



2020 AlphaLab Gear Hardware Cup: U.S and International Finalists & Semifinalists

Companies & Descriptions

If you would like to connect with one or more of these companies directly rather than via the website provided, please email Hardware Cup Coordinator Leah Simoncelli at leah@alphalabgear.org

Hardware Cup U.S. Finalists

[Altis Biosystems](#) South (Chapel Hill, NC) - Altis has a stem cell platform that creates normal human intestinal tissue, in a high-throughput format, for drug screening and microbiome research for pharmaceutical and biotechnology companies. Their goal is to reduce the time and cost of drug discovery with a platform that more accurately reflects native human biology and reduce the need for animal testing.

[Flux Marine, Ltd.](#) North East (Boston, MA) - Flux Marine designs, manufactures and markets zero emissions electric boat motors to offer a sustainable alternative to the marine market.

[Inductive Intelligence](#) Midwest (Grand Rapids, MI) - Inductive Intelligence is the leader in smart inductive technology, and they deliver more convenient, controlled, safe and sustainable heating experiences for consumers and the brands that serve them. Their initial go to market product is a wireless phone charger that will also safely heat single serve packages and smart vessels like temperature controlled coffee mugs and bowls. They're not, however, just a product. They're a platform for more convenient, controlled, safe and sustainable heating and cooking in the kitchen, at your desk, in your dorm, in restaurants, and even in military applications. They also collect data with every use, delivering data for better consumer experiences and interactions.

[JuneBrain Inc](#) East Coast (Rockville, MD) - JuneBrain is dedicated to improving disease monitoring in patients with multiple sclerosis (MS): a debilitating chronic inflammatory disease affecting nearly 1 million people in the United States. They are developing a wearable retinal imaging device + SaaS platform for patient use at home that detects changes in MS disease activity and allows neurologists to remotely track disease flare-ups and patient responses to treatment between clinical visits.

***Hardware Cup Grand Prize Winner**

[NanoThings](#) West Coast (New York, NY): NanoThings is a "source to store" traceability platform for the supply chain industry. They invented an ultra long range disposable smart label that we've named the NanoTag. It's the first connected sensor to enable autonomous item level tracking throughout the supply chain.

[Showcase Insights](#) Wildcard (Philadelphia, PA): SHOWCASE is a market-research focused vending machine network. They serve as a platform for brands to exchange products for insights. For consumers, that means they can get anything they want from the vending machine for free, as long as they commit to giving quick feedback (in the form of a short survey) on whatever they take. They leverage the physical footprint of vending machines to intercept and reach a previously unreachable consumer, to gather valuable in-moment product feedback.

[Trek Gum](#) Mid-Atlantic (Pittsburgh, PA)- Trek Gum is a biodegradable chewing gum that cleans teeth on the go. They're allowing users to maintain their oral hygiene anywhere at any time in a more convenient, efficient, and sustainable way.

Hardware Cup International Finalists

[AC Biode](#) - (Japan finalist) AC Biode is developing the world's first standalone alternating current (AC) battery using a 'biode', which has both the characteristics of an anode and a cathode. The AC battery is more efficient, safer and about 30 per cent more compact than regular batteries, which use direct current (DC).

[BPM](#)- (China finalist; based in South Korea) BPM's first product, Run-Up, is a wearable audio device headband. With its dynamic transducing system, it makes your movement freer and activities safer.

[Creation Energy](#)- (West Africa finalist; based in Nigeria) Creation Energy has developed an energy-driven homemade technology to solve power problems in rural communities using cassava effluent. The product is totally made from local materials and is eco-friendly.

[Motion2AI](#) (South Korea finalist) offers AI-based services for warehouse fleet management, monitoring, and autonomy. The provided ecosystem supports manned labor and robots seamlessly, providing applicable yet scalable solutions to warehouse sites.

Hardware Cup Regional Semifinalists

East Coast Regional Semifinalists

[Applied Impact Robotics](#) - Applied Impact Robotics is a start-up robotics company that is developing an automated, robotic solution to inspect the floor of above ground crude oil holding tanks. The floor of these tanks have as much as 10' of sludge and sediment and our solution is unique in its ability to operate in this environment.

[AquaSys](#) - Voted Audience Favorite

Agrology offers affordable precision agriculture guidance for growers' whole farms that fits into their existing workflows. Agrology's SHAAS system guides farmers to apply the right amount of water, fertilizer, and sprays to the right area of their farm at the right time to maximize profit and eliminate waste.

