

QualTracker - "Next-Gen" Easy to use, Freshwater Quality Tracker to measure freshwater quality fast and accurately

Problem Statement: In 2012, consumers in the United States spent an estimated \$82.6 billion on seafood, making the U.S. one of the top three seafood markets worldwide. Yet the domestic farm value of aquaculture products only approaches \$1.3 billion annually. Thus, much of the U.S. demand is supplied by international imports. Consumer demand for fish continues to climb, especially in affluent nations, which in 2014 imported 63% of all fish products. Global consumption of seafood has increased by 21% since 1991. But levels of fish catches in the wild have remained roughly stable since the mid-1990s, close to 90-93 million tons annually; increasing reliance on aquaculture. And it's not just about seafood; fish is an ingredient in pet food, health supplements, fishmeal and many non-food products manufactured on a global scale. The UN predicts another 2 billion people will join the world's population within 20 years. Add to this the surge in consumption that is expected as the world's emerging economies develop and expand, and it is clear that pressure on seafood resources will increase. One of the barriers preventing aquaculture production facilities from helping to reduce dependence on wild caught seafood is the lack of an affordable multi-parameter water quality probe.

Opportunity: The export value of world trade in fish exceeded US \$148 billion in 2016. Aquaculture is an important process to enhance commercial and recreational fisheries, and to restore threatened and endangered species and habitats. For developing countries fish net-export value is higher than that of rice, coffee, sugar and tea combined. 12% of the world's population relies on fisheries and aquaculture for their livelihoods. Fish exports are a valuable source of foreign exchange for many developing countries, which export more than they import. As worldwide aquaculture demand increases, additional strains will be placed on aquaculture systems to support more fish in smaller spaces, reducing water quality. Water quality monitoring is the single most important factor in determining aquaculture production potential. **QualTracker** is the only fish culture specific, multi-parameter, affordable, and compact water quality tracker on the market today. It can evaluate all pertinent fish health variables including: temperature, dissolved oxygen, pH, turbidity, specific conductivity, ammonia, nitrates, and phosphates. The market for traditional water monitoring kits is a multi million dollar business.

How it works: The sensors inside **QualTracker** keep constant track of water quality parameters and send the data to your mobile phone via Bluetooth Low Energy (LE). The **QualTracker** mobile app is free and available for iOS9 and Android 4.3+ smartphones with Bluetooth LE support. Alarms can also be easily configured to interface with commercially available system alarms to notify offsite staff of any potential issues. **QualTracker** is designed to replace expensive and cumbersome water quality monitors and test kits with a low-cost and user friendly alternative, ideal for newcomers to the burgeoning aquaculture industry.

Your Challenge: Create a **QualTracker** design and basic physical prototype to illustrate a solution to track water quality parameters. It must be simple to use and can provide the real time information, operational interface and security that the consumer needs. Identify why the data collected is useful and beneficial beyond personal use and how that might strengthen the TNACI strategy for dramatically improving freshwater quality around the world.

Objectives:

- Build upon freshwater research to create an affordable, convenient & effective next generation, universal water quality monitoring system.
- Utilize the huge database of already collected data on freshwater water quality around the globe
- Make the most value out of the real-time water quality data collected by the **QualTracker**, an easy to use, go anywhere device
- Decide if your business model will be based on profit from **QualTracker** sales or will it be generated from data-driven services

Constraints:

- You must utilize the cloud to connect all items for storing data and making distance operation possible and secure.
- Prototype testing of your product must be ready by end of 2017

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Outcomes and deliverables your team is responsible for on competition day

1. **Product Design and Biz Pitch Deck:** Product innovation and biz strategy. Include a short demonstration of your product “experience” to the judges as if they were a customer.
2. **Product Prototype/Simulation and Rendering:** Customer centric product design illustration and prototype that showcases best product features to drive customer engagement and satisfaction. Describe how your new product “disrupts” the current products on the market
3. **Business plan document:** An executive summary, product illustration & description of your product, the target consumer, features, advantages and benefits, a competitive analysis and points of differentiation for the product, and specific marketing tactics to drive sales.

Included in your business plan and product pitch

- Marketing tagline with an optional jingle, viral video and a marketing and sales promotion strategy.
- Competitive analysis, to include the features, advantages & benefits (FAB's) which make your product more affordable, convenient and effective (ACE) than others in the market.
- A competitive pricing plan including the “cost of goods”, marketing, distribution, and the expected return on investment (ROI). If retail, account for retailer margins.
© A plan for distribution of the water monitoring device to your target customer. Identify consumer market and geographic locations where your product would have greatest viability as well as any companies that might be interested in marketing & strategic partnerships.
- Customer input and feedback on your proposed product that you used to inform your product innovation.
- Customer user feedback once in the marketplace.
- Plan to drive universal acceptance and disruption of traditional product (test kits) and market assumptions as they are held today.
- Include any research to back up your claims.