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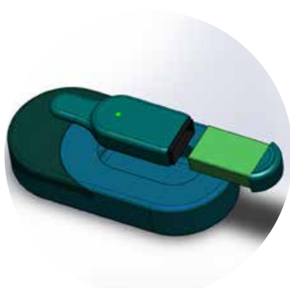

product

medical

robotic

interface

About

Olin College of Engineering, Class of 2014.
B.S. in General Engineering with a Concentration in Product Design.
Experienced at the intersection of three fields:

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design

user-centric process
visual + interaction
usability testing

engineering

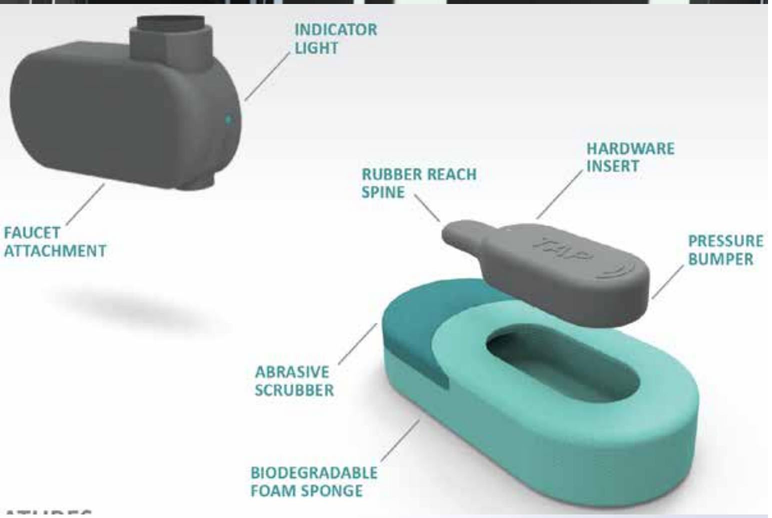
mechatronic design
mechanical fabrication
web languages

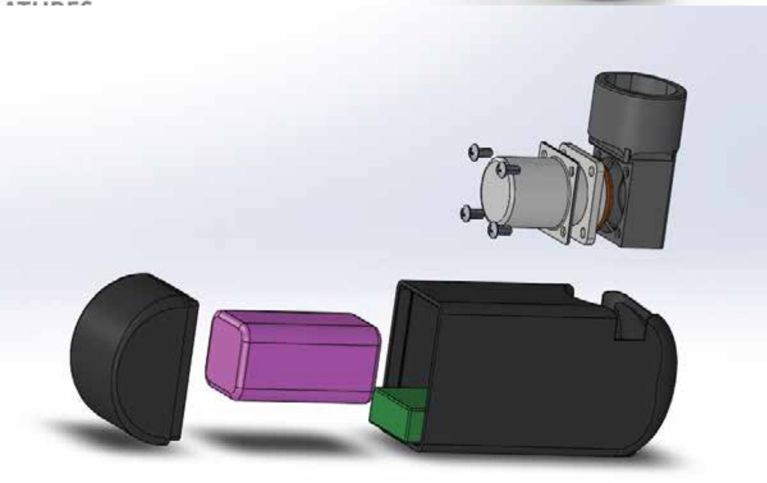
business

entrepreneurship club
marketing courses
startup work experience

This portfolio briefly covers some of my experience in these fields.
Feel free to contact me if you'd like to learn more.
Thank you!

TAP: Smart Dish Sponge





Project manager on a team of 5 students from Olin College, Babson College, and Massachusetts College of Art. We were told to design and develop a ‘sustainable product for the home.’ The final presentation included a functional proof-of-concept, a visual model, and a hypothetical business plan.

Through our user research, we realized many people still wash their dishes by hand in a sink. Almost 90% reported that they leave the faucet running during this task, wasting 1,000s of gallons of clean water per year.

We saw an opportunity to reduce this waste by evolving a common household item: the dish sponge.

