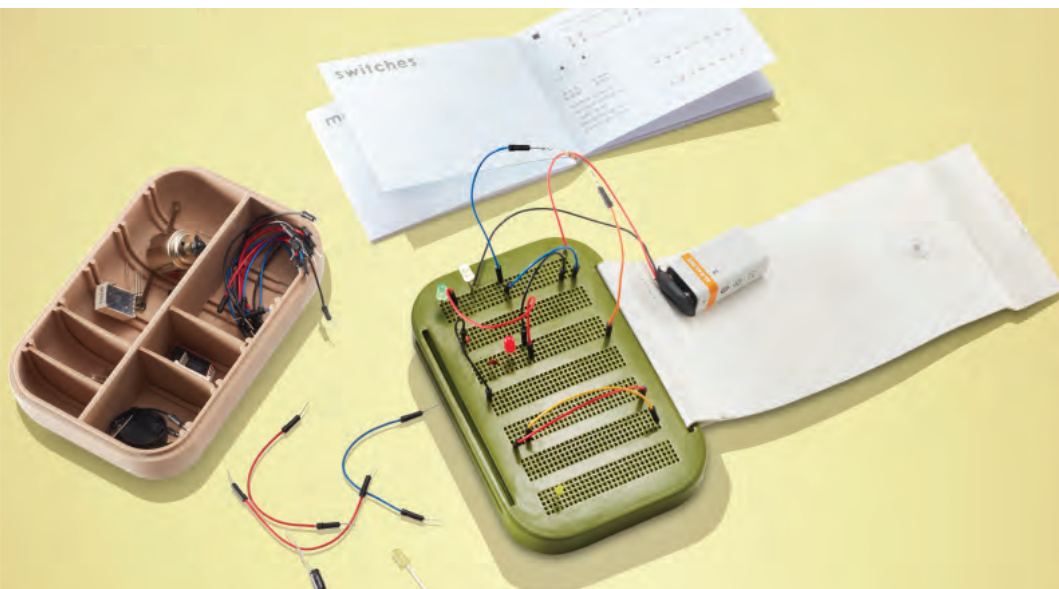
### material choices:

#### Aluminum alloy circuits

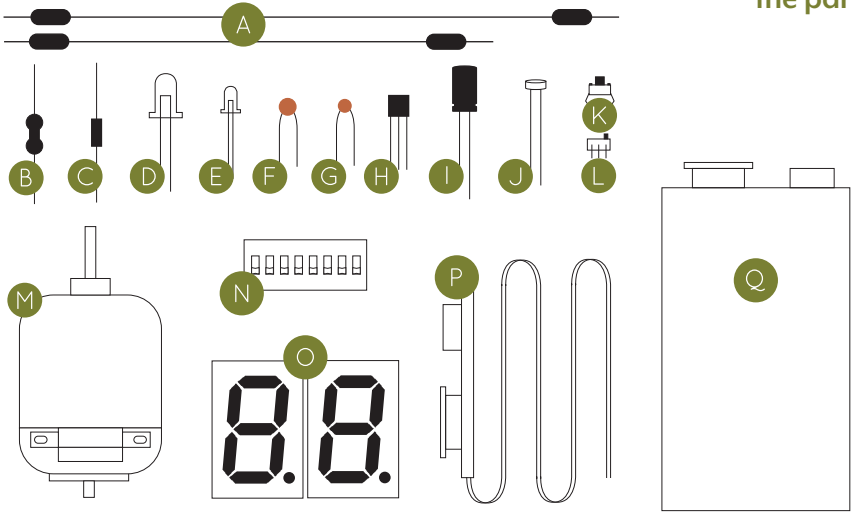
aluminum is 3rd most abundant metal and is easily recyclable

