



mistywest



Capabilities Statement

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We Are MistyWest.

An engineering design consultancy that exists to create an inclusive and prosperous global community enabled by technology, with a focus primarily on developing intelligent connected devices that advance the *UN Sustainable Development Goals*.

Our core areas of technology expertise include **Optics, Embedded Vision, AWS/Azure IoT, Low Power Electronics, and Wireless Connectivity** (*Bluetooth, WiFi, Cellular and Satellite*).



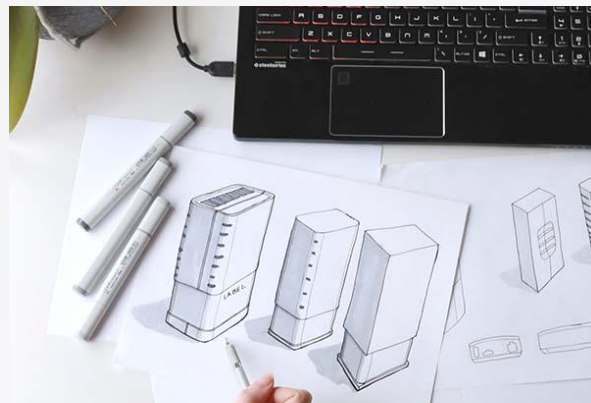
MistyWest is founded on years of successfully solving hard problems across numerous industries. Our multidisciplinary team of engineers, designers and developers provides full-stack hardware solutions that allow our clients to turn concepts into products.



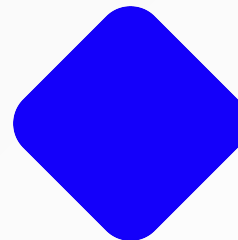
Your Partner in Product Development.

MistyWest values clear and honest communication: our estimation process, scoping process, and invoicing process are all **radically transparent**.

We offer **informed decision making** between our technical team and prototype with scalability in mind.



As a consultancy, our team is always working on **cutting edge technologies**, and we can begin work as early as a week upon signed work orders, meaning we can dive into new projects more effectively than an in-house development team.





Firmware Engineering

- BLE, WiFi, Cellular (TCP/IP, AT Commands, Cat M1), Zigbee
- OS & Driver Development
- Image & Digital Signal Processing
- Application Development (Python, C/C++, C#)



Industrial & UX Design

- User-Centered Design
- Qualitative Research
- UX/UI Testing & Design
- Product Visualization



Electrical Engineering

- Analog, Digital and Embedded System Design
- Mixed Signal, High Speed and RF Design
- Power Electronics Design
- PCB Design and Circuit Simulation



Cloud IoT Engineering

- AWS IoT
- Azure IoT
- Dockerized application layer
- Data Science and Machine Learning



Mechanical Engineering

- Electro-Mechanical Hardware & Sensor Integration
- Functional Enclosure, Mechanism & Assembly Design
- Rapid Prototyping, Testing, Simulation & Analysis
- Design for Manufacturing & Assembly



Specialized Research

- First-Principles Analysis & Design
- Structured Sensing for Data Science
- Optics, Interference Filters & Spectral Imaging
- Mathematical Modelling & Numerical Simulation
- Scientific and Patent Literature Analysis



Embedded Systems

- Specialized Sensing Systems
- Linux Kernel and App Development
- Real Time Operating System
- Custom communication stack
- Computer Vision



Hardware Platforms

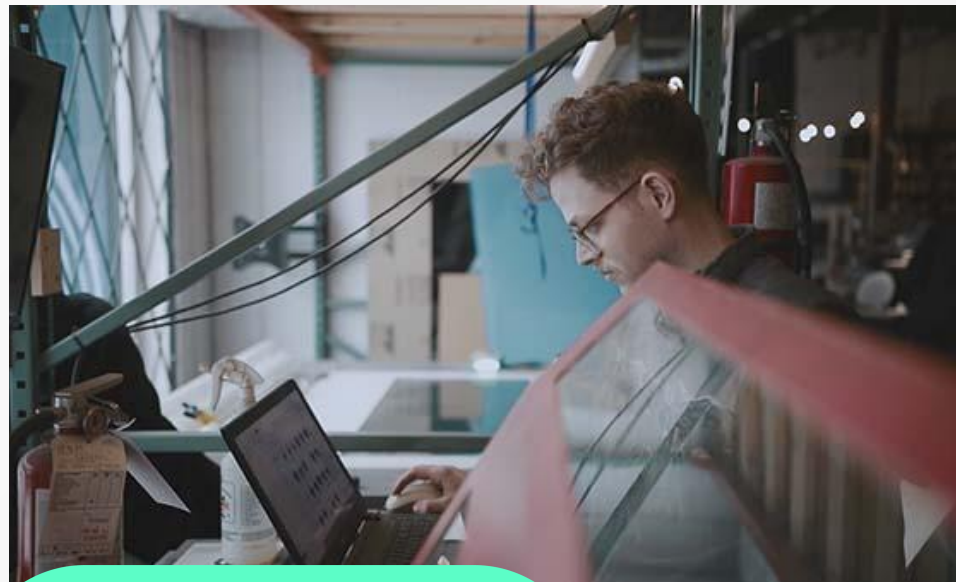
- SoMs with iMX6, iMX8, Snapdragon, TI AM series
- ADI SHARC and Blackfin DSPs
- Xilinx, Intel and Lattice FPGAs & CPLDs
- Nordic, STmicro, NXP, TI, Renesas, Microchip MCUs
- NVIDIA Volta, Google Coral ML accelerators

What are The UN SDGs?

MistyWest's mission is to advance the United Nations' [Sustainable Development Goals](#)—a call for action by all countries to promote prosperity while protecting the planet—by creating technically complex intelligent connected devices that accelerate the world's transition to a sustainable future.

To the right are some of the **areas of impact** that MistyWest has already contributed work to.





