



Helping make animal diagnostics easier.

CASE STUDY

Challenge

Veterinarians are busy doctors and, with examining an average of 40 animals in a single day, they must be very efficient with their time. Utilizing the customer's test strips helps doctors diagnose patients efficiently by displaying results during an 8-10 minute activation window; saving them time from lengthy lab testing. With the patent about to expire on their test strips, the customer's consumable business and large revenue stream was being threatened by competitors who were prepared to launch their own version of the test. To help retain their market share, the customer chose to work with Beacon EmbeddedWorks to develop a device that when partnered with the customer's test strips and laboratory interface, would allow doctors to analyze results accurately without the time restrictions of the short activation window and therefore improve testing accuracy and efficiency. To ensure that veterinarians continued to use their testing strips, the customer had to quickly launch this product in order to head-off their competition and maintain their market share.

Solution

The customer commissioned Beacon EmbeddedWorks to help create an electronic test reader that produces a stream of images during the activation window, allowing the veterinarian to quickly review and make a more accurate diagnosis. The goal of the collaboration between Beacon and the customer team was to create a device that was portable and universal while maintaining a low production cost.

Customer Profile

The customer is a market leader in animal health diagnostics. Working with veterinary practices all over the world, the Company has a vast selection of animal diagnostic instruments to improve medical care and efficiency.

More Information

Why choose a Beacon EmbeddedWorks SOM?

See what differentiates our SOMs from the rest.

beaconembedded.com/system-on-modules/

About Beacon EmbeddedWorks

Beacon EmbeddedWorks is a full-service provider of innovative System on Modules (SOMs). Backed by a suite of customization, security, and support services, our dependable, pre-certified, and feature-dense embedded solutions serve the most strenuous applications.

Solution Continued

The Industrial Design team began by focusing on the user experience. The device had to be easy to use with minimal start-up time if it was going to be easily adopted by veterinarians and their technicians. In addition to creating an intuitive user experience, the design team also worked on the look and feel of the device. Because counter space is often a premium in veterinary offices and labs, creating a compact and sleek form factor was a priority for the team.

The customer and Beacon software engineers decided to utilize an embedded product to speed production time while keeping costs low. The chosen Beacon Torpedo + Wireless System on Module (SOM), measuring less than one square inch, would help to save space on the baseboard of the device to keep the design small and light. The Torpedo + Wireless SOM would be responsible for controlling the test operations, operating the camera module, the LCD display, interfacing to the touchscreen, as well as the wireless, Ethernet and the USB connections.



In order for the device to function properly, the test had to be executed accurately. The testing strips hold reagents that when mixed with the sample, form the colored results. The testing strip needs to be pushed down to release the reagents; which is precisely when the timing on the test needs to begin. Beacon EmbeddedWorks mechanical engineers worked on a complex motor design for the product that would properly set the test and use a plunger to push it down and begin the reaction. Numerous motors and gear combinations were evaluated in order to attain the correct amount of activation pressure and to ensure reliable performance for at least 6000 cycles.

Integration into their existing patient system was also important to the customer. The SOM was able to establish a network connection for the product, whether the veterinarian office uses wireless, Ethernet or USB. Beacon electrical engineers and the customer worked closely to ensure that the device was able to send results through the network to be stored with the patient's information.

Automating this process creates additional efficiencies and eliminates data entry tasks so doctors can spend more time with patients. Due to the customer's international presence, the customer placed a high priority on ensuring the success of the product overseas as well as domestically.

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Solution Continued

Beacon EmbeddedWorks helped the customer identify all of the required certifications and regulations that needed to be considered before beginning development and production.

The Beacon manufacturing team was commissioned for production of the product and the packaging. By integrating the manufacturing team early in the design phase, we were able to implement cost savings by designing specifically for ease of production.

Results

Our team supported the customer through the entirety of alpha and beta trials of the first electronic test readers. We further offered production and support for the customer's larger pilot launch and full market rollout. Working exclusively with the customer's test strips, the ease of use and time-saving abilities of the device helps to ensure that doctors will continue to use the customer's brand instead of switching to a competitor's.

The customer also wants to use the device to help introduce their brand of testing strips to veterinary offices around the globe, helping them to grow their testing strip consumable business.

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