ELLIOT SATHER

Product Design and Development

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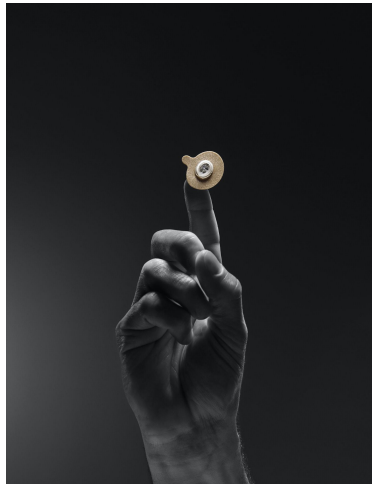
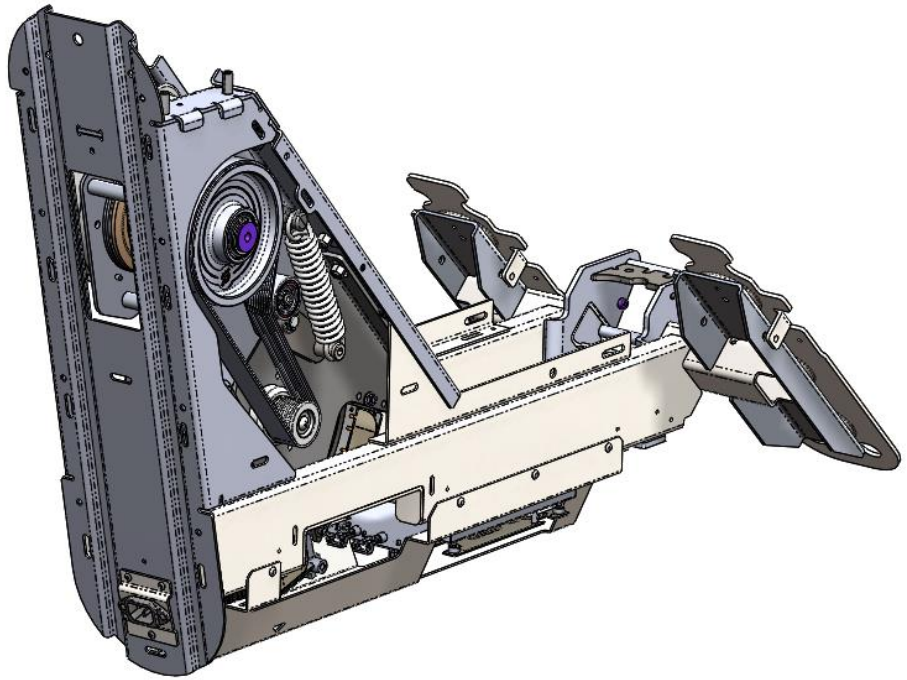


PELOTON ROW
(with Ronin PD Labs)

Role: Subsystem lead, Ronin team lead and internal PM

Activities: Designed and developed main chassis sheet metal and tube steel weldment assembly for new rowing machine product. I collaborated with other subsystem owners to develop assembly schemes for body panels, seat rail, front foot, display arm, power absorber, main electronics, and power supply. Supported client from concept through DVT.

Challenges: Simulating drop tests to verify rail latch strength, verifying thermal performance to ensure adequate cooling without a fan, working within space constraints.



Some images courtesy of Peloton

3D ROBOTICS SOLO CONTROLLER

(for PCH/Lime Lab)

Role: Technical lead

Activities: I led a team of three product design engineers to design and develop this controller with novel video controls. We worked closely with ID to refine the product architecture and refine the final surfacing. We worked with ME, EE, and the client product team to develop the enclosure, specify major components (gimbals, switches, LEDs, battery pack, tablet grip), complete several prototype builds, implement DFM refinements, and release for high volume production.

Challenges: Achieving uniform lighting on backlit buttons, refining cosmetic IML front panel, mounting of top controls, adapting to antenna change late in process, mitigating drop test failures.

