

CASE STUDY

The first Internet-connected (IoT) NHL home scoreboard



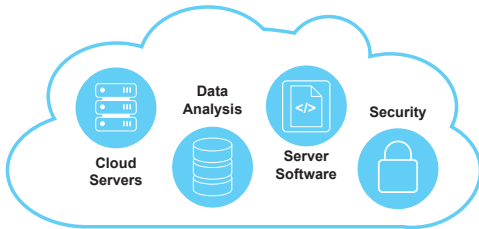
*FANTASY SCORE BOARD*



*“After a costly false-start with another design company, we came to Design1st and they quickly got us back on track. Their IoT experience saved us.”*

**Will Nault, Co-Founder**  
**Fantasy Scoreboards Inc.**  
Edmonton, Alberta, Canada

## Bring the Stadium Home to You



Fantasy Scoreboards Inc.'s journey to success was not direct. Will Nault and Tyler Richards' idea for a "connected" NHL scoreboard began as nothing more than friends having a discussion over a beer. Their vision was to bring a real-time NHL score-tracking experience into sports bars and homes, where hockey fans could follow game scores through a wall-mounted Internet-connected display that streams all of the score and game data from the arena scoreboard.

The new value was glanceable awareness of the game while in social settings. TV's can be awkward to read and socially distracting when enjoying time with your friends.

## Getting stuck in the IoT product development quagmire

At first it seems easy to add connectivity to a product, as the infrastructure around IoT products is growing rapidly. There is already a wide choice of tools to connect your device to the web, engines to handle the data it downloads, and providers to host the software that it accesses in the cloud. With so many options to solve so many problems, Fantasy Scoreboards thought that a high level of IoT expertise would be unnecessary when developing their product. That proved to be wrong.

Their initial attempt to create the connected scoreboard was rocky to say the least – and costly – as there are challenges that make adding connectivity to a product very different from the more established aspects of product design.

Connectivity alters the customer journey and the physical design of your product; it requires IT team readiness, radio selection, remote control, and software and mobile apps; and it raises new questions with regards to security, support, and warranties.

## At a Glance

- *Project delivered in half the usual industry turnaround time: After a complete design restart, the scoreboard was shipping units within five months.*
- *Production cost slashed to 50%: A complete redesign, new components, and a new manufacturing process yielded huge cost reduction.*
- *A product that performs: A new IoT architecture overcame the original design flaws; the new product easily handles real time streaming data volumes and enables complete cloud-based control and firmware updating.*



## The result?

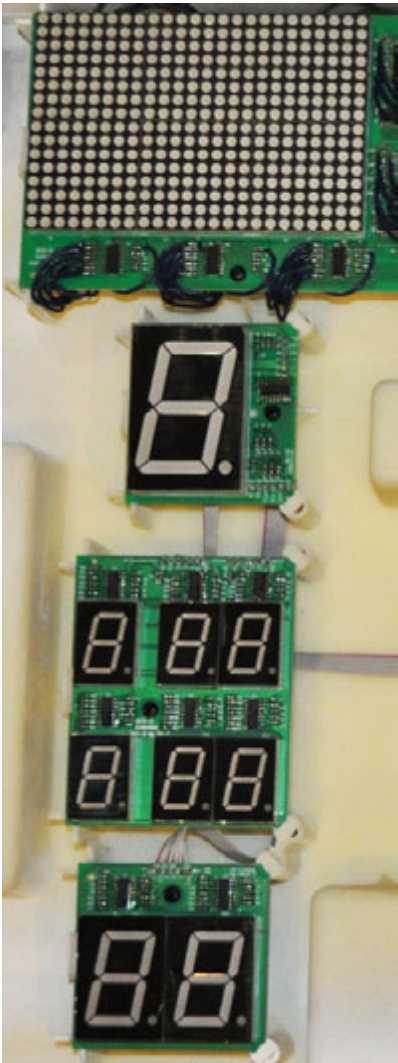
After selecting a couple of organizations to assist with the product creation – and then trying to manage all of the project variables that kept popping up – Fantasy Scoreboards reached a point where the projected costs of production for their product were far too high for them to meet the business and revenue models that they had so carefully planned. They now understood the realities of the IoT ecosystem. Their experience with various vendors, who dealt in everything from software design and development to hardware and manufacturing, had been disjointed, filled with delays, and had involved more cost increases than their project could handle.

## A fresh start

Will and Tyler realized that, to make their IoT project successful, they needed to work with companies that understood the overall project and could work together towards the same objectives. They selected the combined expertise of Design 1st and Macadamian: Design 1st for their experience with connected hardware, and Macadamian for their track record in software design.