TAP is a smart dishwashing sponge that enables the user to control their sink with a simple tap of the sponge. A small wireless transmitter inside the sponge controls a solenoid valve attached to the end of the sink faucet. The attachment simply screws onto the faucet with no under-sink plumbing required. The transmitter is removable so that sponges can be replaced when dirty.

The concept of evaluating an idea based on technical feasibility, user desirability, and financial viability was not new to me, but this project pushed my ability to find a satisfactory solution to all three.

Fall 2013

Boston Device Development

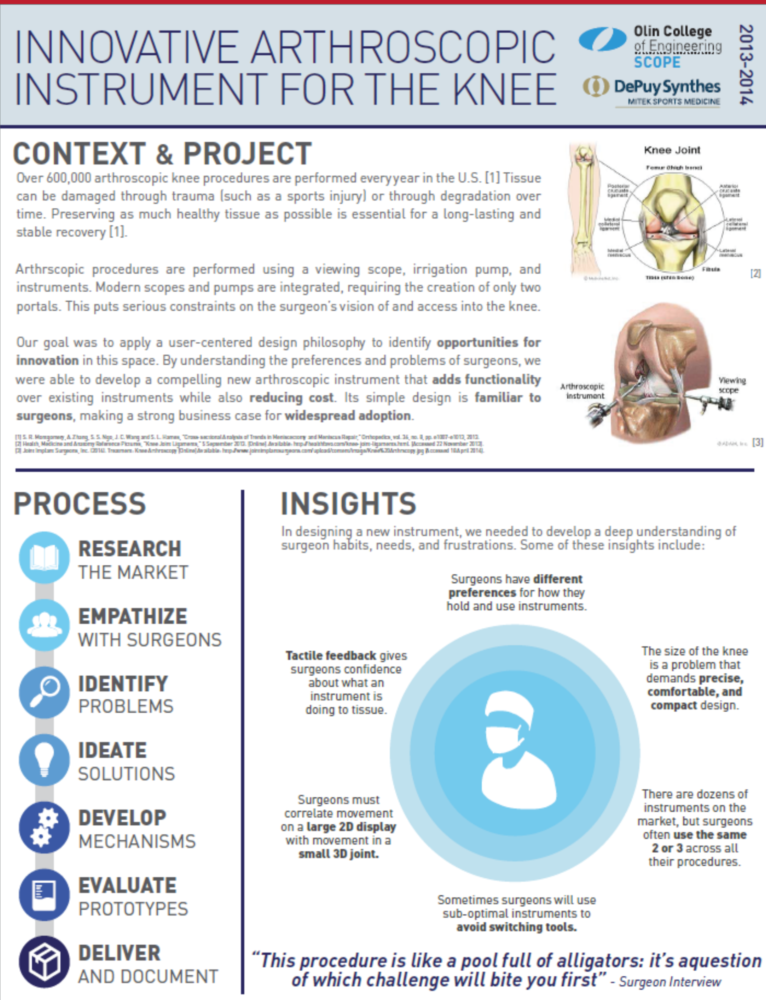
Mechanical Design Intern at Boston Device Development (BDD), a product design consultancy. My responsibilities straddled mechanical engineering and industrial design.

While I cannot go into details about our clients' projects, I worked on CAD, 3D printing, prototype fabrication, testing, quote procurement, industrial design, and model making.

Unfortunately I cannot publicly show any images from this work- please contact me to arrange an in-person portfolio review.

Summer 2013

DePuy Synthes Mitek Sports Medicine



Communications manager on a team of 6 seniors. For our Senior Capstone Project, we spent one year working for DePuy Synthes Mitek Sports Medicine developing new arthroscopic instruments for use in knee surgery.

Over 600,000 arthroscopic knee procedures are performed every year in the U.S.. Tissue can be damaged through trauma (such as a sports injury) or through degradation over time. Preserving as much healthy tissue as possible is essential for a long-lasting and stable recovery.