#### Arboform liquid wood

made from wood pulp waste collected from paper making processes

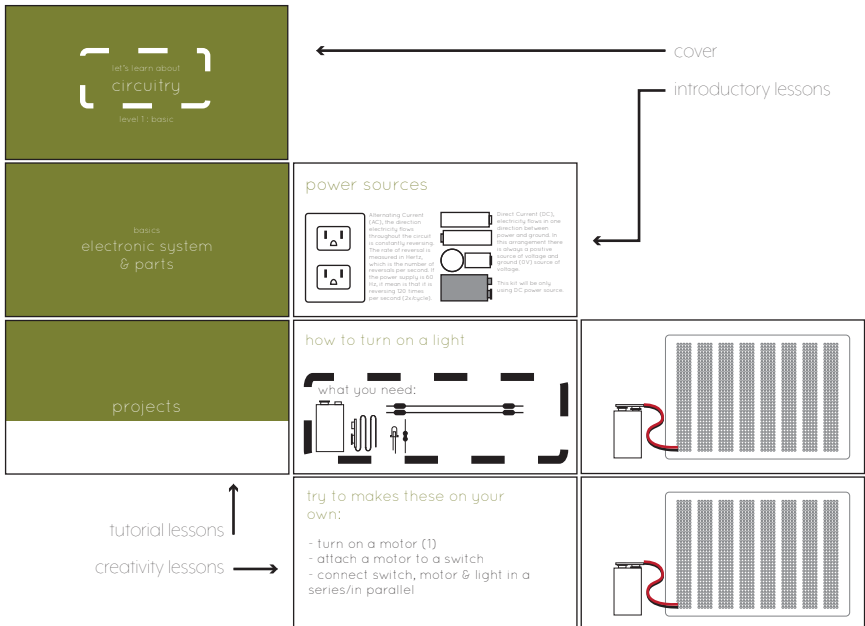


## the parts



**A** jumper wires **B** resistors **C** diodes **D** 5m LEDs **E** 3m LEDs **F** ceramic capacitor **G** mini ceramic capacitor **H** transistor **I** electrolytic capacitor **J** light dependent resistor **K** push button **L** switch **M** motor **N** 8-way switch **O** digital display **P** 9v connector **Q** 9v battery

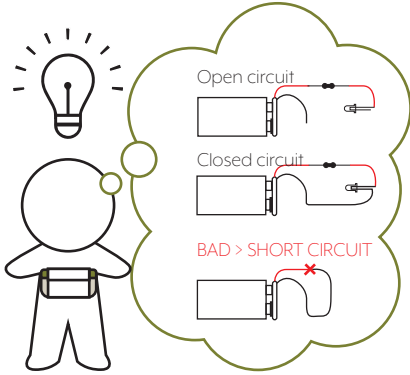
## the manual





# Product Lifetime Use Scenario

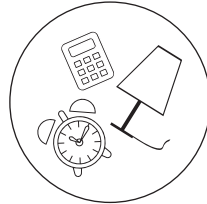
learn the basics of circuitry



promotes the collection of usable



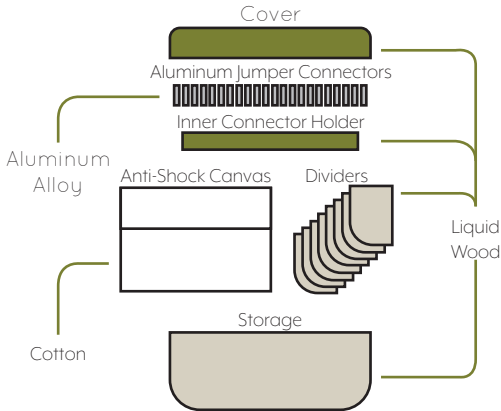
creativity lessons encourage children to find correct parts for competing new projects



old appliances can be used for parts rather than thrown out



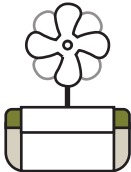
materials easily separated for recycling



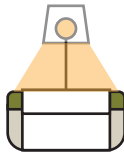
OR

second life usage

Projects can give the kit a second life as multiple products that can be customized to each person's needs, such as:



