

# Design Portfolio

Rannie Dong

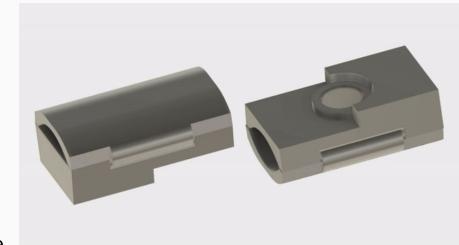


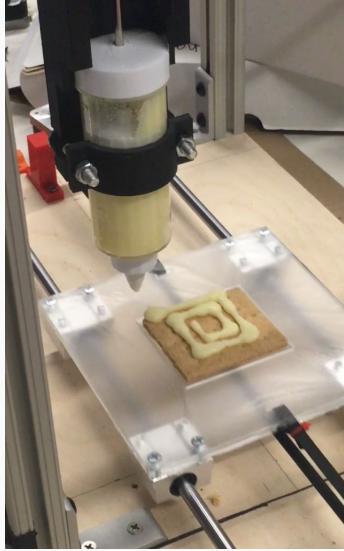
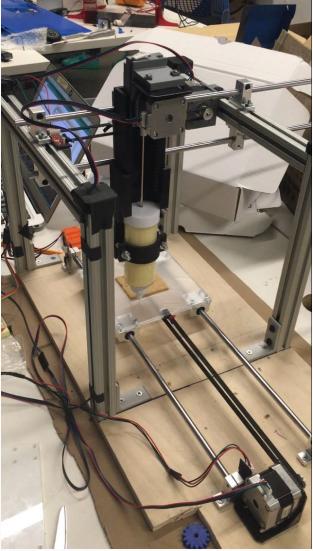
# Technical Projects

# EZ Clasp | A Retrofitted Jewelry Clasp

## Advanced Product Design Class

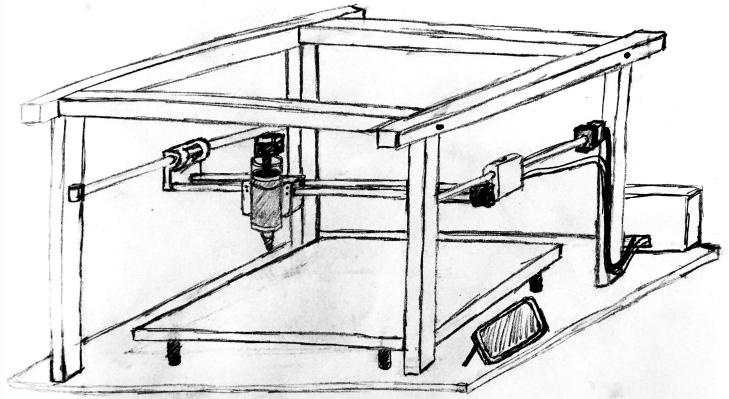
- Designed to improve the quality of life of the elderly
- Utilized empathy fieldwork and the systems design process
- Unique pin system holds chain in place
- Strong magnetic closure ensures security
- [Click for more about EZ Clasp](#)





