

MOOBELLA

Innovating a fresh, made-to-order ice cream-making machine with SolidWorks Premium



Using SolidWorks Premium, MooBella was able to work with partners to integrate separate modules into a complete ice cream-making system.

MooBella® has pioneered a revolution in ice cream-making: a machine that makes a single serving of fresh, flavored-to-order ice cream in about 45 seconds. Founder Paul Kateman envisioned an automated machine that could produce individual servings of freshly made ice cream. Bruce Ginsberg, MooBella president and COO, is a third-generation ice cream businessman who understood the potential of a business model that eliminates the refrigeration needs of the traditional supply chain and gives consumers greater control in choosing flavors. He joined MooBella after Kateman had secured investors and completed work on the early proof of concept. Ginsberg recruited James Baxter, vice president of engineering, to assume the challenge of transforming that early technical concept into a commercially viable, manufacturing-ready machine.

“When I joined the effort, the engineering consultants had done all the early developmental work in Pro/ENGINEER®,” Baxter recalls. “I quickly realized that in order to take the technology to the next level, we needed a design system that would support collaboration on a range of development efforts—involving sheet-metal designers, mold-makers, and other mechanical specialists—working in parallel. We needed a CAD platform to facilitate the development of separate design modules that we would bring together to complete the machine.”

Working together with DCI Engineering Services, a Coughlin Company known for turning innovation opportunities into commercially viable products, MooBella evaluated several 3D mechanical design packages before selecting the SolidWorks® Premium 3D CAD system, instructing all outside resources to complete all future work in SolidWorks software. Baxter says the choice of SolidWorks software was made because it is easy to use, provides innovative capabilities, and includes the visualization and communications tools that MooBella needs to sustain seamless collaboration with a variety of external partners and engineering resources. The company also valued the fully integrated product data management (PDM) and design analysis capabilities provided by SolidWorks Workgroup PDM and SolidWorks Simulation design analysis software.

Results:

- Shortened product design cycle by at least 33 percent
- Reduced product development costs by 50 percent
- Facilitated collaboration through improved design communication
- Improved product quality and performance

"We have close to 200 people collaborating on this innovative technology, and simply do not have the time to move through a slow, expensive process," Baxter explains. "As soon as I saw my first demonstration of SolidWorks software, and its eDrawings® communication capabilities, I was convinced that it was the best package to support our effort."

Overcoming challenges by developing systems in parallel

After implementing SolidWorks Premium, MooBella was able to manage the efforts of outside engineering resources efficiently. Work progressed on separate design modules in parallel, accelerating the overall effort to make the sophisticated ice cream-making technology commercially viable.

Baxter estimates that by developing major systems in parallel in SolidWorks software—including two refrigeration systems, a pneumatic system, a consumer interface, a pumping system, and a dry-goods distribution system—the company shortened its design cycle by at least 33 percent, and reduced its costs by 50 percent.

"With SolidWorks Premium, we have all the modeling capabilities we need to design each different type of component, whether it's made of sheet metal, plastic, or multiple materials, such as refrigeration systems. SolidWorks software also lets us assemble all of these components together and make any changes quickly and easily," Baxter says.

Seamless collaboration and communication

Integrating separate modules into a complete ice cream-making system required 3D visualization capabilities, a common data format, and effective communications tools to support seamless collaboration. Baxter says the team utilized eDrawings files extensively.

"MooBella is revolutionary in more ways than one," he notes. "We decided early on that we did not want a large overhead structure and could most expeditiously develop this technology working with outside suppliers. We wanted everyone involved on the SolidWorks software platform so we could share models with partners. In addition, we relied on eDrawings files to drive collaboration. The powerful capabilities of SolidWorks Premium, combined with the ease of communicating with eDrawings files and managing data with SolidWorks Workgroup PDM, brought all the disparate elements together into a high-quality, functional machine."

Ongoing development of a revolutionary product

MooBella plans to utilize SolidWorks Simulation design analysis and the mold design and analysis tools found in SolidWorks software on future models of its precedent-setting ice cream-making machine. The unit uses 12 flavors in conjunction with two aseptically prepared ice cream mixes and three types of dry goods (chips, walnuts, and cookies), in conjunction with a Red Hat Linux-operated 15-inch, flat-panel display, enabling consumers to select a total of 96 flavor-and-mix combinations. After mixing, the selection is deposited on a rotating evaporator, where it is flash-frozen, then scraped up and collected into a scoop, all within 45 seconds.

"As we extend this technology from a food-service machine to remotely located units, we will be using SolidWorks Simulation and SolidWorks software design validation tools to bring freshly made, quality ice cream to every corner of the globe," Baxter says.

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James Baxter
Vice President of Engineering



The MooBella design team used SolidWorks eDrawings files extensively to communicate back and forth while developing separate systems in parallel.



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