Dan Greenberg

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Professional Profile

Accomplished electromechanical product development engineer with extensive experience in mechatronics, rapid prototyping, and assessing the desirability, feasibility, and viability of new concepts. Proficient in applying human-centered design and design thinking principles to create intuitive products that delight and exceed end-user needs. Proven track record of ideating and developing advanced technologies, transforming novel ideas into prototypes through production. Exceptional creativity and innovation abilities to deliver cutting-edge products that make meaningful differences in people's lives.

Core Competencies

Product Development

- **Project**: Cost, timeline, client, vendor, and resource management
- **Design Thinking**: Research, brainstorming, synthesis, iterative prototyping, and testing
- **Manufacturing**: Mass market consumer products, assembly and serviceability, injection and blow molding, metal tubing and stamping, and electromechanical component and PCBA integration
- **Documentation**: Functional and performance specifications, flow diagrams, and QA test planning and validation
- **Communication**: Microsoft Office Suite, Google Suite, collaboration tools (Teams, Slack, Jira), and technical writing

Mechatronics

- **Rapid Prototyping**: FDM, SLS, and SLA 3D printing, manual machining, laser cutting, IC selection, sensor integration, circuit design, PCB design and routing, PTH and SMD soldering, wire harnessing, and lab instrumentation
- **Software**: SolidWorks and OnShape CAD, Arduino, Altium, Unity, Adobe Creative Suite, and audio editing software
- **Programming**: Embedded C++, Python, communication protocols (UART, I2C, SPI), and debugging techniques
- **Sensor Actuator I/O**: RC, nRF, BLE, Wi-Fi, LED, audio, electromechanical, electromagnetic, inductive Qi, capacitive touch, solar, motion, force, environmental, ultrasonic, IR, light, color, motion, gesture

Powertrain Development

- **Batteries**: Sealed lead acid, lithium ion, lithium polymer, regeneration, and battery management systems
- **Drivetrain**: PMDC, BLDC, servo, and stepper motors, hub, gearbox, chain, and belt drive transmissions
- **Controls**: Serial, RC, PPM, and PWM communication, position, velocity, voltage, current, and thermal PID regulation

Work Experience

VERY, Chicago, IL (Remote) 2023 – 2024

Senior Mechatronics Engineer

Led the mechatronics efforts of three complex client-facing IoT projects, collaborating with Electrical and Firmware engineers to set client expectations and deliver results with high satisfaction.

- Identified and resolved four root cause issues causing poor cellular connectivity of production PCBAs and firmware using Fault Tree Analysis (FTA) and deliberate test planning to allow the client to ship products without issues
- Specified, documented, and recommended new and updated sensors, actuators, and circuitry for a Gen 3 proof of concept for a novel IoT athletic wearable, improving reliability and customizability based on client requirements during a four week Technical Design Sprint (TDS)
- Designed, specified, and prototyped plumbing diagrams, automation workflows, automated control boxes, pumps, valves, and sensors to develop a new-to-the-world cold and hot water therapy device with little client direction
- Traveled to clients on-site to provide reassurance and expedite clear communication, debugging, testing, and prototyping, resulting in solutions exceeding client expectations
- Researched and documented OnShape best practices for CAD development and release management using a Git-based method to standardize workflows for the Mechatronics Practice
- Acquired additional technical skills in OnShape, Altium, Git, Python, and Jira through project work, Delivery Amplification Projects, and personal Talent Development Plan

RADIO FLYER, Chicago, IL 2015 – 2023

Senior Product Development Engineer, Advanced Concepts (2016 – 2023)

Led and supported the product development of electromechanical toys using human-centered tangible interaction design, creatively incorporating innovative and novel technologies and features from concept through production.

- Designed, prototyped, and developed eight innovative products to market, including the TOTY winning Ultimate Go-Kart by collaborating with intellectual property lawyers, external vendors, engineering, quality assurance, industrial design, prototype shop, marketing, operations, and sales teams resulting in being named on six published patents
- Determined the desirability, feasibility, and viability of "new to the toy industry" technologies and advanced concepts through iterative benchtop, proof of concept, works-like, and looks-like prototypes, cost analysis, and user testing to navigate ambiguity, innovate, and add value to the current and future product line
- Benchmarked competitive products through secondary research, teardowns, and real use testing to inform the features, functions, and creation of specification documents of new products
- Evaluated and debugged pre-production mechanical and electronic samples, creating issue trackers to communicate action plans to international partners
- Extensively traveled internationally to China and Europe for debug and development of pre-production samples, saving multiple days of communication and progress delays per week
- Partnered with a scooter share company to improve and validate electronic and mechanical subsystems to meet EU requirements at test labs in California and Europe
- Designed, programmed, and implemented dozens of test fixtures and process improvements for the QA team to validate and benchmark the quality of electromechanical components for performance, safety, and compliance
- Managed three interns and mentored junior engineers with best practices in electromechanical product development

Mechanical Engineering, Advanced Concepts Intern (Summer 2015)

- Designed and iteratively prototyped SmartSense™ handle technology for a motorized wagon within three months
- Named inventor on patent for the eWagon with SmartSense™ technology which was later sold to Toys "R" Us

BST NANO CARBON, San Diego, CA Summer – Fall 2013

Design Engineer Cooperative

- Developed design and manufacturing strategies for nanotube infused carbon fiber composite sports equipment
- Researched and proposed methods to functionalize carbon nanotubes in epoxy resin to increase performance

3M PURIFICATION, Stafford Springs, CT Winter – Spring 2012

Process Engineer Cooperative

- Applied Lean Six Sigma techniques to plan and design an automated system to reduce variance in a refining process
- System had estimated savings of $350K per year and the potential for further international savings

EDUCATION

Master of Science, Engineering Design and Innovation, NORTHWESTERN UNIVERSITY SEGAL DESIGN INSTITUTE, Evanston, IL (2015)

Bachelor of Science, Manufacturing and Design Engineering, Minor in Music Technology, NORTHWESTERN UNIVERSITY MCCORMICK SCHOOL OF ENGINEERING AND APPLIED SCIENCE, Evanston, IL (2014)

- **Certificates** in Cooperative Education, Business Enterprise, and Entrepreneurship

CERTIFICATES, AWARDS, AND TRAINING

Certificate, Essentials of Project Management, NORTHWESTERN SCHOOL OF PROFESSIONAL STUDIES, Chicago, IL (2021)

The Toy Association's Outdoor Toy of the Year, Radio Flyer Ultimate Go Kart™ (2021)

PUBLISHED PATENTS

US20230133617A1 (2023), **US20220305319A1** (2022), **WO2021034667A1** (2021), **US10525998B2** (2020), **US20170336785A1** (2019), **WO2018071487A1** (2018)