

Case Study

WellCaddie Revolutionizes Oil Well Monitoring With Particle

Executive Summary

Problem

WellCaddie needed a platform that would allow it to build a low-cost, low-hassle alternative to end-to-end SCADA systems for monitoring oil wells. While its team had familiarity with Arduino, the platform didn't offer everything required for WellCaddie to get to market quickly with a robust product.

Solution

By equipping WellCaddie with the hardware, connectivity, software, and over-the-air update capabilities needed for a remotely deployed connected product, Particle's integrated IoT Platform-as-a-Service empowered WellCaddie to enter a market dominated by large incumbents and provide a differentiated solution.

Results

WellCaddie used Particle to build a solution that simplified well data collection for a tech-skeptical market and is helping its customers see noticeable bottom-line results.

↑ 40%

Increase in well production

↓ 70%

Reduction in field service trips

↓ 80%

Reduction in engineering time

↓ 480

Reduction in data acquisition cost

The Company: WellCaddie

WellCaddie is a robotic monitoring and measuring company that automates data collection for operators in the oil and gas production industry. By automating remote data collection and equipment monitoring, WellCaddie helps oil and gas producers increase well production, reduce field service trips, lower response time to incidents, and create business value through better insights.



Getting a Connected Product to Market Quickly and Without Adding Headcount

Thanks to their backgrounds in oil and gas operation, members of the WellCaddie team understood the pain and frustration of manually monitoring remote wells.

Although most remote monitoring solutions in the oil and gas space focus on the top 20% of producers (large conglomerates like Chevron, BP, and ExxonMobil), roughly 80% of U.S. oil and gas production comes from small businesses with a few wells. Along with not being able to afford several hundred thousand dollars' worth of monitoring technology, most of these small enterprises do not have the infrastructure to support the multi-month deployment schedules and added IT headcount required to maintain such prohibitively expensive solutions.

As a result, over 800,000 of the country's oil wells remain unmonitored, and the majority of domestic oil and gas producers are stuck with an undesirable status quo consisting of:

- Expensive, time-consuming, and sometimes dangerous truck rolls to remote locations to manually verify equipment health and performance
- Slow response times to fix underperforming or broken equipment, leading to lost production and downtime
- Suboptimal well and pump efficiency

By providing a low-cost, low-hassle alternative to high-cost, end-to-end SCADA solutions, WellCaddie could build a solution to help small businesses improve efficiency and reduce costs.

Because WellCaddie's value proposition depended on its solution being easy to use and inexpensive, the underlying connectivity technology couldn't be complicated or run on costly data plans. Although the company's co-founder and CTO Caleb Atchley had experience with Arduino as a low-cost solution, he realized it wasn't suitable for the company's goals.

"I would have to write the over-the-air update functionality myself, manage the compatibility of Arduino code, and deal directly with cellular providers for connectivity," Caleb explained.

In short, Arduino wasn't practical for a small team looking to get to market quickly with a simple but powerful solution. That was when Caleb found Particle.



Particle's Integrated IoT Platform-as-a-Service Handles the Hard Parts of Connectivity

After a brief evaluation process, WellCaddie decision-makers realized that Particle was the best solution for their needs. The out-of-the-box connectivity management, integrated Platform-as-a-Service, and easy over-the-air updates made Particle the perfect solution for a remotely deployed connected product.

"We had looked at a few other IoT platforms, and we landed on Particle because they had already built everything we needed. **They allowed us to be an entrant into this market,**" said WellCaddie President Jeremy Fernandez. "Particle makes IoT available for people who would otherwise have to spend millions of dollars in R&D to get the same outcome. Most of the other solutions available would have added more overhead onto our plates."

In addition to offering the fastest path to market, Particle gave WellCaddie a way to future-proof its product and business model.

"Even at a small scale, every time you make a change to a product that's out in the field, it can cost a lot of money," Jeremy explained.

"With Particle, we could use the over-the-air updates and work with the team to make changes. We liked that Particle took the voice of the customer into account and made it easy for us to focus on our business and product, not managing connectivity"

Jeremy Fernandez
WellCaddie President



A Better Solution for an Underserved Market

Transformative Customer Outcomes

WellCaddie is already transforming its customers' businesses with its connected solutions built on Particle's Platform-as-a-Service. Now, instead of getting condition and performance data once a week or less with manual well or rig inspections, WellCaddie's customers get that data **96 times per day**.

"Our customers see three distinct levels of growth with us," Jeremy said. "One is just getting data that allows them to reduce headcount and truck rolls, which is cost savings. The second is using that data to improve decision-making processes by prioritizing maintenance efforts and preventing outages and leaks before they happen. The third is using data to optimize well production by giving engineers at smaller companies data they've never had before."

Outcomes that WellCaddie customers are able to drive with this data include:

- 10% to 40% increase in well production
- 70% reduction in field service trips
- 80% reduction in engineering time
- 480x reduction in data acquisition cost

Recently, one WellCaddie customer was able to detect a potential leak from a well that had previously caused a large spill. After receiving an early-morning alert, the customer traveled to and shut down the well before a spill occurred, **which saved their company an estimated \$250,000 in fines and cleanup costs.**

Favorable Unit Economics = Profitable Connected Product

Technology solutions providers have mostly ignored the needs of the small businesses composing more than 80% of U.S.-based oil and gas producers, resulting in a disconnect.

"Big tech providers in this space go to small business owners and tell them they have to pay \$250/month per well, plus a six-figure setup cost and months' worth of installation; if a well only profits \$25/day, there's not a practical payback period," Jeremy pointed out. "They're just getting by and the existing providers have just hung them out to dry."

Thanks to Particle's favorable cellular cost structure, WellCaddie is able to profitably provide an estimated 80% of the ongoing data that would be captured by its larger competitors—and with a payback period of two weeks and a cost that's 480 times lower to the customer, small businesses in oil and gas production are more than willing to sign up.

Faster Time to Market, Faster Time to Value

By using Particle to handle the undifferentiated work of device, connectivity, and cloud management, WellCaddie is able to ideate and launch new ideas at a much faster rate than its larger competitors.

"Someone can have an idea in the morning and we can start deploying it by the afternoon with the over-the-air updates," Jeremy said. "For new products, since Particle's hardware is ready to go, we can get a bill of materials in just a few hours."

Ultimately, Jeremy believes WellCaddie's Particle-powered products are revolutionizing his industry.

"It's the difference between using Windows and those giant IBM mainframes from the '60s," Jeremy said. "Our customers are power users of our solutions before they pay their first invoice. The value is immediate."



About Particle

Particle provides an integrated IoT Platform-as-a-Service that helps businesses connect, manage, and deploy software applications to connected devices, from edge to cloud and back. Particle powers IoT products from hundreds of businesses — from fast-growing start-ups to Fortune 100 companies — and is used by more than 240,000 developers for IoT product development. Our expertise goes beyond world-class technology, enabling next-generation business intelligence, insights, and expert customer support to make sure IoT projects succeed — so you can build the business of tomorrow, today.

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