The Path to Project *Kick-Off*

MistyWest works collaboratively with clients on determining **fixed price or time-and-materials contracts** and refining the iterative-and-ongoing **project scope**. Our senior engineers will work closely with you to **understand your project's requirements** and value proposition.

We offer ongoing support to our clients with frequent updates, design reviews, visibility on our sprints, access to tools such as *Jira* and *Smartsheet*, and access to our network of partners for futurability.

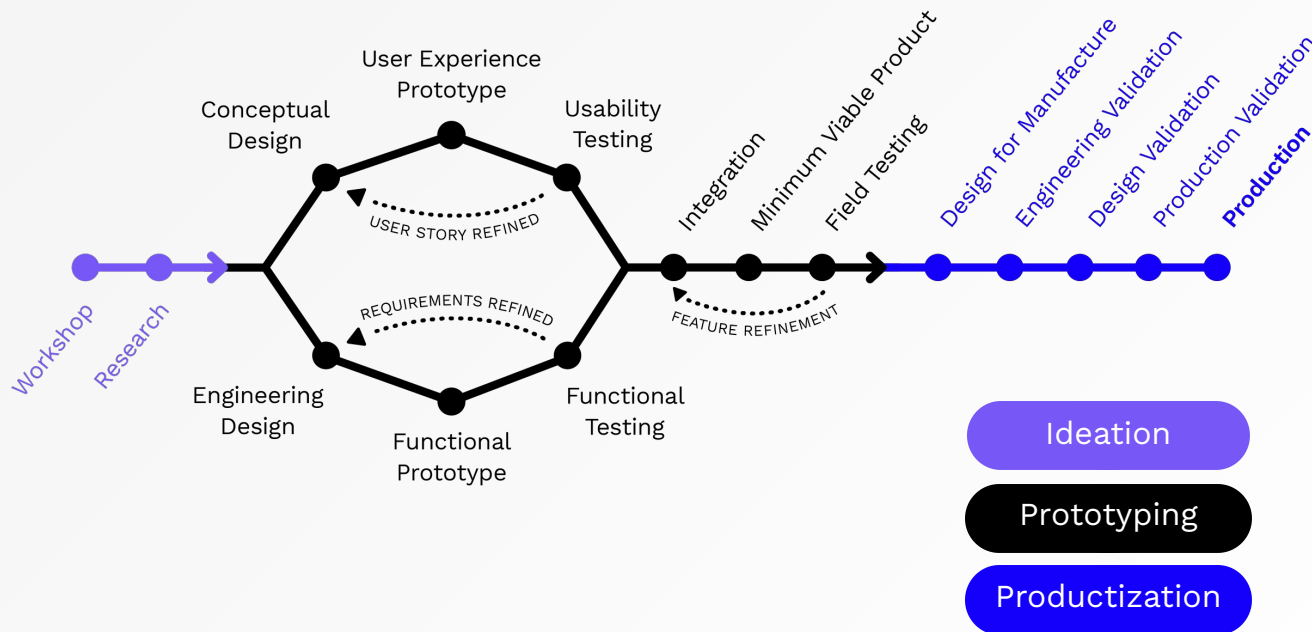
Our *agile for hardware* approach allows for our clients to build the right product by quickly adapting to their customers' needs.



Product Development Roadmap

We take your ideas from napkin sketch to reality in three iterative stages: **Ideation**, **Prototyping** and **Productization**.

Developing new hardware is expensive and time consuming. MistyWest excels at creating MVPs quickly and cheaply to allow you to vet your business model and product market fit *before* investing in costly tooling and inventory.



Ideation

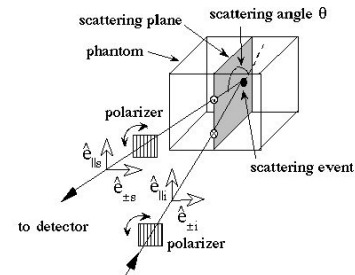
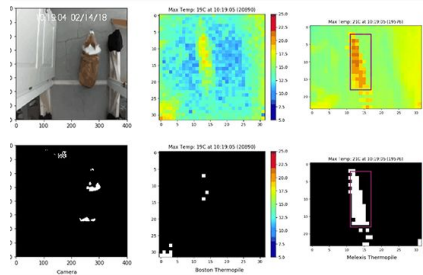
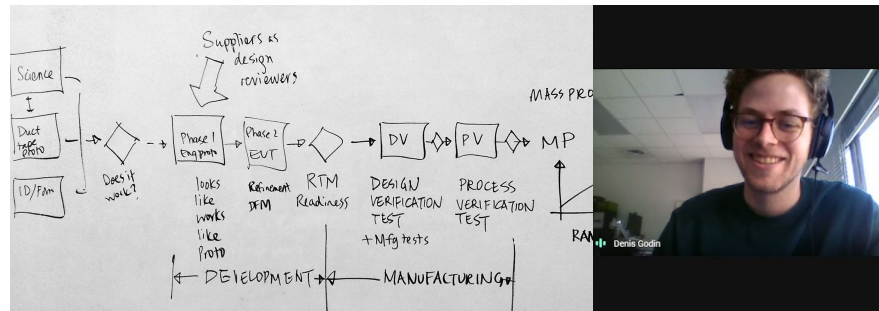
Workshop

Ideation Workshops are 1-day sessions with MistyWest's senior engineers, who work with inventors and entrepreneurs to align their ideas with current trends in hardware technology.

Research

Our team conducts background research of existing or similar products, technologies available to create the intended product concept, and best available options for meeting client expectations on time and on budget.

