

Liberty Pumps takes the High Ground with NightEye™ IoT Platform



INTRODUCTION

Of all the threats we face in life, water is still one of the most fundamental and pervasive. For home owners and businesses, flood control is often the first line of defense against losses due to property damage, which is why it's so important to have the right protective equipment and knowing when it needs attention is so important.

Liberty Pumps, of Bergen, NY, has been providing peace of mind to building owners and occupants for over 50 years. With over 190 employees, they make a wide range of waste-water management products for residential and commercial settings, and they've built up quite a reputation over the past half century for reliability, innovation, and ease-of-use.

For the past few years they've watched as competitors try and fail to augment their products with electronic monitoring and alerting to let users know when water is rising or a pump is failing. It's a sensible idea that can protect property and even lower insurance costs, but it only has value if people are willing to use it.

As David Williams, Engineering Manager at Liberty Pumps explains, these efforts relied on awkward user interfaces driven by conventional browsers and web pages, and lacked the ease-of-use Liberty is known for. They were also typically subscription-based, requiring users to pay a recurring fee to receive alarms. "The market showed that it was unwilling to pay a fee for less than stellar products," he relates.

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— David Williams, Engineering Manager, Liberty Pumps

BUILDING A PLATFORM OVER A FLOOD OF INNOVATION

So when Liberty Pumps set out to develop a modern alarm system, they embraced the potential of the Internet of Things (IoT) and cloud computing to envision a truly forward-looking solution. "We knew IoT couldn't be ignored, and we wanted to get ahead of the

competition with a modern, mobile solution," recalls Caleb Peterson, a product development engineer at Liberty Pumps. Although they chose to start with monitoring standalone high water alarms and backup sump pump systems, they also saw this foray into IoT as the first of

many initiatives that would see functionality grow and spread to other products, so they were clear from the outset that they wanted to develop a platform, not just a product.

For example, the new NightEye™ enabled StormCell™ DC Battery powered back-up system will monitor and alert about conditions such as power failures and blown fuses, high water and low batteries, and even ambient room temperature. Since all this data is stored in the cloud, Liberty Pumps will be able to perform sophisticated data analysis to gain new business insights. They'll know, for instance, how frequently power outages occur in a particular area, and how they correlate with

severe weather events, high water and battery alerts. This could help them better target specific regions with new pumps featuring higher capacity batteries or other advances, and to better advise resellers on the best fit for their situations. And now they can build direct relationships with end users that they never had selling exclusively through plumbing suppliers. They'll know where their customers are, how they use the products, and their sales value. The possibilities are virtually endless, but it's the data-based insights they gain from wide adoption that offers real long-term value. "We see IoT devices that drive cloud-based data about our product applications and usage as the big prize," states Williams.

KEEPING THE PROJECT FLOWING

They say that knowing your own limits is a sign of wisdom, and Liberty Pumps knew that, excellent as they are at mechanical engineering and manufacturing, they didn't have the software and hardware development skills to design a production-ready alarm system.

"We may have been able to get something working on our own, but IoT is evolving so fast we would have been obsolete before we reached the market. We needed pros," explains Peterson.

Liberty Pumps approached Electric Imp to help them securely connect their devices. Electric Imp provided a platform to securely connect edge devices and sensors with

advanced cloud computing resources.

"Being highly experienced in creating and manufacturing a large variety of devices at scale, up to millions of Internet- and cloud-connected devices at a time, is surprisingly unique within the world of IoT" says Oliver Hutaff, COO and CFO at Electric Imp. "That expertise is applied to the full life cycle, from lab prototypes to managing and maintaining things like pumps that can operate unnoticed for years or even decades in the field."

In order to build an end-to-end solution, Electric Imp brought in Macadamian to develop a user centered client application and the back office logic.

MERGING GREAT TALENT POOLS

IoT products are complex. They combine a lot of technologies into a solution that has to be effortless for the user while navigating a torrent of legal frameworks and regulations regarding everything from wireless frequencies to customer privacy. No one vendor can do it all and coordinating various service providers can be a job in itself. Electric Imp and Macadamian worked closely to assure the client's success. For Williams, this was particularly appealing. "Coordinating unrelated vendors always adds risk to a project," he explains. "The end-to-end turnkey solution they offered was unique and gave us a lot of confidence that the project would succeed."

Having access to an IoT solution partnership took the guesswork out of some challenging decisions that can make or break a project. Macadamian made key strategic and technical recommendations regarding the use of the Ionic mobile development framework to build NightEye™, the app that Liberty Pumps' customers will use for anywhere, any-time configuration and monitoring. Electric Imp provided expert concept evaluation, design oversight and project management services on top of its "middleware" connectivity platform.

A project as complex as theirs invariably throws a few curve balls along the way, and this is where the engagement really showed its metal. For example, Williams appreciates the ownership Macadamian took of project management problems as they arose. "Throughout the project our timeline was threatened by scope change," he recalls, "and Macadamian really stepped up to find practical solutions that kept us on track while at the same time letting us adjust things and add features to optimize the final product."

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— Caleb Peterson, Product Development Engineer, Liberty Pumps

AN APPROACH BUSINESS CAN GET PUMPED ABOUT

Over the next decade IoT will become pervasive, infiltrating virtually every aspect of home and work life. Many traditional product vendors will need to rethink the value they offer their customers or risk being inundated by change. Liberty Pumps is one of the pioneers that see the value — and the inevitability — of cloud-connected products. They show that, with forward-looking leadership, a willingness to invest in the future, and the right professional guidance, companies in traditional industries can successfully embrace emerging technologies that will drive growth for years. For Liberty Pumps, an IoT professional services engagement was the right choice. They reached market on time with a modern, robust platform that gives them the agility to add new solutions quickly as the market evolves. The full service partnership between Macadamian and Electric Imp let them focus on their core business without getting distracted by the complexities of bringing an IoT product from concept to market, and was so successful that they're already considering next steps

for their platform, which may include additional NightEye™ connected products and adding cellular connectivity options for use in remote commercial sites. Perhaps most importantly, the steady flow of data they'll gather from the field carries the promise of business insights never before possible, and that's a welcome flood.

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