



Sanden Vendo America Inc.

As a first-time user of electronic design software in their production process, Vendo chose Altium Designer to complete critical design tasks such as the development of the world's first robotic vending machine.



"It was very important to purchase software which is user friendly, and from a company that has a reputation for excellent customer service. It is difficult to find in one company a high level of all these 4 ingredients: quality, price, after sales service and ease of use. Altium Designer possesses all of these up to the highest level of satisfaction."

Yogesh Patel

Design Engineer,
Sanden Vendo America Inc.

The Need

Sanden Vendo America Inc. of Dallas, Texas has been in the business of design, manufacture and sales of vending equipment for more than 60 years. The beverage vending machine as we know it today can be traced back to its roots in the 1930's as a standard chest cooler with a simple coin-operated vending lid. However, today's vending machines (such as those designed for major soft drink companies) are very sophisticated by comparison, and incorporate a variety of motor-driven mechanisms, sensors and perhaps most importantly, electronic control modules. As part of Sanden Vendo's path to the next level of electronic control in vending equipment, the company needed to take full command of the electronic design aspects of their business.

The Challenge

Three years ago Sanden Vendo management made the decision to move the electronic design part of its operation in-house, through the purchase of suitable schematic entry and PCB layout software. This would deliver the typical localized benefits of faster design turn-around time, increased IP security and tighter design control, but also raised the potentially counter-productive issues of the software's learning curve, efficiency and quality of technical support. To remain in a leading position within the vending machine industry Sanden Vendo needed electronic design tools that would facilitate its innovative designs without introducing production delays or compromises in quality control.

The Solution

To find a definitive software solution for their needs, Sanden Vendo evaluated several design packages including OrCad® capture and Altium's Altium Designer. As they were first-time users of electronic design software, Sanden Vendo's requirements were particularly critical in the aspects of ease of use and customer support from the software vendor. This issue was compounded by the decision to make the software available to Sanden Vendo's engineering department staff,

rather than introducing a dedicated PCB design specialist – in a nutshell, an intuitive, easy-to-use software package was imperative.

Sanden Vendo found Altium Designer to be the clear winner amongst the evaluated packages, from all points of view. According to engineer Yogesh Patel from Sanden Vendo, along with its reputation in the marketplace, Altium Designer had the unique combination of excellence in four key areas; quality, ease of use, price and after sales service.

The Results

With their new design software underway, the Sanden Vendo engineers found Altium Designer to meet their expectations in all of the critical areas, without the need for technical support or additional training. The new tools have since been used for schematic layout and PCB design in all Sanden Vendo machines. Sanden Vendo's Yogesh Patel found the advancements in this release to be a "serious improvement" and an extremely valuable upgrade for Sanden Vendo.

Now equipped with the latest version of Altium Designer, Sanden Vendo has recently undertaken perhaps its most ambitious vending machine design – their 'Glass Front Vendor'. This sophisticated machine is the first vending machine in the world marketplace to use robotics technology to deliver the product to customers, and relies heavily on relatively complex but reliable electronic control modules. Using Altium Designer, the Sanden Vendo engineers have completed this challenging project over a period of about 18 months, and the successful machine is now in production.

As first-time, but now experienced, electronic design software users, both Sanden Vendo and engineer Yogesh Patel are extremely satisfied with Altium Designer, which has completely met their aim of utilising powerful but intuitive design software to enhance their business.



Product Information

Sanden Vendo's Glass Front Vendor machine breaks new ground on the areas of product handling, flexibility and product display. As most machines in use today are based on 10-15 year old technology and design, the Glass Front Vendor's robotic product selection system and open display design helps it occupy a unique place in the market.

Based on four DC motors controlling its three-dimensional movement, the product delivery arm's 'grabber' hand can deal with any type and shape of product in any position in the machine. The fully programmable, microprocessor-controlled arm/hand system gently selects and delivers the product to the customer, unlike conventional machines that drop the product into the delivery tray – this avoids the undesirable effects of shaken soda bottles.

The machine's complex electronics are contained in six circuit boards with the main 4-layer processor board controlling all aspects of the machine – future designs are likely to use an FPGA or ASIC solution, depending on sales volumes.

Customer Information

Based in Dallas, Texas, Sanden Vendo America Inc. is a global provider of beverage vending machines. The company designs, manufactures and sells technically innovative products including programmable electronic vending machines, high-capacity machines that accommodate plastic bottles in a wide variety of sizes and shapes, and machines that accept debit cards and smart cards.

Sanden Vendo works with numerous Sanden Vendo sales, service and manufacturing operations throughout the world. The company continues to expand its reach into markets such as Africa, the Middle East, Latin America and Eastern Europe. In 1999, Sanden Vendo achieved ISO 9001 certification and continues to pursue several other quality initiatives.

For more information, visit www.vendoco.com

Altium's technology
implemented in
the innovative
manufacturing industry

About Altium

Altium is a global developer and supplier of electronic product development software for the Microsoft Windows environment. Founded in 1985, Altium released the world's first Microsoft Windows-based printed circuit board design tool in 1991, and continues to provide advanced, easy-to-use and affordable design systems to electronics engineers, designers and developers worldwide.

Altium Designer is a single, unified application that provides all the technologies and capabilities necessary for complete electronic product development. Altium Designer integrates board- and FPGA-level system design, embedded software development and PCB layout, editing and manufacturing.

For more information, visit www.altium.com