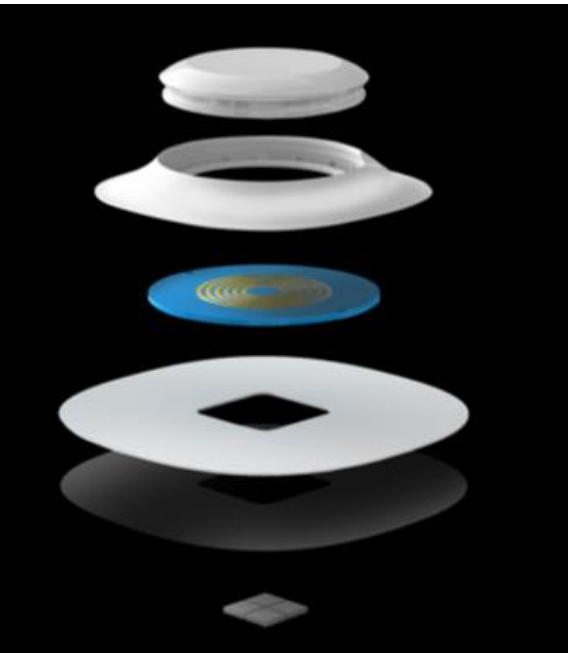
Some images courtesy of 3DR

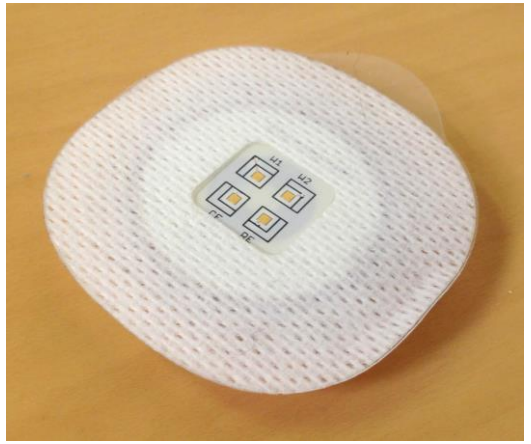
SANO INTELLIGENCE WEARABLE SENSOR

Role: Technical Lead, Product Design Manager

Activities: I managed a team of four product design engineers developing a wearable health monitor platform including an electronics pod, a sensor patch, a charging dock, and an applicator.

Challenges: Identifying patch and adhesive materials to ensure long-term comfort and adhesion while factoring in various skin types and conditions. Experimenting with many means for applying the patch ensuring functional sensor contact and a good user experience for a diverse range of possible users.





Some images courtesy of Sano

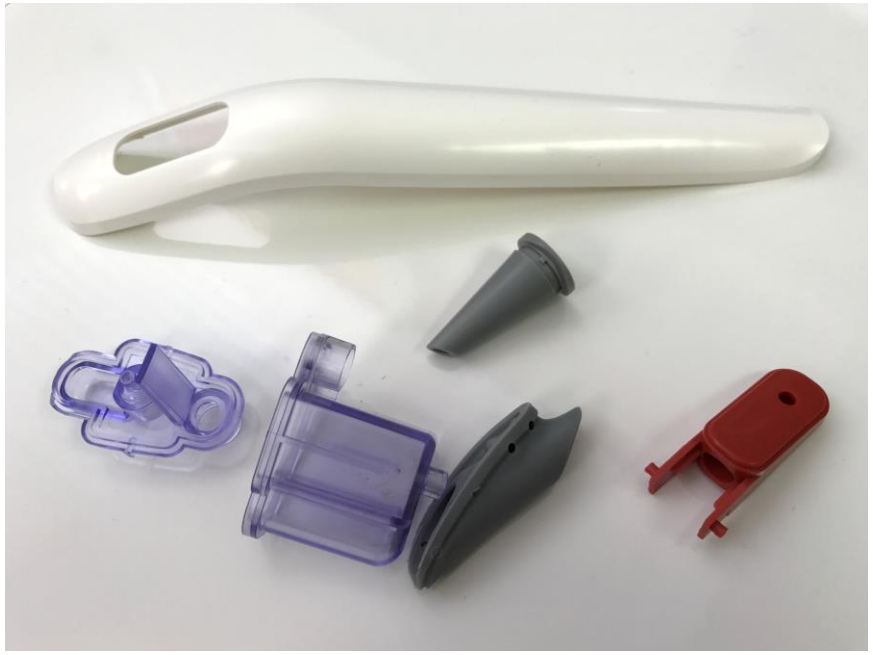
PENUMBRA CRANIAL INTRODUCER

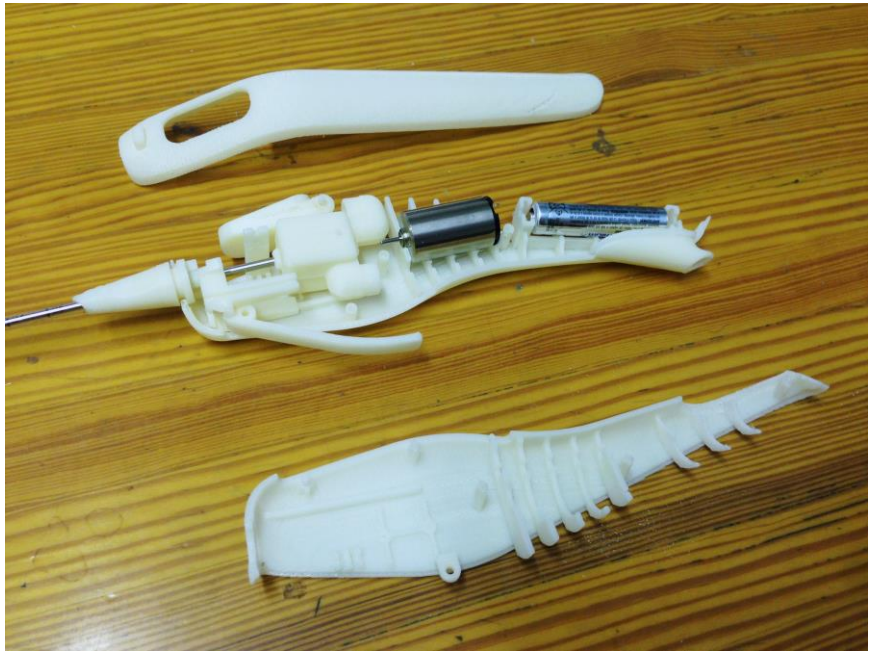
(for Design Concepts)