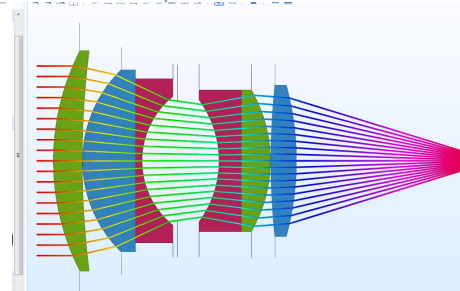
Duration	Budget	# of Units
1 DAY TO 3 WEEKS	\$10K TO \$25K	0



$$\sigma_e = \sigma_s + \sigma_a, Q_e = Q_s + Q_a$$

$$Q_s = \frac{2}{x^2} \sum_{L=1}^{\infty} (2L+1) (|a_L|^2 + |b_L|^2)$$

$$Q_e = \frac{2}{x^2} \sum_{L=1}^{\infty} (2L+1) \text{Re}(a_L + b_L)$$



Prototyping

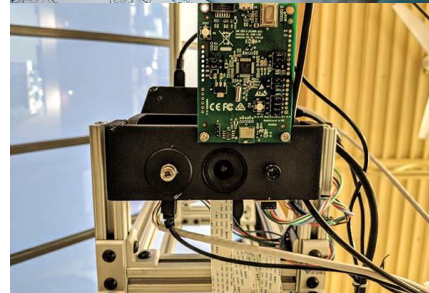
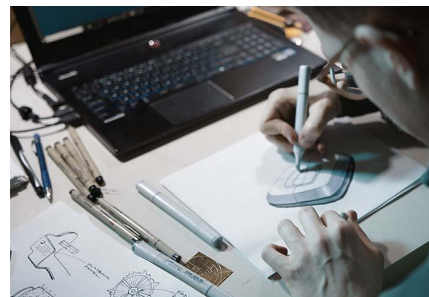
Concept & Design

We generate concepts from your vision and down-select the best ideas to rapidly create physical prototypes using off-the-shelf components, 3D printing, and open source software and firmware. We develop looks-like Proof Of Concepts (POCs) and works-like POCs in parallel to ensure the prototypes are technically feasible.

Feature Refinement

Integrating the lessons and designs from the previous phase, we develop a Minimum Viable Product (MVP) that undergoes iterative alpha- and beta-testing. Our team supports any required changes to identify the client's product vision before moving onto (costly) *Productization*.

Duration	Budget	# of Units
2 TO 36 WEEKS	\$50K TO \$500K	1 TO 100



Productization

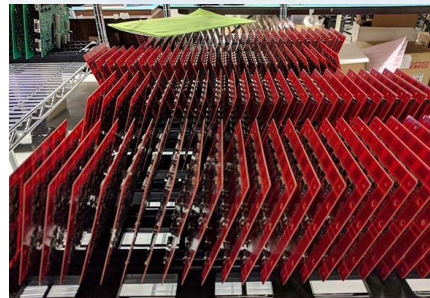
Design For Manufacture

Although manufacturability is a major consideration at the early stages of the product development cycle, Productization goes deeper into the details of how the parts will be manufactured and assembled in higher volumes.

Validation

MistyWest works closely with manufacturing companies to set up production lines, and get production-quality parts for device assembly and rigorous testing to ensure the parts meet expected functionality and cosmetic appearance requirements.

Duration	Budget	# of Units
10 TO 50 WEEKS	\$100K TO \$1000k	20 TO 10,000+



Collaborators

We build and accelerate an abundant future with ambitious partners, clients and collaborators who are willing to take risks in pursuit of extraordinary outcomes.



SRI International

IDEO



FATIGUE
SCIENCE

Vendors

We have a long list of **vett**ed local and international suppliers and vendors who work with us to deliver quality results. The following are some of the vendors we return to often:



STAR RAPID



Case Studies

We've used our technical expertise to bring success to clients across many industry verticals.

The following slides are only a handful of MistyWest's 200+ projects, detailing how we addressed our clients' problems and the associated outcomes.

If you have a project not addressed by our case studies, **let us know**. We may still have the expertise to help—or have a partner who does.



Ideon Technologies

Borehole Sized Muon Detector

Prototyping

THE PROBLEM

Ideon Technologies' novel application of cosmic-ray muon tomography maps the intensity of muons underground, measuring rock density in a targeted search area.

MistyWest was brought on to develop the next generation of their muon detector; a miniaturized, ruggedized system that can be reliably installed in boreholes at depths up to 1km beneath the earth's surface for months at a time - and without failure. The system needed to support daisy chaining of up to 10 muon detector systems.

THE SOLUTION

MistyWest proposed a novel multi-board architecture, miniaturized to fit within the 75mm diameter constraints of the borehole. The solution incorporates a FPGA and processor core system-on-chip to detect muon arrival across a 3m long detector area, maintaining a high speed and timing resolution. The devices were designed to consume <15W peak power during operation and to be placed in stand-by to support long-term deployment in remote off-grid areas. Devices can be remotely controlled, accessed for data retrieval and updated from the field.

OUTCOMES

- MistyWest delivered the 10 field-deployable prototype muon detectors over the course of a timeline of 12 months, across 2 hardware spins
- Power, timing and mechanical requirements were met and validated in the testing and in the field.
- Design is being prepped for Design for Manufacturing (DFM) stage
- A revised production run for additional 40 units to be deployed in 2022 was executed shortly after

EXPERTISE

ELECTRICAL ENGINEERING
FIRMWARE ENGINEERING
MECHANICAL ENGINEERING
SOFTWARE ENGINEERING
FPGA



mistywest

CAPABILITIES STATEMENT

Attabotics

THE PROBLEM

Attabotics asked us to support ideation and development of the latest generation of their wheeled robots. The proposed system would add a supplementary sensor suite that was down-selected from an earlier phase. This sensor combination would be mounted at each of the four sides of the robot, and need to integrate into the existing robot control systems and while still maintaining a high accuracy and reliability.

