beacon EmbeddedWorks

CASE STUDY

The ultimate teacher's assistant.

Summary

Medical Education Technologies, Inc. (METI) sought to reduce costs and obsolescence associated with their line of human patient simulators used around the world to train medical staff. Beacon EmbeddedWorks was chosen to partner with METI to help create a Universal Simulation Engine (USE) to combine required controls and components; reducing costs by 40% and eliminating the potential for obsolescence.

Challenge

Proper training is an important part of any job. But when that job involves saving the lives of patients, it is extremely important that physicians, EMT's, and military personnel have the highest level of training available. The customer, Medical Education Technologies, Inc. (METI), designs and manufactures human patient simulators that are used to train people in these fields. Each METI simulator is designed to simulate bleeding, breathing, talking, blinking and other physical characteristics to replicate various medical emergency scenarios. These human patient simulators are invaluable training tools that are used around the world. As METI's first generation simulator neared end-of-life, METI wanted reduce costs and obsolescence issues associated with their second generation device. To achieve their goals, they called on Beacon EmbeddedWorks.

Customer Profile

Medical Education Technologies, Inc. (METI) designs and manufactures human patient simulators used in medical training. The Company's products support primary care, EMS, and military training units with multiple locations. METI has since been purchased by CAE Healthcare.

More Information

Why choose a Beacon EmbeddedWorks SOM?
See what differentiates our SOMs. ***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.

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Solution

METI chose our team as their engineering and manufacturing partner to upgrade their technology while reducing costs. Working closely with the customer, we wanted to develop a new Universal Simulation Engine (USE) that was flexible enough to be used in a wide range of patient simulators from adult to pediatric and infant models. The USE would control all of the human patient simulator's functions.

Our engineering team chose to employ a Linux-based System on Module (SOM). This SOM and custom baseboard would be paired with field programmable gate array (FPGA) technology. The FPGA allowed the USE to be updated while being used in the field; lowering customer costs associated with product updates and maintenance. Additionally, our team of software engineers architected a communications interface between the FPGA and the SOM that would allow the Linux application to handle audio, motor control, and other real-time functions necessary for the simulator. By consolidating these required components into the universal simulation engine, METI is able to reduce their overall production costs.

We assumed full responsibility for the manufacturing supply chain, including lean manufacturing implementation of printed circuit board and box build assembly. Manufacturing began with our design engineers on hand to oversee a successful transition from the previous manufacturing vendor to manufacturing floor.

Results

The new system architecture and technical approach reduced overall costs by 40% and the FPGA allows for in-field updates, diminishing the potential for obsolescence. Cost savings were achieved by updating to one simulation engine for all models of the human patient simulators, consolidating in the engineering design, and by lean manufacturing the baseboard and SOM.

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