

Customer Profile

Organization

For over three decades, PNI has developed precision location and motion-tracking sensors with real-world applications. PNI's PlacePod™ is an IoT-enabled vehicle detection sensor for on-street and off-street municipal and private parking management.



Challenge

Leverage decades of expertise in magnetic sensing and motion tracking to compete in the IoT market, establishing PlacePod as a comprehensive smart parking solution for cities, corporate campuses, and universities.

Solution

The machineQ IoT platform provides secure, reliable, and trusted IoT connectivity capable of supporting tens of thousands of parking sensors even in dense urban environments and hard to reach places, like underground parking garages.

Success

Instead of spending time educating customers on LoRa technology and deploying individual networks for each project, PNI now focuses on building exceptional sensors that solve daily challenges for smart cities around the world. The machineQ platform does the rest enabling PNI to deliver superior smart parking solutions at competitive prices.

PNI SMART PARKING

With more than 30 years of experience in magnetic sensing, precision location, and motion tracking, PNI Sensor is one of the world's foremost experts in high-accuracy sensor technology. When the organization entered the Internet of Things (IoT) space with PlacePod®—a smart parking solution—PNI saw the potential to leverage Comcast's machineQ™ IoT platform to build not only a world-class vehicle detection sensor, but also a complete solution designed for the smart cities of the future.

Having modern and efficient parking infrastructure is central to a growing number of civic redevelopment programs—and many other use cases as well—putting PNI on the crest of a rising wave. In addition to Smart Cities, the company is penetrating immense and growing markets on university campuses, at stadiums and public venues, as well as at hospitals, airports, train depots, and other types of parking facilities. In North America, PlacePod is deployed from San Francisco to Vancouver to Montréal, where the rugged devices share real-time information about open and occupied parking spaces with residents, visitors, and government services alike, enabling public and private entities to make data-driven decisions that reduce traffic and carbon emissions, increase parking revenue, and stimulate economic growth by improving parking space turnover.

“MachineQ was the right partner to help us go to market, and they came along at exactly the right time,” says Robin Stoecker, PNI's Director of Marketing. “Our partnership allows us to focus on what we do best—building exceptional sensor technology and solving our customers' parking problems—without worrying about the logistics and complexities of managing an IoT infrastructure.”

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Benefits of machineQ Technology



Connect

Deliver long range, low power wireless connectivity with LoRa™, a global standard for enterprise-grade IoT communication



Secure

Utilize end-to-end security capabilities that exceed industry best practices



Source

Deploy best-in-class, preconfigured machineQ gateways via an easy-to-use storefront



Activate

Leverage a streamlined, end-to-end onboarding experience for gateways and devices



Scale

Expand effortlessly with an enterprise-class SaaS solution that supports millions of edge devices



Manage

Monitor devices and gateways via cloud-based provisioning and management software

“Teaming up with machineQ allowed us to effortlessly deploy new dedicated networks via pre-configured machineQ gateways—all under the strength of the Comcast brand. Our customers don’t have to worry about connectivity, data transmission, scalability and many other important IoT details, and we can focus on solving their parking pain points.”

– Robin Stoecker, Director of Marketing at PNI

IoT Technology Solves a Variety of Persistent Problems

In some urban areas, drivers can spend more than 20 minutes per trip looking for parking. All of that circling accounts for up to 30 percent of unnecessary city traffic, compounded by wasted time, and excessive vehicle emissions. When motorists lack parking options their behavior has an adverse effect on other city services as well. For example, they may park in bus lanes, forcing bus drivers to let off passengers in right-of-way lanes, jeopardizing rider safety and exacerbating traffic congestion. Other motorists park in loading areas, or even in handicapped spaces, causing additional problems.

PlacePods equip parking spots with low-power smart sensors that detect whether a space is open or occupied. They transmit real-time data through machineQ’s fully integrated LoRa® IoT gateways to the cloud. PNI makes the data available to customers through its Parking Cloud web interface and via APIs to third-party applications that advertise available parking spaces, enable motorists to pay for parking, and help local authorities with remote parking enforcement.

“We are not network platform providers,” says Stoecker. “Teaming up with machineQ allowed us to effortlessly deploy new dedicated networks via pre-configured machineQ gateways—all under the strength of the Comcast brand. Our customers don’t have to worry about connectivity, data transmission, scalability and many other important IoT details, and we can focus on solving their parking pain points.”