[EktoVR](#) - EKTO VR's vision is to fulfill the immersive promise of virtual reality with Traverse, an intuitive locomotion product. Motorized shoes gently oppose user motion like an invisible treadmill, transforming 10 by 10-foot physical spaces into limitless virtual worlds. EKTO VR is focused on three market segments: location-based entertainment (LBE); architecture, engineering, and construction (AEC); and simulation and training (S&T).

[Showcase Insights](#) - WILDCARD

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[Structured Monitoring Products](#) - SMP is helping vets protect pets through remote sensing innovation. The VetGuardian platform helps vets with patient surveillance by giving them an easy and more reliable way to monitor and keep surveillance on patients.

Northeast Regional Semifinalists

[Everix, Inc](#) - Voted Audience Favorite

High-performance optical filters are a building block of 21st century technology, and Everix is the only company with a disruptive platform for economically producing high-value, precision filters at scale. Their patented approach to manufacturing filters will replace the traditional vacuum coating process.

[Labby, Inc.](#) - Labby is a data company that is combining optical sensing with AI to help dairy farms become more profitable through real-time milk analysis. They are transforming the way milk is tested and helping farms increase operational efficiency through real time data.

[OSD](#) - OSD developed a pocket-sized healthcare device that measures, analyzes and reports timely and accurate health data, along with customized exercise and nutrition guides via mobile app to unmask the new you.

[Sensatek Propulsion Technology](#) - Maintaining gas turbine engines is costly. Sensatek helps by providing an On-Blade Health Monitoring System; a high-temperature wireless sensor and antenna for advanced diagnostics and instrumentation engineers of gas turbine engine manufacturers that are worrying if they are getting correct data on life limiting components.

[TROES](#) - TROES Corp. is an advanced Battery Energy Storage Systems (BESS) company specializing in distributed Energy Storage technology and solutions. TROES develops, manufactures and delivers IIoT based and AI-driven smart battery energy storage systems.

Mid-Atlantic Regional Semifinalists

[Axis Labs](#) - AXIS is a smart device to motorize existing installed window shades. Users can control their shades from our smartphone app, on-the-device, or connect it to home automation platforms such as Samsung SmartThings or Amazon Alexa. AXIS can automate the shades based on sensors and weather data as well.

[Backseet Buddy](#) - Backseet Buddy is a patented, innovative child seat lifesaving technology comprised of a device and mobile app that helps busy parents remember that their child is traveling with them.

[Freedom Gateway](#) - Freedom Gateway operates and manufactures Bitcoin ATM machines. The machines allow individuals to insert cash and receive bitcoin in their mobile wallet instantly.

[Meztech Medical](#) - The vision of this company is to improve both the way healthcare providers practice medicine as well as improve patient safety and outcomes.

[MoJoe Brewing](#) - We believe humans are better with coffee. To make brewing more convenient, we invented a portable coffee maker. Add any temperature water, your own coffee or our disposable capsules, power up, and brew coffee anywhere.

[Prolivio](#) – Prolivio creates fashion forward, comfortable, cooling headbands which relieve pain symptoms for migraine sufferers.

[Relavo](#) - **Voted Audience Favorite**

Relavo is a medical device company addressing shortcomings in home-based treatment systems such as peritoneal dialysis (PD), a form of treatment for kidney failure. Our technology, the PeritoneX, is specifically designed to reduce the risk of infection associated with home PD.

[SmartSlumber](#) - SmartSlumber's debut product is our Smart Pillow, an adaptive pillow that responds to how a user shifts while asleep and keeps them in the optimal position. We plan to begin work on our Smart Blanket and connect this with the Smart Pillow to create a comprehensive sleep system.

[Thrivo](#) - Thrivo is transforming the salon hair color industry by moving salons away from their manual 70 year old process for hair color mixing that causes tremendous waste and onto an easy to use advanced software enabled robotic platform that eliminates this waste and makes hair color significant more environmentally friendly. Not only does this system benefit salons and the environment, but also clients as the Thrivo system will ensure customers receive a consistent color result on each visit.

Southern Regional Semifinalists

[Cell X Technologies](#) - The mission of Cell X Technologies is to enable the transformation of stem and progenitor cell biology into safe, effective, standardized and affordable diagnostic and therapeutic procedures.

[Induction Food Systems](#)- IFS builds and sells food processing equipment to food & beverage manufacturers using its proprietary 'middle-out' heating platform (that they first developed for NASA).

