



third **brain** studio

Janna C. Kimel

jannak@thirdbrainstudio.com

503-200-0099

Personal Statement

I am fascinated by the intersection of technology and textiles.

For the last 20 years, I have worked with textiles and in the last 10, I have added technology.

In the future, I believe all technology will be mobile and ubiquitous, as ubiquitous as the clothes we wear on our backs.

I will be a part of making that future happen.



Motivational Angle Gauge Goniometer

- Exercise device to use at home while undergoing physical therapy, created at Georgia Tech

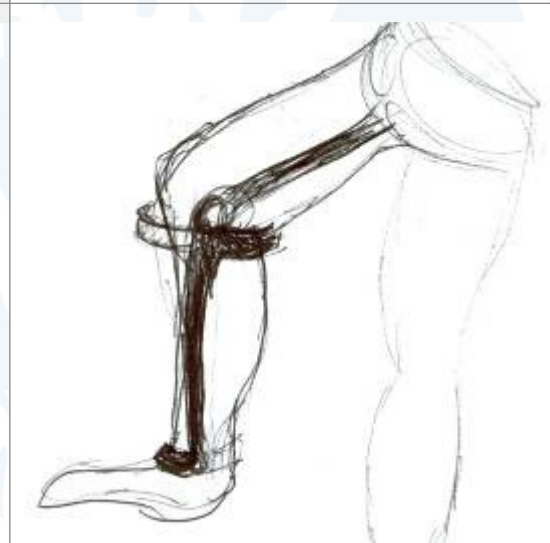
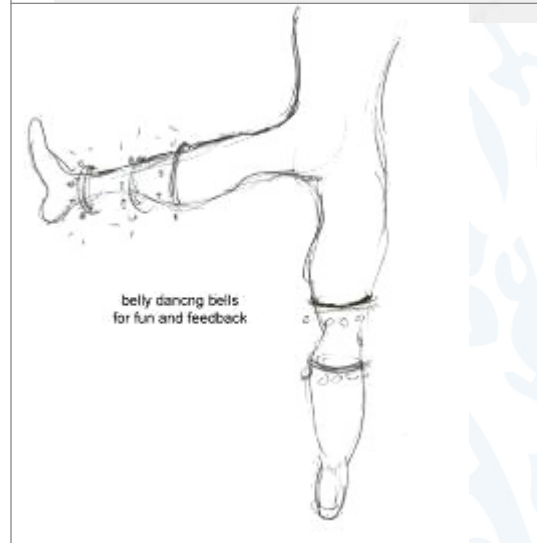
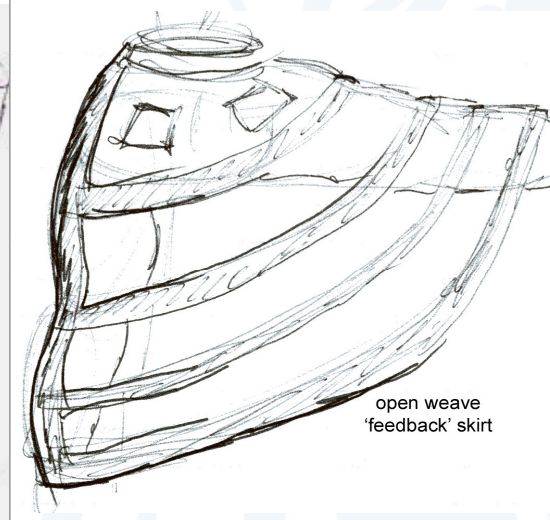
Research

- A motivational focus group was conducted to uncover what motivates people to exercise
 - > Positive and negative motivators were discussed
 - > Participants used PlayDoh to share thoughts on motivation
 - > One group talked about the “full” feeling on a good day of exercise (a)
- Patients undergoing physical therapy (PT) were asked to take home a diary and send in images
 - > Photos of locations where patients did their PT were requested (b)