PNI’s in-ground or surface-mounted smart parking sensors communicate with a wireless LoRa gateway to provide real-time parking data, including accurate vehicle detection in parking spaces. The batteries last 10 years and the sensors are stable even with dramatic temperature fluctuations and in harsh environments.

For example, the City of El Monte, California installed PNI PlacePods in downtown parking lots to notify drivers about open parking spaces. The sensors are connected to a dedicated LoRa based IoT network platform from machineQ. Real-time parking data is relayed to digital signs to notify drivers about available spaces and make it more convenient for customers to park at local businesses. Stoecker says the smart parking project is a cornerstone of the city’s revitalization project, and illustrates a coming wave of new economic development.

Unlike other smart parking options, PlacePod’s highly accurate IoT sensors filter out interference from trains and passing traffic to identify available parking spots, even in dense urban environments. End-to-end AES128 encryption makes the system and data highly resistant to cyberattacks, and the LoRa-based sensors use 10 times less power than other 32-bit processors. PlacePod sensors can function for up to 10 years—thanks in part to machineQ’s highly efficient LoRa wireless connectivity, a globally-approved standard designed specifically for battery-operated and power-constrained IoT devices. “We were attracted to the whole LoRa ecosystem, especially the muscle that’s being put behind the movement with the LoRa Alliance,” Stoecker notes.

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Benefits of machineQ Technology



Knowledge

Streamline development and get new IoT solutions to market fast with our optimized LoRaWAN device stack



Standards-Based

Increase interoperability and simplify adoption with an open architecture, based on global IoT standards



APIs

Simplify application integration and maximize interoperability with easy-to-use APIs



Develop

Jump-start your IoT journey with access to several leading development kits



Global Ecosystem

Join a growing community of IoT solution providers



Tools and Resources

Enrich your IoT solutions with our cloud-based tools, and tap our LoRa technology experts for assistance

MachineQ's LoRa gateway coverage can penetrate hard to reach places like underground garages. A single LoRa-enabled gateway provides broad signal propagation and can transmit millions of messages per day, ensuring that PNI can scale effortlessly and support even the largest metropolitan areas.

"LoRa technology creates an affordable, simplified network that is easy to manage and helps preserve the battery life of our devices," Stoecker continues. "In the beginning, we had to educate partners on what LoRa technology is and what you can do with the network. Having a secure, reliable, trusted IoT management platform in place through machineQ makes it easier to go to market and ensure a great customer experience and successful customer deployments. We can focus on our sensor technology business and let machineQ deal with the rest."

Versatile Network Powers Multiple Applications

Smart cities that partner with organizations like PNI are making informed, data-driven decisions about their core services, leading to safer, more efficient, and more prosperous cities. "The benefits of PlacePod go beyond parking," says Stoecker. "When PlacePod's parking data is shared with other services, the technology can foster new economic development and drive operational efficiency. It can play a significant role in the evolution of smart cities."

With the flexible and scalable machineQ-based IoT solution, a city, university, or other entity can start with a particular application, such as Smart Parking, and then add additional IoT solutions for waste management, traffic control, utility metering, and other services—all on the same LoRa based IoT network, and powered by the same machineQ gateways. This allows these customers to start small and build out an IoT footprint gradually. An initial investment will provide a very cost-effective and overarching communications infrastructure that can scale and power many other types of IoT solutions and devices, enabling an evolving set of services.

The potential for IoT technology is vast, and machineQ's cost-effective, enterprise-grade IoT platform, including cloud-based mQCentral management software, can easily scale and manage hundreds of thousands of devices on a single network. New pre-configured wireless gateways can be deployed on demand. MachineQ gateways are self-provisioning, so they are configured for PlacePod devices before they leave the machineQ factory. They arrive ready to drop into place, minimizing installation costs and greatly simplifying deployments while reducing field service costs.

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at PNI



PlacePod smart parking sensors communicate with a LoRa gateway to provide real-time parking data to cities, universities, hospitals, and other public and private entities.

“The machineQ business model helps us quickly prepare RFPs for new business prospects,” says Stoecker. “When we’re talking to a new customer, we can access machineQ’s mQCentral cloud management platform and great online tools to configure everything and break down the connectivity costs and device costs. It’s easy for our end-users to understand the value they are getting because, unlike cellular carriers, machineQ charges a simple, cost-effective monthly fee for unlimited devices.”

If you are ready to put the machineQ platform to work for your latest IoT applications, visit us at www.machineQ.com or email us at info@machineQ.com.



@machineQ



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