Fan



Night Light

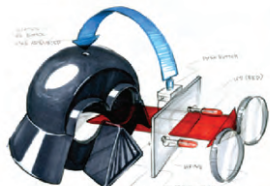


Alarm Clock

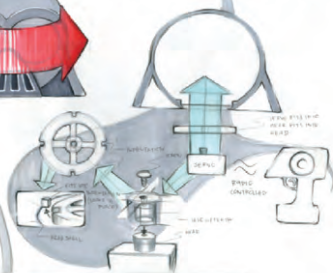


# chibivader

A Radio Controlled Darth Vader inspired toy that lights up, shakes his head and runs while sitting or standing.



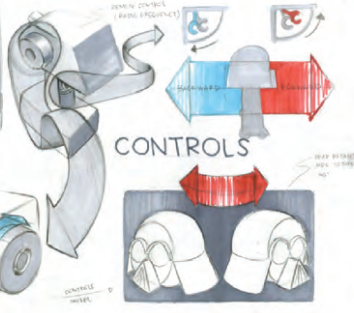
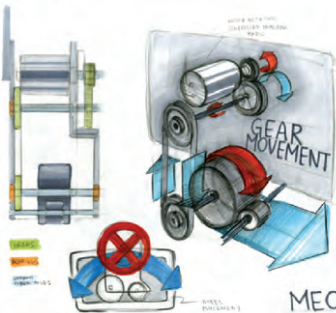
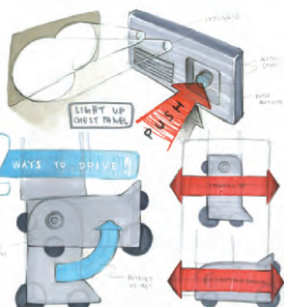
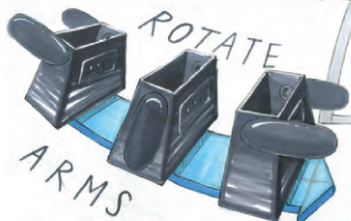
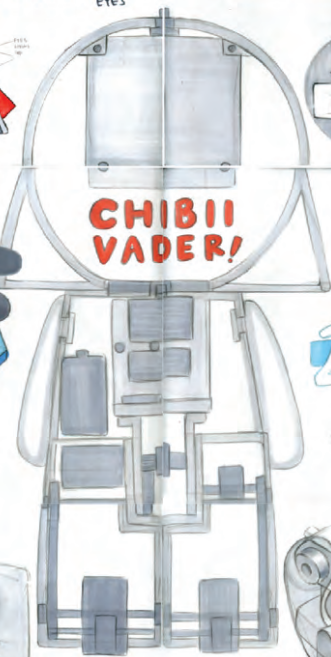
### HEAD MECHANICS



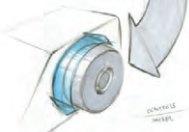
### LIGHT UP EYES

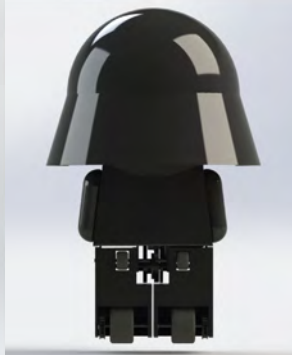


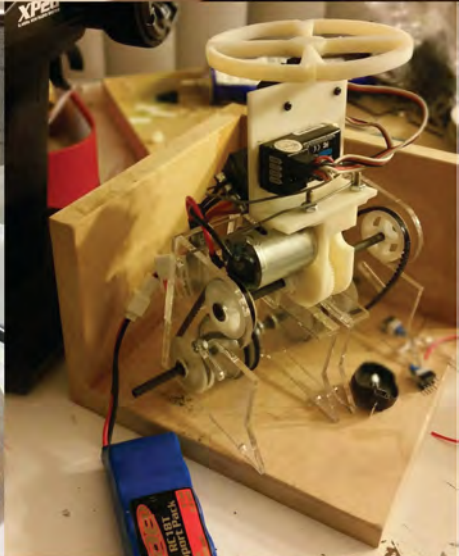
### CHIBII VADER!