## 2D Cheesecake Printer Rapid Prototyping Class

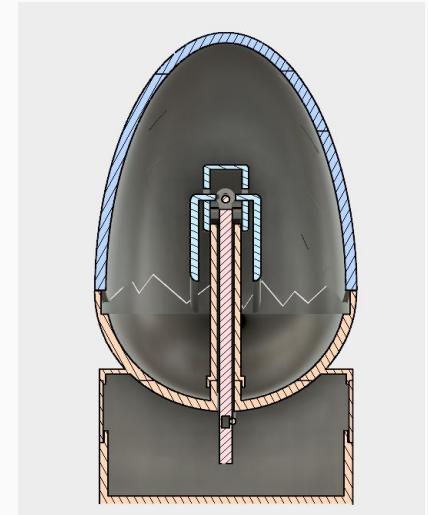
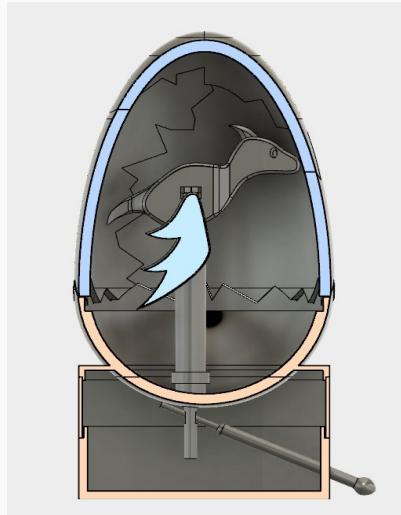
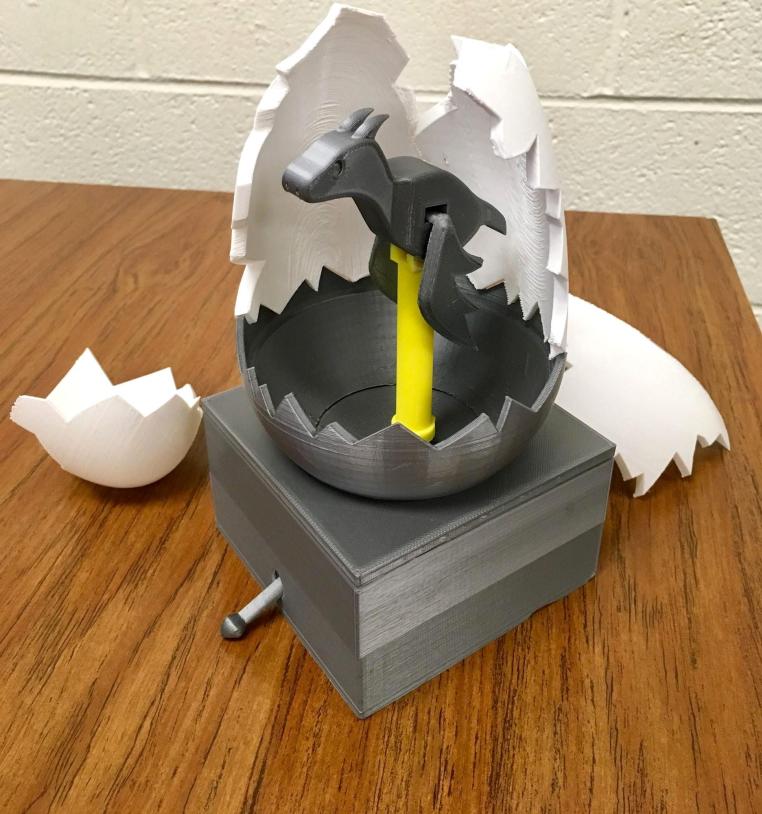
- Prints programmed patterns in cheesecake on graham crackers
- 3D printed & laser cut custom parts
- Designed mechanical system
- Video | [https://youtu.be/\\_jli8jnEECw](https://youtu.be/_jli8jnEECw)