Certain Move
99.999% Accurate
Localization Sensor

Ideation

Prototyping

EXPERTISE

ELECTRICAL ENGINEERING
FIRMWARE ENGINEERING
MECHANICAL ENGINEERING
OPTICAL DESIGN
DATA SCIENCE
DIGITAL SIGNAL PROCESSING
DFM

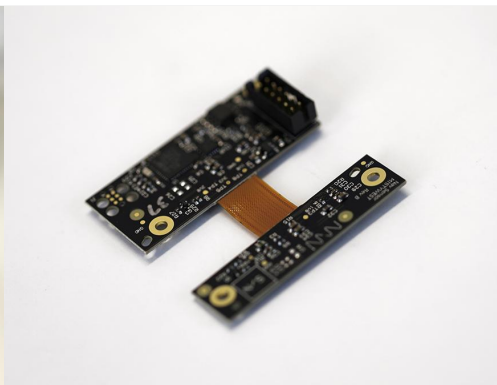
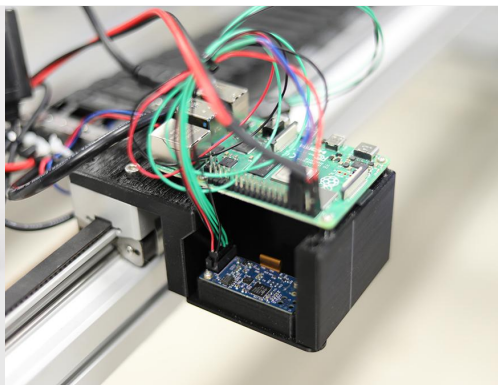
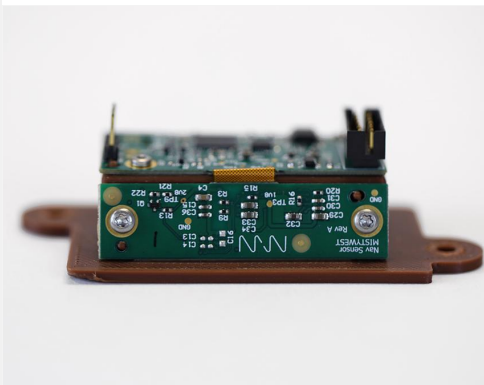
THE SOLUTION

MistyWest designed a single rigid-flex-rigid board to fit within the constraints of the mechanical design and to allow for ease of assembly and cabling. The sensor suite was tested on a custom developed “robot-analog” to investigate the effect of lighting conditions, reflections and debris.

The selected components, if proven to be suitable, would need to be in production and available for the next 3 years.

OUTCOMES

- Achieved 99.999% accuracy feature detection using a calibrated front-end photometric sensor package
- Achieved high accuracy on final position of the robot using the secondary sensor
- Data acquisition and processing implemented on Arm Cortex M4 MCU using RTOS
- Completed the project within 9 months to meet with certification and testing schedules, amid global supply chain shortage



Confidential Client

Distributed Energy
Resource (DER)
Cloud Backend

Prototyping

Productization

EXPERTISE

SOFTWARE DEVELOPMENT
CLOUD ARCHITECTURE

THE PROBLEM

Our client was building a solution for integrating energy production and storage equipment such as batteries, solar panels, inverters, on distributed energy resource (DER) sites. They needed a way to interface with multiple types of hardware to view the status and send control commands from a central platform.

THE SOLUTION

MistyWest built a cloud backend with AWS in a serverless framework. The system collected data from hardware, stored data in AWS Timestream and S3, and visualized the key insights in a Grafana dashboard.

MistyWest leveraged an Infrastructure-as-Code deployment approach for easy scalability and a CI/CD pipeline to quickly develop a high-quality solution.

OUTCOMES

- Developed and deployed cloud backend to meet desired specification
- Transferred cloud infrastructure and related design documentation to client
- Client could view current status of equipment across all sites and change hardware parameters on the fly to respond to changing grid and equipment conditions



World Wildlife Fund

Polar Bear Tracking Device

Ideation

Prototyping

EXPERTISE

ELECTRICAL ENGINEERING
FIRMWARE ENGINEERING

THE PROBLEM

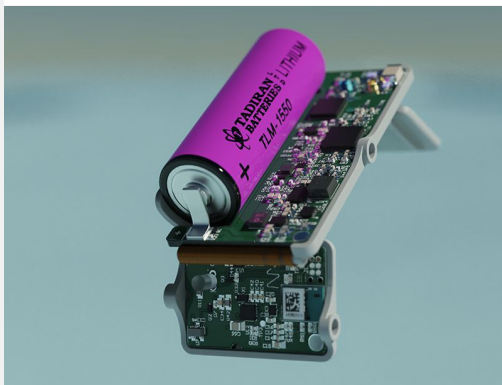
Polar bears are critically endangered due to climate change, and tracking them allows researchers to have real time data on the health of the species. The WWF and IDEO created a framework of requirements for an ideal ear-mounted tracking device: small and lightweight, but house electronics, a battery and a satellite, and be rugged enough to survive for 12 months in the arctic.

THE SOLUTION

MistyWest designed a custom antenna with an RF front end to work with the Argos Satellite Telemetry System, and developed an intelligent firmware algorithm that tracks the Argos network satellite pass schedules, determining the optimal time to attempt transmission. We selected and tested a lithium thionyl chloride battery (LiSOCl₄) to meet high peak current, long life, and low temperature requirements.

OUTCOMES

- Design of a waterproof enclosure with a battery that can last up to 6 months
- A device that can successfully transmit data in the extreme arctic environment, thanks to a precise power management control system
- 4 devices in field trials at the Winnipeg Zoo prior to being deployed to the Arctic
- Read more: [WWF Polar Bear Tracker](#)



Fatigue Science

Wearable Sleep Monitoring Device

Prototyping

Productization

EXPERTISE

ELECTRICAL ENGINEERING
FIRMWARE ENGINEERING
MECHANICAL DESIGN
INDUSTRIAL DESIGN
HARDWARE QUALITY
ASSURANCE

THE PROBLEM

Fatigue Science developed a custom algorithm and wristband for measuring and monitoring sleep and activity throughout the day (actigraphy). They approached MistyWest to get an update to their sleep monitoring wristband, after initially working with Rigado, but the BLE module they were using was going EOL, and battery life for their solution was 7 days when they had a target of 30.