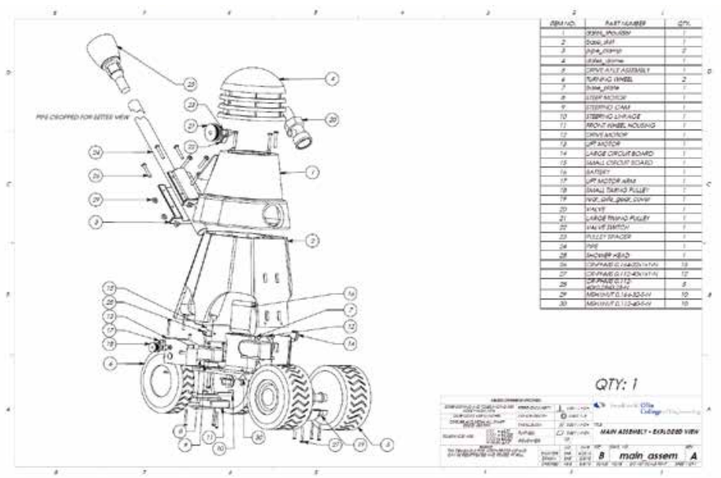
Arthrscopic procedures are performed using a viewing scope, irrigation pump, and instruments. Modern scopes and pumps are integrated, requiring the creation of only two portals. This puts serious constraints on the surgeon's vision of and access into the knee.

We used a surgeon-centered design philosophy to identify opportunities for innovation in this space. By understanding surgeons' preferences and problems, we were able to develop a compelling new arthroscopic instrument that adds functionality over existing instruments while also reducing cost. Its simple design is familiar to surgeons, making a strong business case for widespread adoption.

Unfortunatley our NDA prevents us from sharing any instrument details.

Fall 2013- Spring 2014

Firefighting Robots



Lead fabricator on a team of 3 students building “rapidly prototyped” fire-fighting robots.

Over the course of the semester, teams built 3 robots using specific materials and fabrication techniques. These techniques included subtractive machining, sheet metal working, and 3D printing. Each robot had to use a garden hose to extinguish a small fire.

Our robots’ demonstrated superior fire-fighting performance over the other teams. We believe this was primarily due to the time we spent analyzing our previous performance and focusing on addressing those issues first.

The results speak for themselves: the first robot took almost 5 minutes to extinguish the fire whereas the third robot took only 7 seconds.

In addition to improving my hands-on fabrication skills, I also gained ~100 hours of SolidWorks experience with part design, simulation, and producing professional drawing packages.

Spring 2012

Mobile Transit Application

Lead designer and project manager on a 4 student team designing a mobile application for navigating public transit. In one semester teams conducted user research, identified key features, created low- and high-fidelity prototypes, and performed user testing.

Our application is aimed at helping those unfamliar with public transportation get from point A to B. Our graphical comparison view- now used in Google's own public transit maps- was an innovative way of quickly capturing and comparing route information.

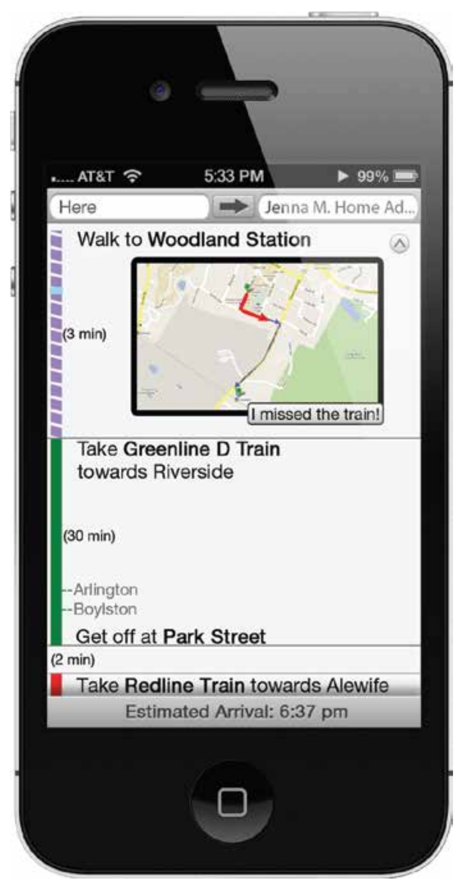
This was my initial exposure to UI/UX design and my first software- intensive project. Not only did this push my visual design skills, but I also learned how to work engineers from a discipline other than my own.

