



Helping to deliver video inspection to the marketplace.

CASE STUDY

Summary

To help inspectors measure and examine hard-to-reach places, GE Measurement and Control Solutions sought the help of Beacon EmbeddedWorks to create a portable video inspection device. Utilizing an embedded product to balance power consumption and processing ability, our team was able to help deliver a lightweight solution that met the daily needs of inspectors.

Challenge

Imagine having to inspect and take measurements from hard-to-reach places within windmills, gas turbines, and aircraft engines without resorting to disassembly. Inspectors in these industries confront this challenge every day. To help these inspectors, this sensing and inspection technologies company wanted to create a lightweight, low power, portable device to provide remote video inspection for these tight environments.

Solution

The client's engineers sought Beacon EmbeddedWork's multidisciplinary teams and low-power expertise throughout the development process. Our electrical and software engineering groups worked in tight collaboration with the customer's engineers to help develop their new inspection device.

Based on the components available at the time, a multicore ARM+DSP System-on-Chip (SoC) from Texas Instruments was chosen to achieve the best balance between power consumption and processing capability.

Customer Profile

GE Measurement & Control Solutions is a leading innovator in sensor-based measurement, inspection, asset monitoring, controls, & radiation measurement solutions to customers in the oil & gas, power, aerospace, transportation and healthcare.

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.

The main system board was designed around the dual-core DM6446 DaVinci Digital Media SoC with a Linux board support package (BSP) on the ARM9 core and the necessary video and audio codecs on theTMS320C64x+ DSP core.

Our software engineers ported client-proprietary image processing algorithms from an older, incompatible line of digital signal processors. These proprietary algorithms were then optimized them for the C64x+ DSP core. With this established, our team continued to developed the Linux BSP and write integral portions of the application software, including a user interface application, a file manager application, and a software update tool that provides field logging capabilities.

Because the finished device had to be lightweight and portable, efficient use of space was a priority. Early on, it was apparent that the recommended DDR memory layout from the DM6446 development kit design would occupy too much space. This meant that Beacon's electrical engineers and PCB designers had to create a custom DDR memory layout on the main circuit board. Consistent communication between our engineers and the customer's resulted in a successful layout modification while ensuring robust circuitry across all manufacturing variations.

Results

The efficiency and risk mitigation provided by Beacon EmbeddedWorks' tight collaboration and extensive technological knowledge launched the product on time. Once launched the device was an instant game-changer, quickly becoming the industry standard. The solution provided inspectors across a wide range of industries the lightweight, low power, portable solution they needed to meet their daily inspection challenges.

Testimonial

"The knowledge and expertise offered by the Beacon EmbeddedWorks team, along with the high level of collaboration between the Beacon and GEIT development teams, contributed greatly to the successful launch of the XL Go product. Beacon EmbeddedWorks proved themselves as a valuable member of our product development team."

- David Marrs,
NPI Project Manager

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