SqwaQ, Inc.

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SqwaQ

SqwaQ clears a runway for flight administration of unmanned aerial assets with Sierra Wireless

With the Sierra Wireless EM series module and Smart Connectivity, SqwaQbox provides reliable LTE connectivity between unmanned aerial assets and ground assets.

QUICKFACTS

Company
SqwaQ, Inc.
(www.sqwaq.com)

Customer Profile
Founded by an executive team with years of experience in the aviation industry, SqwaQ is a start-up committed to solving the challenge of reliably and securely connecting manned and unmanned aerial assets and ground assets.

Objectives
SqwaQ needed to develop a robust, reliable and secure communications platform to connect unmanned aerial vehicles and ground assets and systems.

Results
- LTE module throughput enabled SqwaQ to reduce number of modules and product cost
- Redesign of product using Sierra Wireless modules accomplished in under 5 months
- Smart Connectivity offers flexibility and simplifies logistics and deployment

Sierra Wireless Products and Services
- SquaQbox with 6 AirPrime® LTE modules
- Sierra Wireless Smart Connectivity

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> **Ted Lindsley**,
> *CEO, SqwaQ*

CHALLENGE

SqwaQ is a start-up technology company that has been spun out of Olaeris, an expert in unmanned aerial vehicles founded in 2010 with a mission of building the first unmanned aircraft that would comply with FAA regulations.

According to PwC[1] , the total addressable value of drone powered solutions in all applicable industries is estimated to be in excess of $127 billion. PwC further identifies the industry with the best prospects for applications to be in infrastructure (e.g. energy, roads, railways and oil and gas), where the total addressable market is estimated to be over $45 billion.

According to the Federal Aviation Administration, there are just over 10,000 manned commercial flights per day in the U.S. By 2024, they estimate that there will be an additional 20,000-30,000 unmanned commercial flights per day in the U.S.

While drones have gained popularity for business applications, a key impediment to wider use is the BVLOS (Beyond Visual Line of Sight) restriction. For example, oil and gas pipeline operators are mandated to do visual inspections of their infrastructure at regular intervals. They can use helicopters to do this inspection, at a cost of $1600 per hour – approximately $10 per mile. With an unmanned aerial vehicle, this testing can be accomplished for 20 cents a mile. But because of the BVLOS restriction, the drone operator has to launch the drone from a truck and move the truck and relaunch the drone every few hundred feet. If the BVLOS challenge can be resolved, a pilot could operate the drone for the whole journey from a remote location. Sixty percent of civilian helicopter operations do not require carrying passengers or cargo – so many of these flights could also be done by unmanned aerial vehicles.

SqwaQ realized earlier on that in order for this space to really open up for drones to share the airspace with commercial airlines, all the data about the flight, its path, its operating status including flight plan is going to need to be known by the Federal Aviation Administration (FAA) and by all other operators. In essence, unmanned aerial vehicle control needs to be "interleaved" with commercial air traffic control.

SqwaQ set out to build their own communications platform – the SqwaQbox - by integrating cellular connectivity to their drones to accomplish this task. When they went to a national carrier to discuss the project, the carrier told them that it would take several years and approximately $2 million to get the product certified. The carrier recommended that SqwaQ partner with Sierra Wireless and redesign using their already certified embedded modules in order to get to market faster.

SOLUTION

Sierra Wireless sent a team to SqwaQ and convinced the company they could help. Because SqwaQ had designed their own solution including the radio modules, they were happy to find out that they could expedite a redesign using Sierra's existing products.

Once the SqwaQ team identified the module they wanted to use – the AirPrime® EM7455 supporting LTE Advanced Cat-6 connectivity – they got to work on the redesign. They needed some new code, and the footprint was a little larger than the modules they had developed in-house but offered enhanced capabilities that became desirable. Because each module supports Dual SIM single standby (DSSS), the SqwaQbox enables complete diversity for all links using 12 LTE modules with 24 SIM slots. The redesign project was completed in five months.

In Europe, SqwaQ is using Sierra Wireless Smart Connectivity which enables it to deploy products across the continent without having to negotiate with network operators in each country.

RESULTS

The SqwaQbox was beta tested in the spring of 2019 in a helicopter flown over 5 states, 1000 miles and 2 ½ miles off the coast of the US. It provides a multi-redundant "fat data pipe" for communications and enables real-time transmission of uncompressed raw video from air to ground. SqwaQ is currently in discussions with a variety of organizations about manned and unmanned aviation in oil and gas, construction, emergency response, utilities, border patrol and offshore oil.

"We're testing with customers in Europe now, and we see Smart Connectivity as the way to go," said Ted Lindsley, CEO, SqwaQ. "We're getting great speed and throughout and we no longer have to worry about negotiating carrier contracts in each country. We can manage everything through a single portal, and we only have to work with one vendor."

"The Sierra Wireless team has been fantastic and we could not have asked for a better partner," says Mr. Lindsley. "From our first meeting, the Sierra Wireless team was eager to support our efforts and thanks to the throughput on each module, we were able to redesign our product quickly using only half of the modules to achieve our goals."

The SqwaQbox was publicly launched at the AUVSI tradeshow in Chicago on April 30, 2019 and the company began commercial shipments in Q4 2019. The company can provision customized 3G/4G data services on 620 carrier across 130 countries to provide a seamless MVNO experience to a wide variety of vertical markets.

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[1] "Clarity from above PwC global report on the commercial applications of drone technology." Available at: https://www.pwc.pl/pl/pdf/clarity-from-above-pwc.pdf. Accessed September 2020.

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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