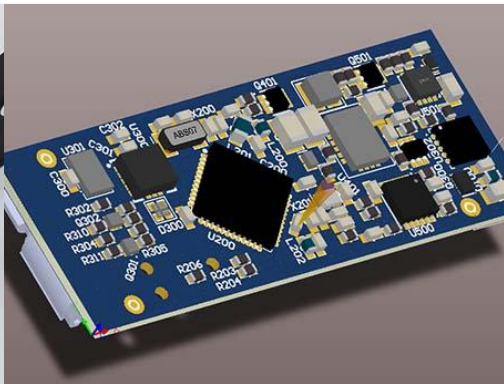
THE SOLUTION

MistyWest designed custom hardware and highly optimized custom firmware for a next generation band, including:

- A chip-level Nordic BLE radio, battery management circuit, low power accelerometer
- Complete FCC certification and custom antenna tuning
- A panelized and built bed of nail test fixtures

OUTCOMES

- Battery life of 45 days
- Originally designed for 5000 unit production run, but ended up being manufactured 25,000 without any design changes
- The units were used by Toronto Raptors and the Chicago Cubs' championship team.





WHO WE WORK WITH

Ideation

Prototyping

EXPERTISE

ELECTRICAL ENGINEERING
FIRMWARE ENGINEERING
INDUSTRIAL DESIGN
SOFTWARE ENGINEERING

Confidential Client

IoT Occupancy Monitoring Platform

THE STORY

Our client is at the forefront of the field of contextual computing, helping users interact with the environment through AR or VR, and requires high quality data on the environment; specifically, how humans interact in different settings and situations. MistyWest was brought on to develop a sensor platform with the vision of deploying occupancy sensing analytics to “the edge”.

Our team selected a specific MIPI camera sensor that would perform well in low-light conditions, and created a custom break-out board to test the electronics and firmware. The final electronics integrated WiFi, as well as a time-of-flight, infrared, temperature and humidity sensor.

OUTCOMES

- Developed a sensor platform for environmental and human detection
- Designed and procured custom PCB
- Integration and testing with external housing
- Sensor data streaming as a JSON payload over TCP sockets
- Custom OS built with Yocto, and integration with Azure IoT Edge

TZO A

Optical Particle and
Environmental
Sensing Platform

Ideation

Prototyping

Productization

EXPERTISE

ELECTRICAL ENGINEERING
FIRMWARE ENGINEERING
MECHANICAL DESIGN
INDUSTRIAL DESIGN

THE PROBLEM

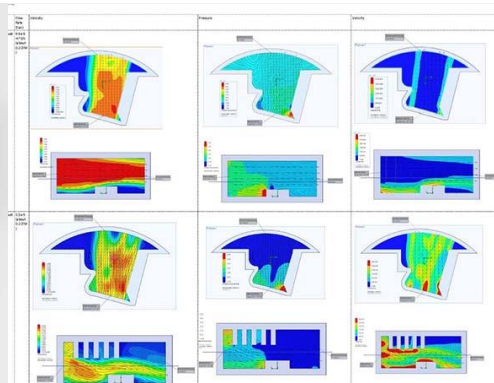
TZO A wanted to develop a compact, multi-sensor device capable of monitoring indoor air quality and provide a platform for data aggregation, all while keeping the product at a consumer price of less than \$200 a unit.

THE SOLUTION

MistyWest created detailed, provisional patents for this first-of-its-kind technology covering the different TZO A offerings, and developed a plan for a prototype that addressed all significant technology risks for the platform while demonstrating the full functionality of the device.

OUTCOMES

- Conducted basic research and developed multiple high accuracy prototypes
- Completed simulations and refined designs for volume manufacturing
- Matched efficacy of a \$10,000 device in one that cost \$100 USD





WHO WE WORK WITH

VodaSafe

Handheld Sonar and Scanning Device

Ideation

Prototyping

THE STORY

MistyWest was responsible for architecture design, enclosure design, experimentation, and production of the first 50 devices of a first-of-its-kind lifesaving product for VodaSafe.

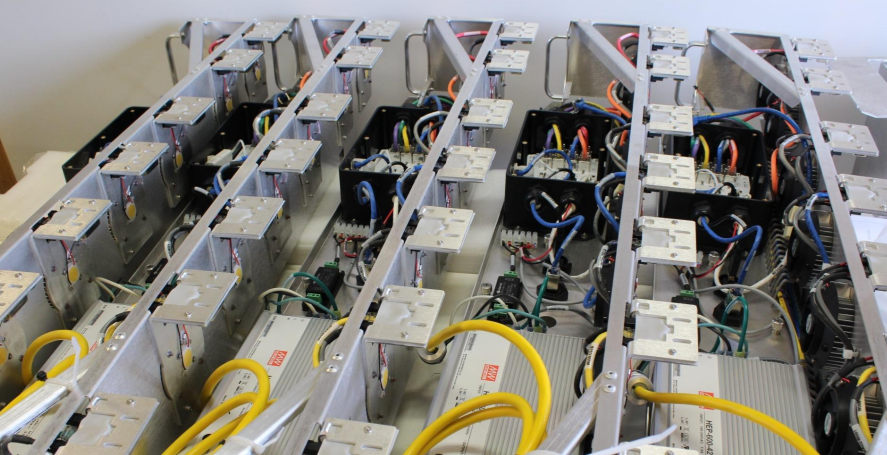
We iterated on the existing functional prototype brought to us by the client - completing robust user testing for ergonomics, functional testing for sealing and interaction, and advanced electronic functionality, including an e-ink screen and wireless charging.

