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CASE STUDY: Smart Retail

## EXECUTIVE OVERVIEW

Smart Retail is the global leader in the application of conductive inks in the retail sector, creating high-quality connections between the physical and digital worlds by allowing customers to interact and engage with retailers by simply touching their smartphone to Smart Retail packaging. Smart Retail worked with SDS on the smart technology behind its Smart Shelves and Smart Peg product lines. SDS delivered and implemented the software architecture for both products, dealing with complex requirements and tight deadlines. The project was extremely successful, as demonstrated by placing first at the 2018 Tech Asset Protection Innovation Awards, held by the Retail Industry Leaders Association (RILA).

## BUSINESS CHALLENGE

Smart Retail is revolutionizing smart retail for physical stores with its Smart Shelves and Smart Pegs. The T-shelf uses a highly sophisticated sensor based on printed electronic ink to deliver on-the-shelf availability data. The T-shelf alerts retailers in real time of low or out-of-stock items, recognizes shelf compliance issues if a product is misplaced, and provides planogram compliance. The T-peg is a smart peg that provides live inventory management and alerts retailers to potential theft of commonly stolen products.

Both products required a complicated communications architecture due to the variety of physical products and the wireless technologies needed to send and receive data. The solution also needed to be low-latency and be able to withstand the harsh environment of retail stores, in which customers are constantly handling and moving inventory. On top of these technical requirements, Smart Retail had committed to demonstrating a working version of both products at the upcoming National Retail Federation (NRF) show, making deadlines tight.

## THE SOLUTION

SDS worked with Smart Retail to create the only smart shelf on the market that can count and identify products with zero product tagging or product alterations of any kind. The SDS team designed and developed the software architecture for the entire system, as well as some of the firmware for the products.

With the NRF show as an end goal, SDS delivered a complex low-latency communications architecture that can offload data from the smart retail products to the cloud for processing and decoding, pass it back to the application, and integrate it with the retailer's software platform. The system is resilient, able to withstand the harsh retail environment. It can be turned on and off repeatedly and reconnect to the network automatically. It can also handle wireless communications, an essential requirement for these smart products.

SDS also created a database to serve as a historical record of the product data. Retailers can use this actionable data for theft and out-of-stock prevention, planogram compliance, long-term stocking procedures, and to identify supply chain efficiencies and product trends.

The cloud-based system allows retailers to remotely set alerts and log in from any location to monitor on-the-shelf inventory. Headquarters can check inventory counts at various locations, identify when products are moving in and out, and associate product moving off the shelf with the point-of-sale information that is captured.

The solution also supports planogram compliance. Retailers need to be sure products are on the right spot on the shelf with the appropriate price displayed. Planogram problems are now identified immediately, and retailers have a planogram discovery tool. They can simply load their shelves' layouts into the tool, and the smart shelf technology will populate the planogram automatically.

These efficiencies are helping brick-and-mortar retailers digitize the physical store so they can better compete with the online giants.

## WHY SMART RETAIL WORKED WITH SDS

SDS became a part of the Smart Retail team, behaving like employees rather than consultants. They were fully committed to the success of both products, creating an effective partnership. The CTO of SDS attended the NRF show with Smart Retail to demonstrate the products. The entire team showed a level of care that cannot be found in an offshore company.

SDS delivered a quality solution in a high-pressure situation. Both smart retail products have been well-received and are currently being evaluated by some of the biggest names in retail. Smart Retail also received a first-place technology award at the Retail Industry Leaders Association (RILA) conference.

## KEY TAKEAWAYS

- Complex communications architecture for a cloud-based system.
- A true architectural vision that included design, development, and implementation.
- Quality solution delivered under a tight deadline.
- Full commitment to the project's success, regardless of complexity and time frame.
- The only smart shelf on the market that can count and identify products with zero product tagging or product alterations of any kind.
- Smart technology that enables dynamic logistics opportunities, allowing retailers to change the supply strategy using real-time data.
- Ends out-of-stock problems, one of the largest financial challenges facing retailers.
- Recipient of a first-place award at the RILA conference.

## ABOUT SDS

Software Design Solutions (SDS) provides consulting and embedded software development services, specializing in Internet of Things (IoT) application development and engineering consulting services. We use our knowledge and expertise to solve problems at every stage of development. Whether you need to pass a project entirely to us for completion or have our staff join your existing team to provide experienced engineers with little to no ramp-up time, the SDS team is here to use our decades of embedded software expertise to help you achieve success.

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> **The SDS team behaved like Smart Retail employees. They were fully committed to doing whatever was required despite a tight timeframe and complex needs. Ed [SDS CTO] was right by our side at the NRF show, demonstrating the products and helping us succeed.**
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> *Wayne Nemeth — Strategic Advisor, Smart Retail, Inc.*
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