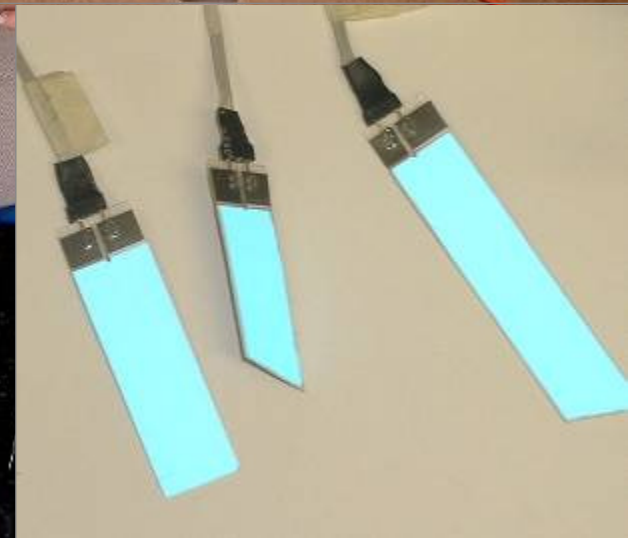
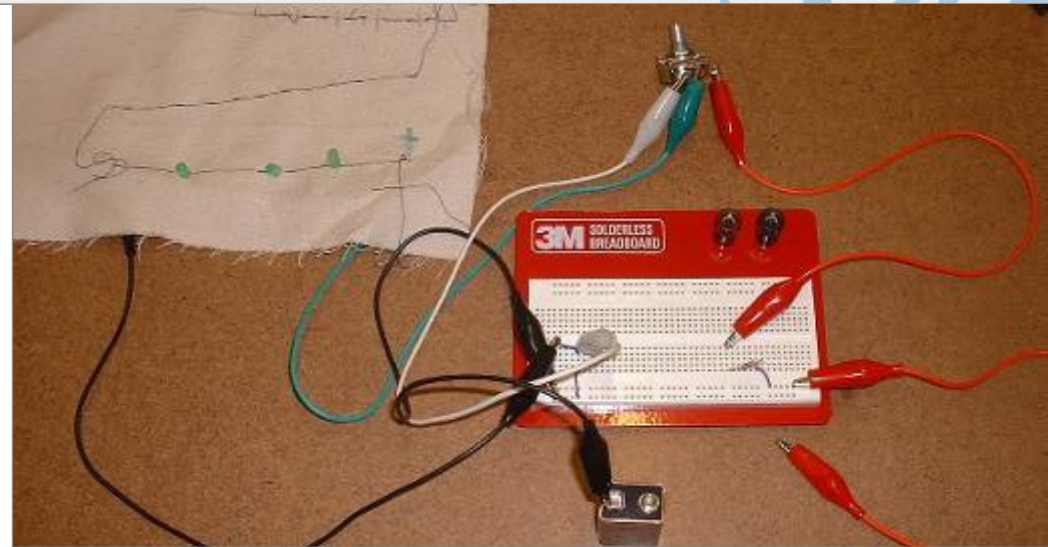
Design

- Sketches were done to explore the myriad of ways patients might participate in and track their PT
- Design inspiration started with the concepts of fun, engaging, interactive
- A working prototype was desired and the prototype would be made by *me*, a person with very basic electronics skills
 - > Given parameters dictated a hinge at the knee for a potentiometer