OUTCOMES

- Designed and developed a handheld sweeping sonar technology intended to quickly scan an underwater area for drowning victims
- Provided functional demonstration units that allowed the client to secure initial committed purchase orders that supported their need to scale
- Full case study [on the MistyWest website](#)

EXPERTISE

ELECTRICAL ENGINEERING
MECHANICAL DESIGN
INDUSTRIAL DESIGN



WHO WE WORK WITH

Amazon

Internet-connected outdoor LED Panel sign

Prototyping

Productization

EXPERTISE

ELECTRICAL ENGINEERING
MECHANICAL DESIGN
SYSTEMS ENGINEERING

THE STORY

MistyWest was contracted to produce custom outdoor LED signage for the launch of the AmazonFresh grocery delivery service.

Our team was responsible for all engineering and certification for prototyping and low-volume manufacturing. High brightness LED modules, a custom cooling system, and rugged housing to withstand the elements were also assembled.

OUTCOMES

- Project was successfully completed and shipped on schedule
- All goals of the client were met
- Full case study [on the MistyWest website](#)



WHO WE WORK WITH

Ideation

Prototyping

EXPERTISE

ELECTRICAL ENGINEERING
FIRMWARE ENGINEERING
MECHANICAL DESIGN
SYSTEMS ENGINEERING

MIT University

Hub Mounted Electric Bicycle Wheel

THE STORY

Based on technology invented by MIT, Superpedestrian founding members reached out to MistyWest to make the next generation prototype for the Copenhagen Wheel reliable and cost effective.

Key challenges for this product were the tight integration of electric motor, power electronics, and battery in a sealed enclosure. MistyWest modeled and simulated thermal dissipation throughout the system, and modified designs for increased reliability and better performance.

OUTCOMES

- Prototype designs, modeling, and simulation on all critical components
- Design iterations for reliability and performance
- Enabled launch of the product in 2017
- Full case study [on the MistyWest website](#)

Confidential Client

3D Printer Redesign

Ideation

Prototyping

Productization

EXPERTISE

ELECTRICAL ENGINEERING
SYSTEMS ENGINEERING
MECHANICAL DESIGN

THE PROBLEM

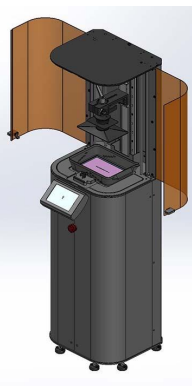
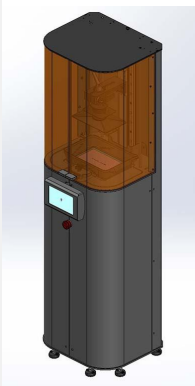
Our client, a company that is developing a Digital Light Processing (DLP) 3D Printer that is capable of higher print speeds using their proprietary interface, approached MistyWest to help with the redesign of the client's existing 3D printer prototype, focusing mainly on considerations for volume manufacturing of parts, design for ease of assembly and usage, and accuracy of the final device.

THE SOLUTION

Our team created a full set of manufacturing files with fabrication drawings, and top-down design was used to define critical part interfaces to keep tight tolerances within the assembly, and custom electronics were created for systems integration of electromechanical components.

OUTCOMES

- Completed a full CAD redesign of the 3D printer in Solidworks with more than 200 parts and sub-assemblies, with design input from client
- The final design met tight the tolerance requirement for final assembly to achieve consistent and thin layer thickness for fine printing resolution
- Fully functional demonstration unit built and certified, with plans to build more



Confidential Client

Computer Vision Diagnostic Tool

Prototyping

EXPERTISE

ELECTRICAL ENGINEERING
FIRMWARE ENGINEERING
MECHANICAL DESIGN
INDUSTRIAL DESIGN
HARDWARE QUALITY
ASSURANCE

THE PROBLEM

Our client wanted to use the fluorescence response of porphyrin proteins to determine if a bacterial infection is present in a patient using spectroscopy, but their initial prototype failed to pass the Internal Review Board of key clinical partners, being deemed unsafe as it required direct contact and was not cleanable.

THE SOLUTION

MistyWest redesigned the system from scratch, including:

- A spectroscopic imaging system
- Increasing the irradiance of the UV LEDs to no longer require contact
- Rigid flex PCB with a custom camera such that it could be manufactured at higher volume
- Azure IoT / Azure Edge integration into the device

OUTCOMES

- Client successfully ran clinical studies with 100s of patients
- Client was able to raise \$5M in funding from major venture partners in the US





WHO WE WORK WITH

Ideation

Prototyping

EXPERTISE

ELECTRICAL ENGINEERING
FIRMWARE ENGINEERING
MECHANICAL DESIGN
SOFTWARE ENGINEERING

Confidential Client

Smart Toilet

THE STORY

Our client is a nonprofit scientific research institute based in Menlo Park who was working with a toilet manufacturer to develop a smart toilet camera to collect data for initial feasibility assessment of a bowel-based health monitoring system for seniors. MistyWest was contracted to design and manufacture the hardware and an AI-based software solution for the toilet camera.

Our team provided full stack mechanical, electrical, firmware, and software engineering and delivered a compact optical stack for imaging in close proximity that includes a wide field of view and large depth of field, and secure, adaptable device mounting to a range of toilet bowls.

OUTCOMES

- Design of a self-contained, removable multi-sensor toilet insert capable of automatically collecting visual data on human waste in the toilet without human assistance
- Deployed 15 devices to a population of seniors to collect data over 3 months
- 8 month timeline from concept to deployed devices



WHO WE WORK WITH

Ideation

Prototyping

EXPERTISE

ELECTRICAL ENGINEERING
MECHANICAL DESIGN
INDUSTRIAL DESIGN
OPTICS

Confidential Client

Novel Spatial Mapping Helmet

THE STORY

A startup bringing VR technologies to the commercial real estate market asked MistyWest to assist with research and development of a novel 3D mapping camera technology whose function is to capture high-resolution 3D map data of physical spaces.

