

Barnacle Systems



Wireless Boat Monitoring Gives Owners Peace-of-Mind

The company set out to develop a product that could provide both security and monitoring for boat owners. This included using sensors to monitor the boat's critical systems and wireless security sensors.

QUICKFACTS

Company

Barnacle Systems Inc.
www.brnkl.io

Customer Profile

Founded in 2017, Barnacle Systems Inc. is an award-winning manufacturer of boat security and monitoring products. Headquartered in Victoria BC, the company's products protect recreational, military and industrial vessels around the world.

Objectives

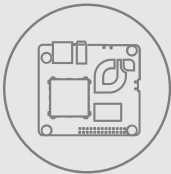
Barnacle Systems wanted to develop a solution that would give boat owners peace of mind whether they were at the dock, at home, or half-way around the world. They wanted to know if someone had stepped onboard their vessel or if any of the critical systems required attention.

Results

Barnacle Systems has developed a product line, BRNKL, that integrates global cellular connectivity and a cloud service to provide customers with information about their boat at their fingertips. The solution has been deployed in over thirty countries and the company has been named one of the top ten most innovative companies in the marine industry.

Sierra Wireless Products and Services

- WP8548, Enhanced Carrier Connectivity, mangOH Red



“ mangOH Red made it really simple for us to prototype and test our design which ultimately made the whole development process faster and easier than it would have been otherwise. With Sierra’s connectivity services, our customers can take the product, install it and be assured that they’ll get service wherever they travel.

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Darren Beckwith,
Director of Engineering,
Barnacle Systems

BACKGROUND

Founded in 2017, Barnacle Systems Inc. is an award-winning manufacturer of boat security and monitoring products. Headquartered in Victoria BC, the company’s products protect recreational, military and industrial vessels around the world.

CHALLENGE

In 2017, Brandon Wright’s 27 foot sailboat broke its moorage and floated to shore in the middle of a winter night. With help from his father, the two were able to secure the vessel safely, but it could easily have been destroyed. Following the episode, Brandon went in search of a solution that would alert him in the event that the boat broke moorage again. He imagined a hardware solution that would allow him to define a “geofence” and be alerted if the vessel moved outside that area.

His search didn’t expose a viable solution, so with a deep understanding of IoT and remote surveillance, Barnacle Systems was born.

The team wanted to build a product that would give boat-owners piece-of-mind – no need to wonder if a vessel had moved, been boarded, or was being damaged on a dock. They went further though, giving owners knowledge of onboard systems critical to operations.

The company set out to develop a product that could monitor a boat’s location and movement (e.g. to alert if someone came onboard) as well as sensors to monitor hatch being opened.

SOLUTION

The Barnacle Systems team met Sierra Wireless at an event and learned about mangOH Red – an open source hardware platform designed for low-power IoT use-cases in a smaller, lower-cost form factor. From idea to prototype to production, mangOH Red provides an industrial-grade, sensor-to-cloud platform for building wireless IoT solutions. With its knowledge of IoT, the team began gathering user requirements and developing prototypes.

The company selected the Sierra Wireless WP8548 embedded module and created a solution that is installed onboard and sends data to the company’s cloud platform.

“ Sierra Wireless has been a great partner and the team has been really helpful through our development of the product. As the cellular landscape continues to evolve, we’re now looking at upgrading to a new module for our next generation products. ”



Darren Beckwith, *Director of Engineering, Barnacle Systems*



Customers can access data via an app and set up geofences and thresholds to be alerted of changes in status. Barnacle Systems also added Sierra Wireless connectivity services to its solution to simplify deployment for its customers.

“mangOH Red made it really simple for us to prototype and test our design which ultimately made the whole development process faster and easier than it would have been otherwise,” said Darren Beckwith, Director of Engineering, Barnacle Systems. “Once we had the prototype built it was straight-forward to add the module and make the product real. With Sierra’s connectivity services, our customers can take the product, install it and be assured that they’ll get service wherever they travel.”

RESULTS

Barnacle launched its first product in 2018. The company’s product gives boat owners information about:

- **Location and movement:** Customers can mark a vessel’s position, set up a geofence and be alerted if the location changes (e.g. theft, anchor drag).
- **Unauthorized boarding/obstructions:** An accelerometer enables an owner to tell if the vessel’s movements are out of the ordinary (for example in the case of unauthorized boarding or banging into an obstruction) as well as pitch and heel.
- **Critical systems:** The product can monitor up to 4 battery banks, 1 bilge input, 1 shore power input, 4 digital inputs and control 2 relay outputs. The cabin temperature, barometric pressure and humidity are also monitored
- **Access and egress:** Wireless sensors can be set up to monitor opening/closing of windows/hatches
- **Environment:** Wireless sensors can be set up to report cabin temperature, barometric pressure and humidity

Besides being notified by the company’s cloud app, the product allows for 2 outputs which could trigger local lights or sirens. The product also includes still cameras which can be set up to capture images following an alert. This capability recently helped law enforcement charge a suspect in the attempted theft of a vessel in Europe.



The company's products have been deployed on both private and commercial vessels in over 30 countries including around the Pacific, Atlantic and Indian Oceans "More and more jurisdictions are requiring boat owners to have a system like ours onboard their vessels," explained Mr Beckwith. "Theft in some places, especially pronounced during COVID, is forcing owners to seek solutions that can give them assurance when they can't visit their vessels regularly. People are hunkered down, so having on-board security and monitoring means they can rest easy if they can't visit the marina."

"Sierra Wireless has been a great partner and the team has been really helpful through our development of the product," explained Mr Beckwith. "As the cellular landscape continues to evolve, we're now looking at upgrading to a new module for our next generation products."

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About Sierra Wireless

Sierra Wireless (NASDAQ: SWIR) (TSX: SW) is the leading IoT solutions provider that combines devices, network and software to unlock value in the connected economy. Companies globally are adopting IoT to improve operational efficiency, create better customer experiences, improve their business models and create new revenue streams. Whether it's a solution to help a business securely connect edge devices to the cloud, or a software/API solution to help manage processes associated with billions of connected assets, or a platform to extract real-time data to make the best business decisions, Sierra Wireless will work with you to create the right industry-specific solution for your next IoT endeavor. Sierra Wireless has more than 1,300 employees globally and operates R&D centers in North America, Europe and Asia.

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