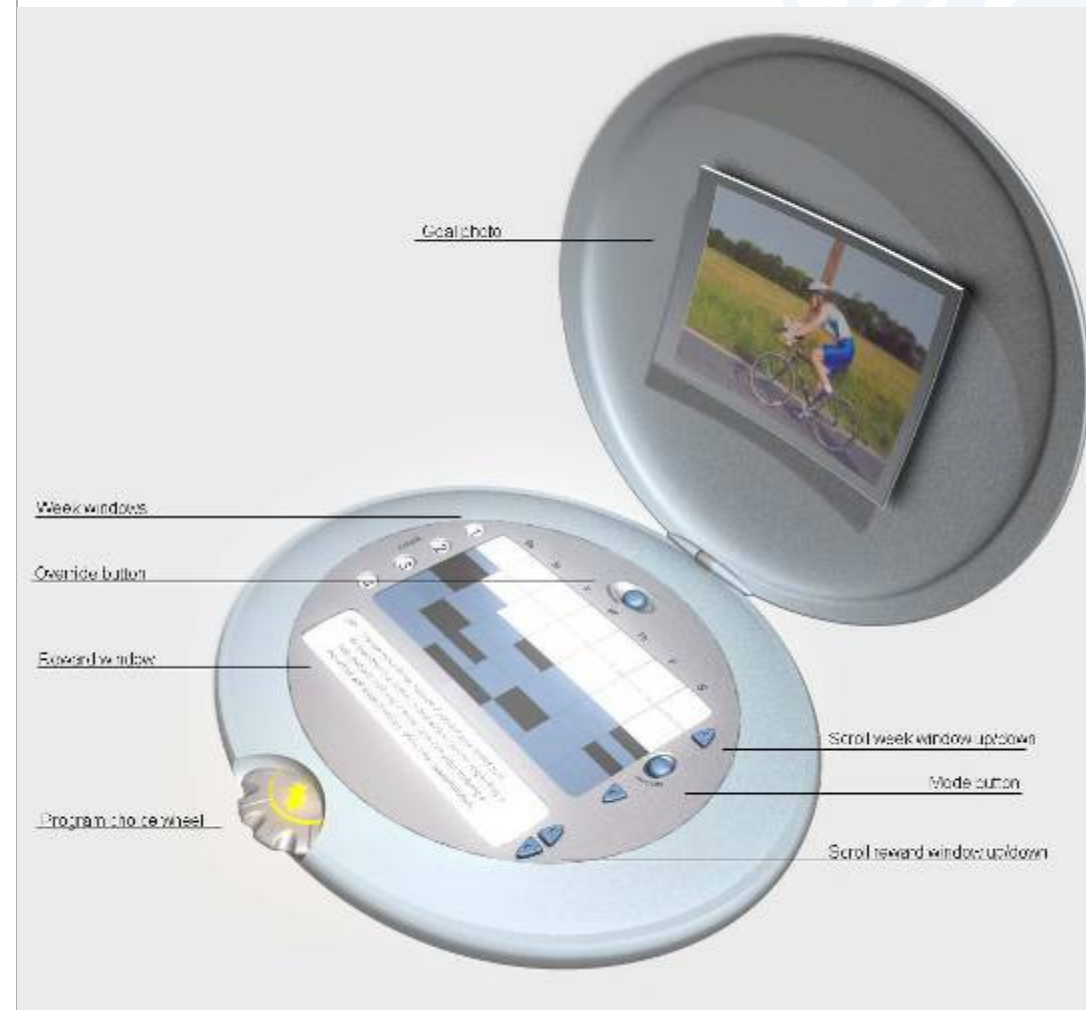
Prototyping

- Various feedback devices were tested including LEDs with conductive thread and electroluminescent (EL) strips
- EL strips proved most durable and most visible
- Fabric choices were tested and a combination of a neoprene sleeve and a moldable plastic hinge were designed



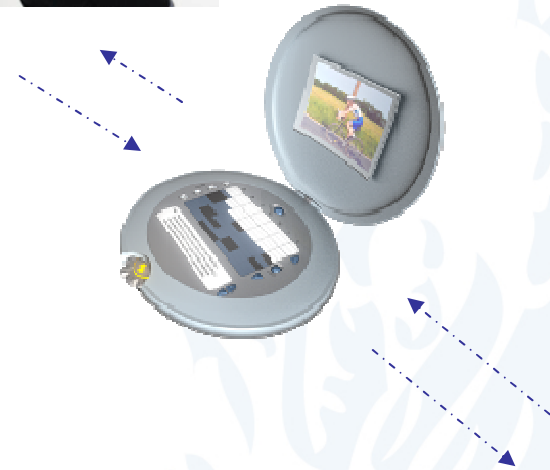
Design Phase

- To complete the system, a desktop module was designed
 - > Download information via Bluetooth for patient tracking
 - > Upload information to a doctor and/or PT
 - > Use as a reminder of a goal
 - > Daily “rewards” in the form of desired information such as stock quotes or horoscopes
 - > Tracking options: View exercises done/not done or view specific Range of Motion data