Requirement definitions for this project included understanding key challenges of integrating 7 high resolution cameras into both an existing helmet design and the custom triggering system, and collecting requirements for the critical components of electrical engineering, and optical and mechanical design.

OUTCOMES

- A rigid camera mounting frame was designed that can be integrated with the REscan main helmet frame, while also navigating around complicated weight and cable management requirements
- MistyWest eventually built a second prototype, featuring the new camera bracket, 7 high resolution Point Grey cameras, and most notably the new Velodyne LiDAR 3D mapping system



WHO WE WORK WITH

Ideation

Prototyping

EXPERTISE

APPLICATION SOFTWARE
DEVELOPMENT
CLOUD INTEGRATION

Confidential Client

AWS Infrastructure Design and Implementation

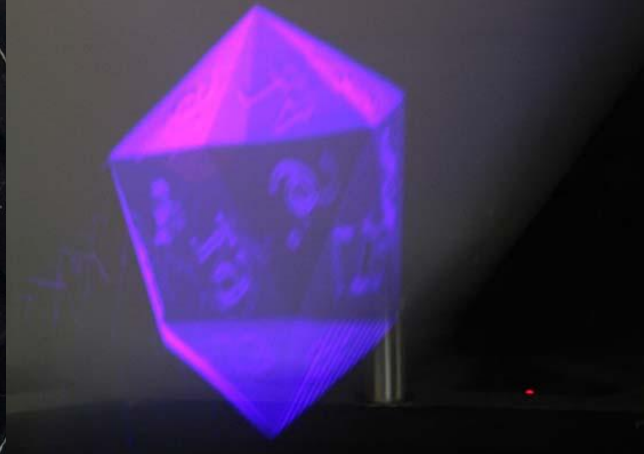
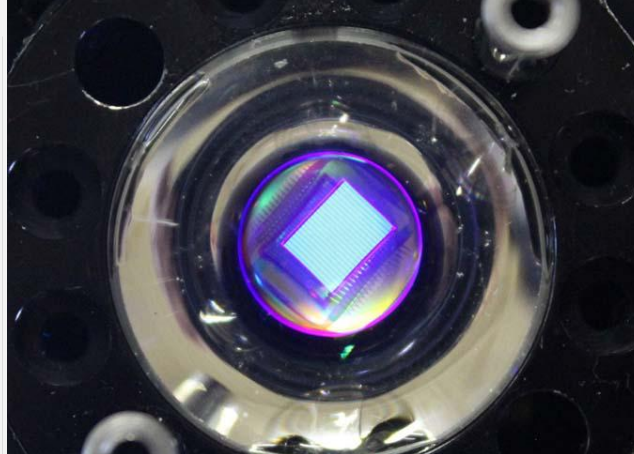
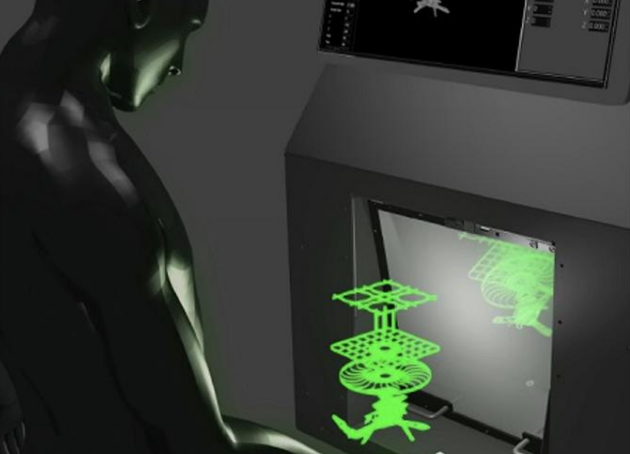
THE STORY

A Y Combinator company has developed a software and hardware platform for detecting impending collisions between a drone and other objects in the airspace. They engaged with MistyWest to develop cloud-based infrastructure to enable in-field software updates and data retrieval from their deployed devices.

Our team defined the interface between the client's in-house data management system and the cloud infrastructure, and once the architecture was complete, cloudFormation was used to deploy "infrastructure as code." We implemented a robust python client for the client's drones that interfaced with the cloud, and developed automated release flows that hooked into the build system.

OUTCOMES

- Infrastructure involved AWS IoT, S3 for storage, Lambda for compute, ECR for their application's Docker registry, and IAM for security and access
- API gateway for interfacing with Iris' Data Management System
- The client has successfully integrated the infrastructure into their system. They are reliably using it to perform their device registration and interact with drones in the field



WHO WE WORK WITH

Ideation

Prototyping

EXPERTISE

ELECTRICAL ENGINEERING
FIRMWARE ENGINEERING
MECHANICAL DESIGN
HARDWARE QUALITY
ASSURANCE

Intel Labs

Novel Volumetric Display

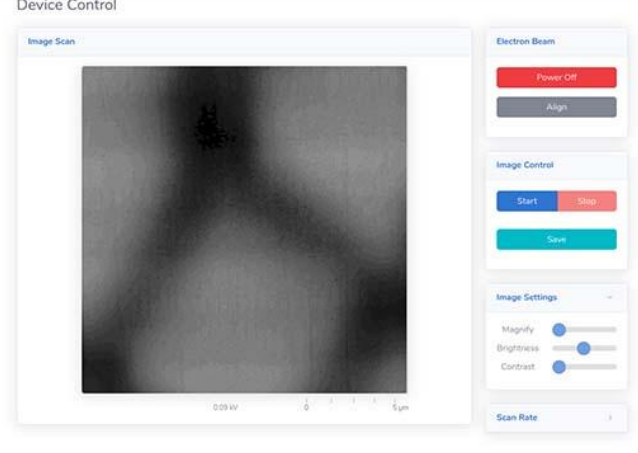
THE STORY

MistyWest used a novel approach to software, hardware, and mechanical integration to develop a fully functional, first-of-its-kind prototype of a volumetric display that does not require user-wearable goggles or glasses, and to research new possibilities in human-object interaction.