Role: Technical lead

Activities: I lead the development of a medical device for a new method of treatment for intracranial hemorrhage. Starting with the client's functional mock-up I developed the device architecture, vacuum path, and enclosure design. I worked with ID to reconcile the final form with mechanical constraints, designed the molded parts for the enclosure, vacuum path, seals, motor mounts, etc. Conducted DFM reviews with chosen suppliers.

Challenges: Complex ID surfacing and part breaks. Tricky two-mode mechanism with twist-to-retract and lever-activated retract (later omitted).





FARADAY BICYCLES HEADLAMP

Role: Mechanical design and development

Activities: I acted as primary mechanical engineer and project manager to develop the head lamp for the Faraday *Porteur* line of electric bicycles. Working from ID sketches, I designed and developed the head lamp and stem mounting clamp for production die casting. I experimented with LEDs and optics and specified the final collimator, emitter, and metal PCB.

Challenges: Locating off-the-shelf optics to create the desired light pattern.

Some images courtesy of Faraday

REVOLV HOME AUTOMATION GATEWAY

Role: Mechanical design and development

Activities: I acted as product design engineer and project manager for this home automation gateway. I worked closely with a local ID firm and an EE contactor to design and develop the enclosure, prototype and test it, and ramp domestic production. I was responsible for molded part design for the enclosure, the PCB MCO, and power supply and connector specification.

Challenges: Achieving interesting optical effects in enclosure top through molded texture. Resolving cosmetic gap issue (interference with EE component). Refining two-way light pipe.

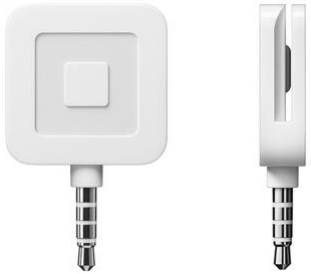
Some images courtesy of Revolv

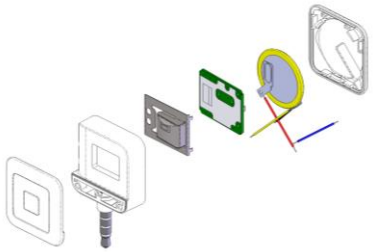
SQUARE CARD READERS

Role: Senior product design engineer on multiple mobile card reader projects

Activities: As an early member of Square's hardware team, I lead the mechanical development of two generations of mobile card readers. Working with Square's ME and ID partners and internal electrical and firmware engineers, we worked to refine and release the first encrypted card reader for high-volume production. I was also lead ME on the thinner custom ASIC–based reader and I lead mechanical R&D for chip card reader and wireless reader concepts.

Challenges: Tight space constraints – working within the one inch by one inch square. Improving credit card swipe accuracy without increasing size. Dialing in ultrasonically welded joints. Debugging battery drain issue. Redesigning read head spring for improved read head dynamics.





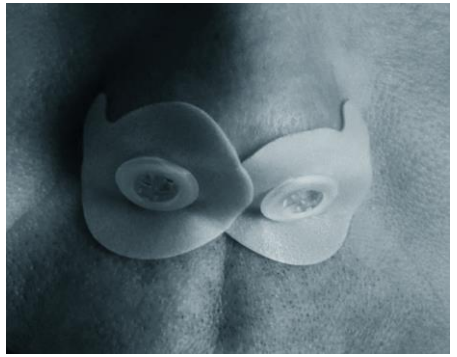
Some images courtesy of Square

VENTUS PROVENT SLEEP APNEA THERAPY

Role: Senior R&D Engineer

Activities: While at Ventus Medical I lead the research and development of the first and second generation of *Provent* for the treatment of obstructive sleep apnea and snoring. Some of my responsibilities included conducting user research, prototyping and evaluating device concepts to meet clinical and market needs, supporting clinical studies, developing test methods, protocols and fixtures, and performing validation and verification testing. The devices went into high volume production in the USA. The first generation was a snapped-together assembly of molded and die-cut parts while the second generation used a converting process of die-cutting, forming, and laminating to reduce cost.

Challenges: Keeping costs low (single-use, daily wear device). Automating assembly, particularly of the tiny silicone flapper valve. Designing to accommodate a broad range of human facial anatomy. Developing a process for continuous cold-forming of PETG valve housings. Minimizing expiratory resistance while accurately controlling expiratory resistance.



Some images courtesy of Ventus

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