### LEG MECHANICS











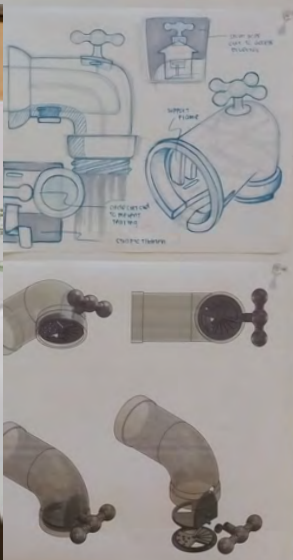
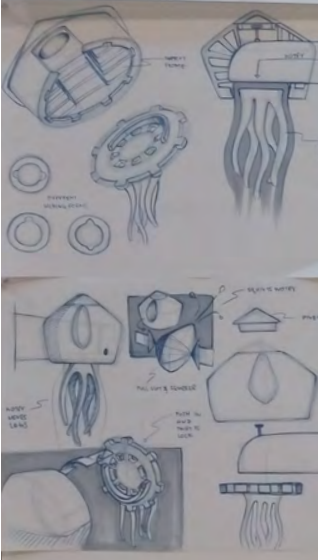
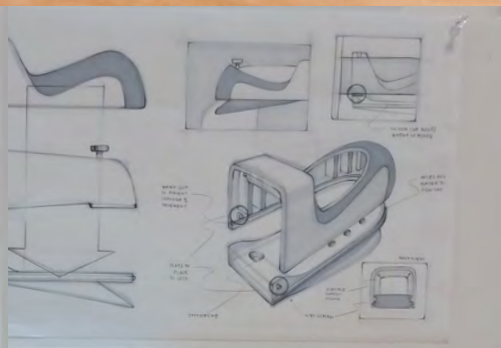
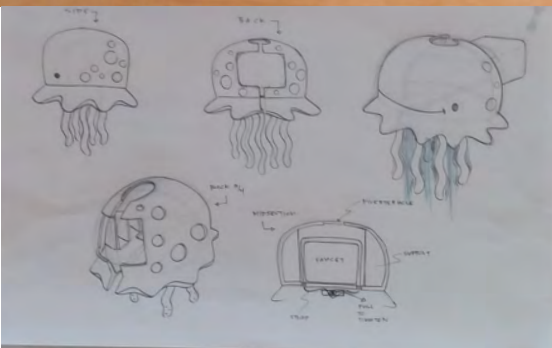


# munchkin

internship









# coarse

internship

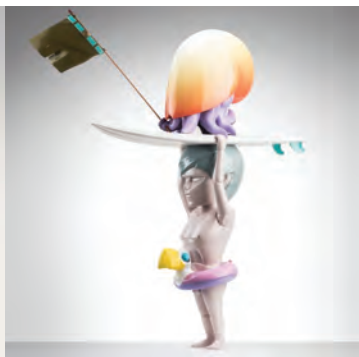
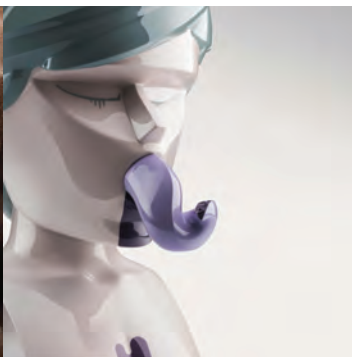


## Work

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All design of characters are by Mark Landwehr and Sven Waschik.

My part in these models consist of designing and 3D modeling the accessories, such as the slide, seesaw, swing set, pee stream etc. and the physical production of every piece, resin casting, sanding, masking, color matching paint, putting parts together, and refining for final sale.





END  
thank you

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