We used fundamental research, experimentation, and prototyping to first determine if what Intel Labs was requesting was even possible, then to test various elements of the imaging stack, address latency and synchronization issues, and improve image brightness, field, and focal depth.

OUTCOMES

- Exceeded original success metrics for the project, which only included proof of feasibility and not delivery a fully working prototype
- Prototype was able to display both moving and still RGB images
- Project co-presented by Intel Labs & MistyWest at SIGGRAPH 2017



WHO WE WORK WITH

Ideation

Prototyping

EXPERTISE

ELECTRICAL ENGINEERING
FIRMWARE ENGINEERING
MECHANICAL DESIGN

Confidential Client

Low-Cost Scanning Electron Microscope

THE STORY

This university research project aims to develop a scanning electron microscope (SEM) which can be significantly lower cost and more portable using a novel technique for electron beam generation leveraging a carbon nanotube forest. This technique makes it possible to greatly simplify the electron optics downstream.

The updated system avoids costly and bulky vacuum pumps by permanently sealing the electron column, and having the electron beam pass into atmosphere where the specimen is scanned by a mechanical stage.

OUTCOMES

- Replaced manually controlled components with digitally controlled ones using a web interface
- Developed a web application to interface with the new electrical system to deliver real-time, low latency image processing and enable wireless control of the device



WHO WE WORK WITH

Ideation

Prototyping

EXPERTISE

ELECTRICAL ENGINEERING
FIRMWARE ENGINEERING
RF ENGINEERING

Confidential Client

Smart Ski Grip

THE STORY

Our client, who is developing a set of cross-country ski pole grips that can track skiers' form and performance, had an initial electrical design but were experiencing issues both with electrical and firmware design. They approached MistyWest for ground-up firmware development and electrical design support.

The first phase of this project was System Architecture, creating a freeRTOS-based platform and developing drivers for sensors. The second phase of development was System Optimization, and developing additional features for field testing. The third phase included implementing on device storage for all captured data.

OUTCOMES

- Complete Firmware Development
- Design Support for Hardware Design
- Optimized Bluetooth usage for higher data throughput for data streaming as it's captured
- System Architecture Design allowing system scaling as features and requirements are added
- Complete System Testing, to provide analytics on performance system-wide



WHO WE WORK WITH

Neurio

Energy Monitor Enclosure

THE STORY

MistyWest was approached by Neurio to help design an enclosure for a new cost-reduced version of their current sensor, with a separate mounting bracket for ease of installation.

EXPERTISE

MECHANICAL DESIGN
INDUSTRIAL DESIGN

An industrial design phase explored the overall design intent of the product, and our team worked closely with Neurio to define the requirements for this project. The mechanical design considered manufacturability of the parts, as well as robustness to survive drop and impact testing. 3D printed parts were created to check aesthetics, and Vacuum Cast prototypes were created to test fit, form and function, before moving to injection molded parts.

OUTCOMES

- Developed an enclosure to house the electronics circuit board to meet client requirements
- Delivered low-volume prototype parts to check fit, form and function
- Delivered full design package for injection molded production parts
- Device survives drop test and steel ball impact testing
- Injection molded parts in production

Neurio

Clip-on Current Transformer

Ideation

Prototyping

EXPERTISE

MECHANICAL ENGINEERING
DESIGN FOR MANUFACTURE
ASSEMBLY

THE PROBLEM

Neurio approached MistyWest with a novel clip-on current transformer design that would significantly simplify the installation process with their current Energy Monitor Devices.

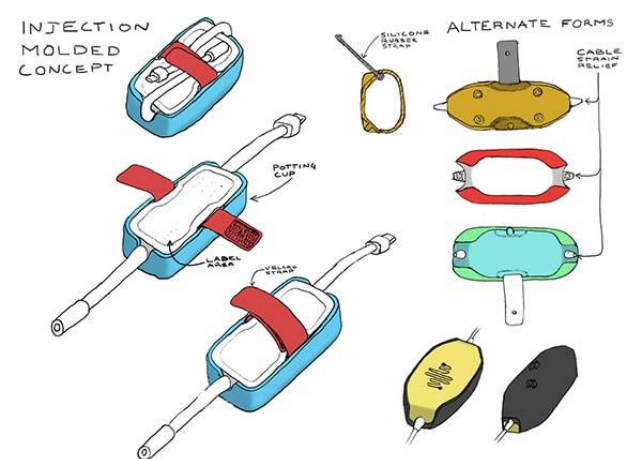
THE SOLUTION

From initial concept through multiple iterations, the many requirements for size, shape, fit, function, installation, materials, manufacturing and assembly, certification, and reliability were used to drive the design. 3D printed prototypes were used to define the shape that could be installed in almost every conceivable configuration, from which an iterative design process was used to create an enclosure that achieved all the functional specifications of the product.

OUTCOMES

- Created a fully functional universal current transformer design to meet client requirements
- Delivered a full design package for volume manufacturing
- Device passed UL certification
- Product is currently in production





WHO WE WORK WITH

Aeri Health

Multi-Sensor Medical Diagnostic Platform

Ideation

Prototyping

Productionization

EXPERTISE

ELECTRICAL ENGINEERING
FIRMWARE ENGINEERING
MECHANICAL DESIGN

THE STORY

Aeri Health approached MistyWest to expand upon previous work our team had done to bring their Cagiva pulse-oximeter product to market.

MistyWest had already successfully researched, designed, and fabricated 3000 units of the Cagiva pulse-oximeter in a 16 week timeline. Next, we integrated a new MCU into the PCB design and optimized for volume manufacture, including injection mold design of plastics.

OUTCOMES

- Design performed under ISO 13485 standards for medical devices
- Included all QMS documentation related to ISO 13485
- Delivered first functional prototypes for testing and validation

Let's make impact.

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