The images below show the simple interactions of our design. These static mockups were created in Photoshop before being implemented in HTML, CSS, and jQuery.

Fall 2012

search by place

quickly compare



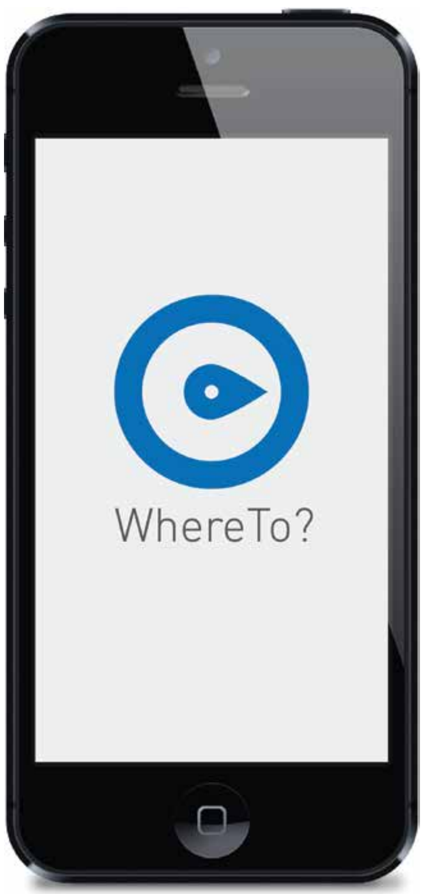
simple directions

WhereTo?

While my mobile transit application project was a great introduction to interface design, my visual design experience was very limited at that point. As a personal project I decided to redesign the application and create a series of mockups that reflected my improved visual design abilities, modern UI trends, and some post-project reflection on our interactions.

Route comparison is slightly more text-based to reduce the amount of time user's spend "hunting" for information. Options for filtering are more apparent. The directions page takes advantage of the larger screen of the iPhone 5 over iPhone 4 with more white space and cleaner maps.

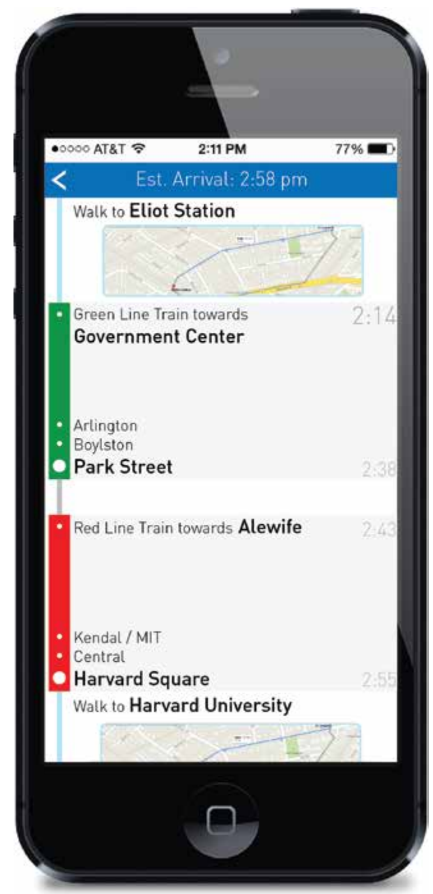
Spring 2012



open

search

compare



route