Macadamian and Design 1st worked closely during the assessment of Fantasy Scoreboards' existing prototype, and they identified several critical deficiencies with the existing designs. The scalability would not be enough to meet projected data volumes; the hardware was not developed to be cloud controlled and maintained; and the physical design, selected materials, and volume manufacturing features meant that the product would never meet the market price point identified by Fantasy Scoreboards.

**IoT experience key to project turn-around, 50% cost reduction, and on-time delivery**



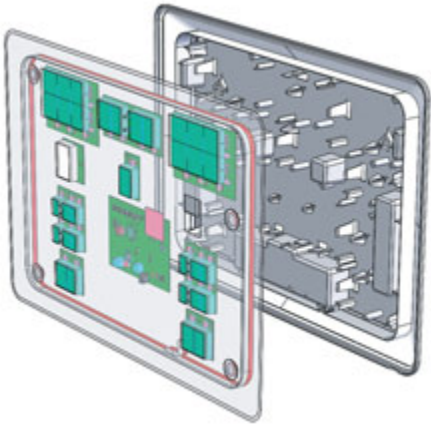
The success of the product meant completely re-creating it from the ground up, without losing the momentum that Fantasy Scoreboards had developed as part of its go-to-market activities. All parts and manufacturing strategies needed to be overhauled, and costs needed to be driven down.

This meant an incredibly tight timeline. Macadamian and Design 1st had only five months to engineer a completely redesigned scoreboard that was ready to ship to market. To put it into perspective, an aggressive timeline to complete a project of this complexity would have easily extended to eight months or more. However, Macadamian and Design 1st understood the significance of this endeavor for Fantasy Scoreboards, and they ran activities in parallel, trimmed out low risk approval steps and pulled out all the stops using their network to smooth out production set-up.

*Back on track*

Macadamian and Design 1st worked on the project in lock-step. The partners dove into each software and hardware interaction which the product would involve, and constructed a design through the lens of the end user.

Macadamian reworked the software model, enabling faster data delivery and reducing the cost of operations. They completely rethought the ways in which the scoreboard would consume information, employing a Python-based VM and Microsoft Azure to do the work. And they provisioned, setup, and configured all software production and pre-production environments so that the scoreboards would be fully connected on time for their market launch.



**“Working with both Macadamian and Design1st was really a seamless experience,” said Will Nault, CEO of Fantasy Scoreboards Inc. “They managed themselves, effectively connected their teams as needed, and delivered results – on time and with a budget well under the original design firm costs”.**

Design 1st ensured the new design was in line with market targets, future-proofed the product firmware coding with the cloud managed control, and managed the hardware costs from the start. One innovation that kept costs in check was reducing the size of certain display panels while ensuring the user experience was maintained, Design 1st created the display scrolling feature for longer team names and other information. They also introduced a messaging panel to the product, which added additional business opportunities, such as recurring revenue avenues from advertisement text and graphics.

Fantasy Scoreboards was new to contract manufacturing, so Design 1st walked them through all the available options, drew up quotation packages, and even accompanied them on their trips to meet different contract manufacturers, helping them to assess the manufacturing partner most suitable for their project.

*From design to a market-ready product in only a few months*

Due to their close partnership with Macadamian and Design 1st, Fantasy Scoreboards got back on the original schedule. With prototyping and production development happening virtually all at once, Fantasy Scoreboards was able to progress from design to a market-ready product in only a few months.

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### *About Design1st*

Connected hardware products are complex: they require design for user experience, cloud navigation and manufacturing expertise to successfully prepare a new concept for production. Hardware development is a high risk business – make it simpler by choosing an engineering design partner who has done it successfully many times before. Design 1st is one of the largest, most experienced IoT connected product design firms in Canada, with over 500 ideas developed for our clients, 21 years, and 130 patents under our belt. Our industrial design, mechanical, electronics and software engineering talent work within our proven, lean development process to help you transform your idea. Our production management team will coordinate prototypes, testing and first product builds. Need FDA or CE compliant product, we have the QMS process management in house. Hire us for the shortest path from your idea to a winning product.

### *About Macadamian*

Macadamian is a full service software design and development firm. From product ideation to market ready – and everything in between, we provide a complete range of usability, design and engineering services. From big consumer brands to enterprise, telecom, and healthcare; our solutions are founded in design that thinks of the customer first while leveraging the cloud, Big Data, and Internet of Things to deliver context-aware and adaptive experiences. The result? Engaging software solutions that have a direct impact on the bottom line.

### *About Fantasy Scoreboards*

To get the latest news, product information and to buy your scoreboards go to [www.fantasyscoreboards.com](http://www.fantasyscoreboards.com)