[Inirv Labs](#) - **Voted Audience Favorite**

Inirv is building smart devices that help you to cook safely and effortlessly at home. Their first product turns your stove into a smart one in just minutes by replacing existing stove knobs with Inirv's smart ones.

[Intake](#) - Intake makes it easy to turn impactful lifestyle changes into new habits. They do this by connecting your lifestyle choices to their health impacts in real-time so you can measure and track changes to stay motivated and to hold yourself accountable.

[Kalia Health](#) - Kalia Health is a biotechnology startup dedicated to improving maternal health outcomes through early detection of complications such as preeclampsia (PE)

and eclampsia. Their goal is to increase individual awareness about developing complications with affordable, simple, and accurate tools so that women can take control of their own health.

Midwest Regional Semifinalists

Alerje - Voted Audience Favorite

Alerje is building an Internet of Medical Treatment enabled smartphone case that holds a redesigned epinephrine auto-injector (EAI). When the device is removed to be used during a food allergy emergency, a CareCircle (including 911 dispatchers, parents, spouses, etc.) is alerted of the incident, including location information. This “Treatment x Lifestyle” approach also includes a mobile app that’s designed to improve patient behavior and adherence.

Autobon AI- Autobon AI provides shippers with the safest, most efficient, and most advanced transport service through a network of dedicated fleet partners. They build in-house retrofittable technology that supercharges their fleets. Their in-house autopilot platform is designed to retrofit and upgrade each existing vehicle in their fleet network, allowing them to continuously lower the both cost per mile for shippers and overall emissions of transporting valuable goods.

CareBand - CareBand is looking to reimagine life with dementia through a LoRa-based wearable that tracks real-time indoor and outdoor location, provides socio-behavioral indicators of disease progression, and presents Artificial Intelligence-based analysis of activity patterns to help identify early changes in health condition.

Pivot Materials - Pivot manufactures bio-materials using agricultural biomass. They make sustainable bio-materials which are lightweight, safer and stronger by incorporating natural fibers, like bamboo and rice hulls, into traditional plastics (like PP, bio-resins, PLA). Their products are currently being used in the packaging, consumer products, and automotive industries.

Xena Workwear - Xena designs and manufactures stylish steel toes and apparel so that professional women can express their true personality and feel confident in any role. Xena has a mission of empowering women in STEM and the trades to lead by example and become role-models for the next generation of girls considering non-traditional careers.

West Coast Regional Semifinalists

Augmented Sense Technology - Augmented Sense Technologies develops systems that augment your natural senses with 360-degree haptic and audio cues that classify and pinpoint threats you could not otherwise see or hear. We do this by adapting

assisted driving technologies to the most vulnerable users of the transportation system – cyclists, scooter riders, pedestrians and those confined to a wheelchair. The emergence of low-power machine vision and a re-imagining of the user interface provides not only augmented threat awareness but also smartphone access, all provided seamlessly without looking at or touching anything so focus can be maintained on what's ahead.

[Fitly](#)- SmartPlate is the world's first patented, Intelligent Wellbeing Platform™. that helps patients and their caretakers "automatically" weigh and track their food intake with extreme precision and personalization in a few seconds.

[Red Leader Technologies](#) - **Voted Audience Favorite**

Red Leader is building high-definition software-defined lidar systems for 3D mapping with applications in autonomous vehicles. Compared to existing technologies, Red Leader's patented, lidar system increases image resolution and detection ranges by 10x and 5x respectively, these improvements are the difference between one and six seconds of braking time or between crashing and not crashing. The technology also improves manufacturability by integrating widely used components for laser products found in mobile phones and fibre optic communication devices.

[Takachar](#) - Currently, it is very difficult to gather crop and forest waste and process this into biofuels, fertilizers, or chemicals, because biomass is very loose, wet, bulky, and distributed in rural areas. Such waste is often burned in the open, which creates pollution and no economic value to farmers or forested landowners. By building small-scale, portable systems that can be latched onto the back of tractors and pick-up trucks, we can densify and upgrade rural biomass on site, thereby cutting down the transportation cost to downstream refineries or power plants, and dramatically increasing the amount of biomass economically converted into useful products.

[WorldTrack](#) - WorldTrack believes in the power of optimising the user experience when someone shops. Their approach reflects the use of sensors in store in a scalable way, leveraging proven big data methods to transform consumer data into predictive insights. A process is done here similar to "cookie syncing", where they match and link online and offline data collected together, allowing them to identify and follow up with anonymous visitors.