# Hatching Dragon's Egg

## Rapid Prototyping Class

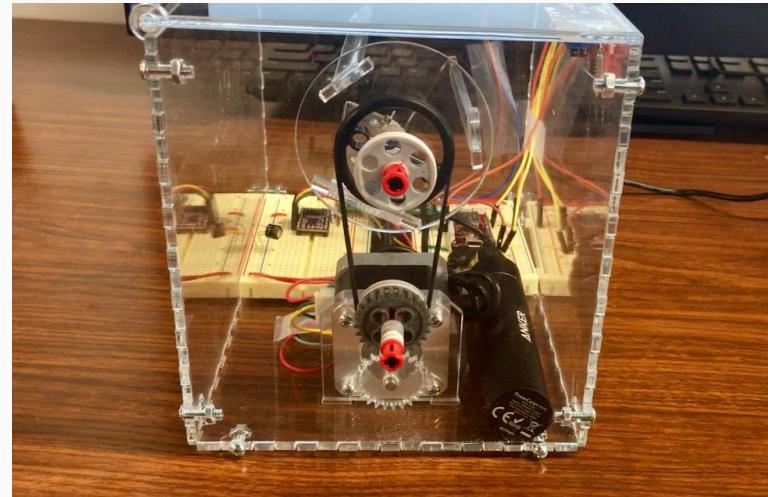
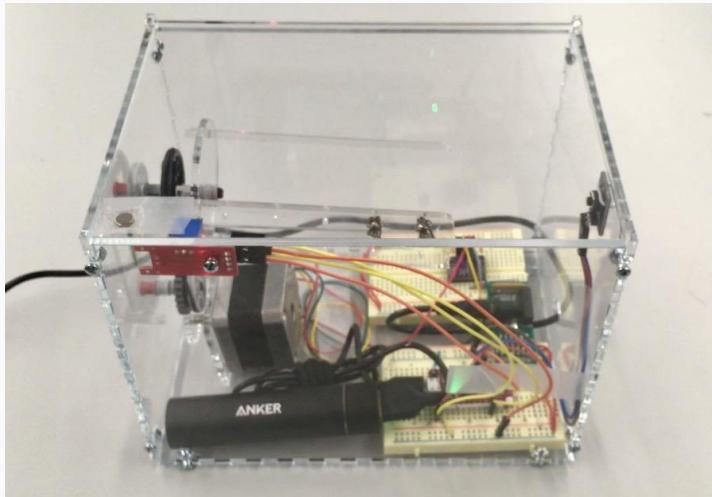
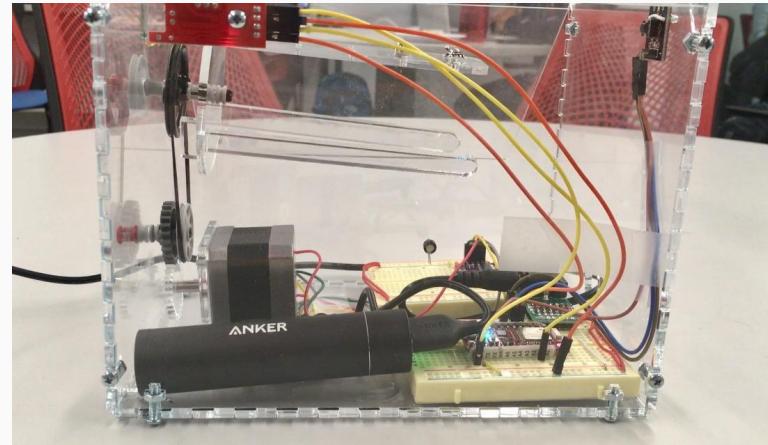
- 3D printed & designed in CAD
- Toggle flaps the wings, freeing dragon from egg shell
- Video | <https://youtu.be/wwssEFmlzRU>



# Interactive Jewelry Box

## Rapid Prototyping Class

- Laser cut acrylic box
- Rotates jewelry holder when opened
- Senses lid is open with magnetic sensor
- Video | <https://youtu.be/cVoU9gLqM4E>



# Fidget Box

## Rapid Prototyping Class

- Prompt: Design an interactive box
- Multicolor LED programmed to react differently to joystick (pineapple), rotary encoder or button input
- Video | <https://youtu.be/mYKT2oV8N-q>

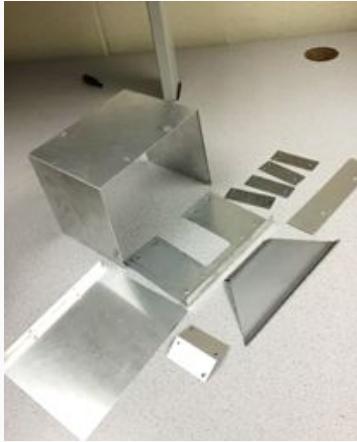


# SmartShelter

## Cornell University Sustainable Design | Sustainable Mobility

- Modular and interactive design for Tompkins Consolidated Area Transit
- Performed finite element analysis on bus shelter structure made of aluminum T-slot extrusions
- Modeled bench design in SolidWorks CAD software