Final Product

- After 2+ years of research and prototyping, a final design was produced
- The Motivational Angle Gauge Goniometer is worn by the patient. It tracks and gives range of motion and repetitions via both audio and visual feedback
- Data is captured and transferred to a tabletop device and uploaded to clinicians for long term tracking and feedback





Quantum Vent Jacket

- Research and Development for vented jacket with 180s

Research and Development

- Worked with a team of designers and engineers to create a jacket with a pulley system to allow runners to have temperature control without ever removing a garment.
- Wash testing
- Sewed prototypes
- Sourced materials



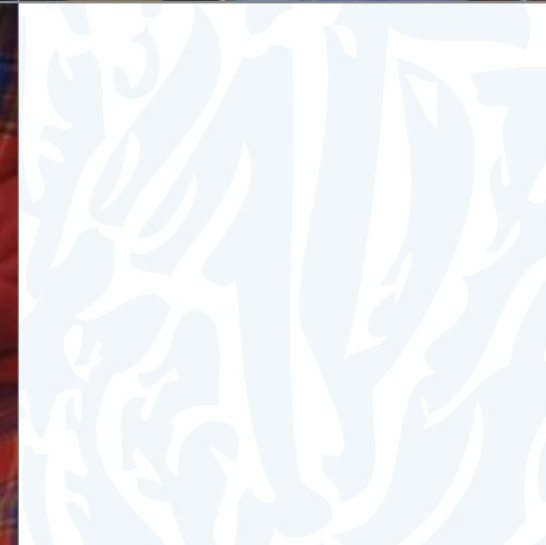


Accessible Apparel

- Design and manufacture of adaptive apparel for Accessible Threads

Accessible Apparel

- Design, pattern, prototype and manufacture accessible apparel
 - > Manufactured capes (previous slide) for wheelchair users to conform to a seated user
 - Custom-made corset for woman living post-polio
 - > Harness for a child with posture issues
 - > Thumb-less mittens



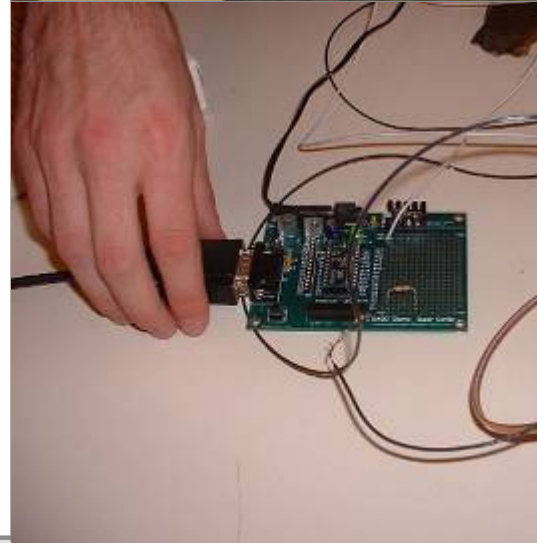


Sonic Quilt

- Quilt that plays music created at Georgia Tech

Prototype and Development

- Switches used a previously tested method of creating a fabric switch with metallic organza and conductive thread
- Fabric switches were sewn in behind particular squares
- A BASIC stamp was programmed to play music from the 7 continents
- When pressed, a fabric square representing a continent played representative music





Intel Computing

- Observational research for Stephen Hawking's Intel provided computer

Shadowing and Observation

- Captured insights about ease of use by shadowing Stephen Hawking and his caregivers for a day
- Findings included (a) many packs on rear of wheelchair inhibiting access to technology, (b) need for an external battery pack, (c) a mass of misunderstood cables
- Recommendations were implemented and significantly reduced calls for technical support
- *“I can’t talk or give directions when the chair is moving.”*





Context Aware Medication Prompting

- Longitudinal medication prompting research with Intel

Usability/Diary Study

- 10 elders in the Portland area were given 3 different medication reminders: audio, visual and mobile
- Photos were taken of where the elders placed the devices in their homes for design context
- At the end of 3 weeks, elders were asked to use Play-doh to talk about and design their ideal reminder
 - > 9 of 10 participants designed a watch, keying in on the importance not of the watch, but on the mobility of the device
- *“The watch is more portable, it’s with your body all the time.”*