## Autonomous Battle Robot

### Mechatronics Class

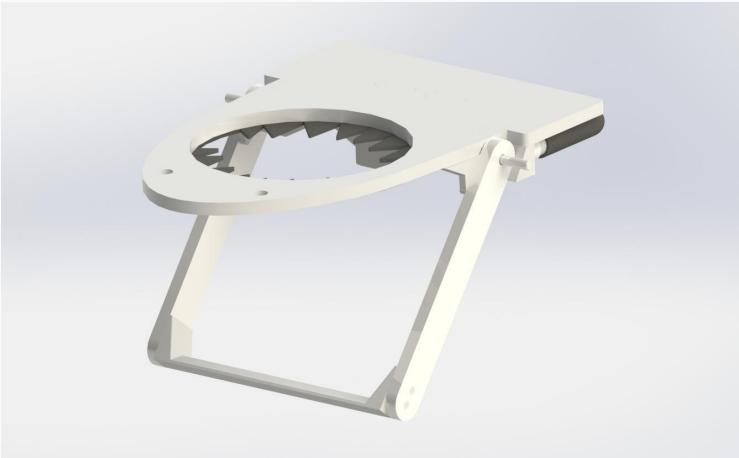
- Programmed Arduino UNO microcontroller in C++
- Designed & fabricated outer shell as well as mouse-trap activated arm ("kill bar")

## Water Pump

### Mechanical Synthesis Class

- Single piston, double acting
- Scotch yoke
- Helped with machining, assembly and deciding what parts to order
- Video | <https://youtu.be/nXa6D8Zmcwg>





## Shark Cup Holder

### Mechanical Synthesis Class

- Original Design Project: Create a physical product to improve college students' daily lives
- Laser cut acrylic + 3D printed pieces
- Allows students to maximize their limited lecture desk space
- [Click for more about the Shark Cup Holder](#)

## **Wind Turbine Blade**

### **Wind Power Class**

- Designed in CAD (Solidworks) to produce optimal power given the wind speed profile
- Tested in a small scale wind tunnel
- 3D printed at a high resolution



# Graphics

# Design and Innovation Class | Service Analysis Infographic



## Pokéland

### Build-Your-Own Poké

#### First Impression

Long serving counter

Bar & stools for eating

Modern, clean appearance

Employees in uniform

Menu on back wall leads you to back of room



#### Ordering Process

Additive assembly line · Clear ingredient labels that map to bins

A lot of verbal & visual communication with employees because the bowls are completely customizable.

If ordering off the Signature Menu, you have to tell each employee down the line—there's no communication between them.

Some add-ins are exotic with Japanese names; a poster explaining what they are would be helpful for new customers.

Space for customers in front of the counter is cramped & uncomfortable, especially when there is a line.



Your choice of...

Rice Bowl · Burrito · Salad · Zoodles

Regular \$10.50 · Large \$12.95

Protein · Add-ins · Sauce · Crunchies



#### Overall Experience

Fast · Exotic · Trendy · Personable · Exciting

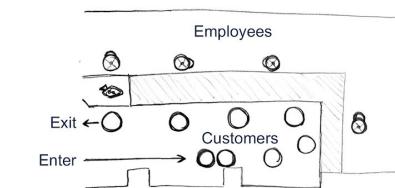
Large portions · Unlimited toppings · Hawaiian cuisine

An intimidating place to order at because of the learning curve, exotic flavors/ingredients, and sheer number of options.

Most customers tend to build their own poké, indicating personalization is a big draw.



#### Cramped Assembly Line



#### Payment

More expensive than Chipotle · Comparable pricing to NYC poké

Touch screen for card checkout gives a modern, tech-savvy feel.

Checkout is close to the door, which feels like the customer is being ushered out.

The restaurant must pay for a credit card payment processing service.



# Design and Innovation Class | Experience Map Graphic



# American Society of Mechanical Engineers | Publicity Chair Graphics

for mechanical engineers...



## ICE CREAM SOCIAL

Upson Lounge  
12:30pm to 2pm  
Tuesday, Sept. 22

Hosted by



## UPCOMING EVENTS

### DONUT STRESS!

Thursday, April 29 · 11am-2pm  
Upson Lounge

### BARBECUE

Friday, May 1 · 5-8pm  
505 Dryden Rd.

### ICE CREAM SOCIAL

Monday, May 4 · 1-3pm  
Upson Lounge

# American Society of Mechanical Engineers | Publicity Chair Graphics

