Solid Design and Analysis Drives Johnson Controls

SITUATION

To maintain and increase market share, Johnson Controls wanted to implement an integrated, flexible software system that would enable the company to design better products faster by providing the design, analysis, drafting, and other tools required.

OBJECTIVE

Redesign a powertrack seating mechanism in record time.

PROCESS VISION

✔ Replace numerous CAD tools with a single, integrated system.

✔ Dramatically reduce time-to-market by leveraging standard parts, by putting analysis up-front in the development process, and by reducing the need to recreate data for downstream applications and suppliers.

✔ Improve the productivity of the individual engineer and the entire product development team.

ACTIONS

✔ The Johnson Controls team began by developing conceptual designs of the new seat mechanism.

✔ All team members continued working simultaneously, sharing product information relative to package requirements, weight reduction, smoothness of operation, and safety concerns via the I-DEAS™ software master model.

✔ The advanced visualization capabilities eliminated ambiguity regarding product appearance, function, and project status among Johnson Controls engineers, managers, customers, and suppliers.

✔ 3D models were also utilized to clarify assembly procedures, and reduce the need for "cut and weld" prototypes.

"We have saved approximately 40% in both time and engineering, research, and development cost. If the savings had been 10% or 15%, we might have considered this pilot not to be definitive, but a 40% savings in time and costs is far too significant to ignore. This process is clearly superior. We consider this result a key indicator for where we want to go in the future."

- Dave Kandt,
Director of Engineering
Johnson Controls

I-deas™

Get There Faster™

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✔ To eliminate the need to recreate data, engineers used geometry from I-DEAS Master Series™ software's standards parts libraries, and also began building a custom library for standard Johnson Controls components.

✔ Product engineers performed analysis on the design alternatives early in the process, to quickly optimize the new mechanism design, and verify its performance against product specifications.

✔ Prototype parts went together and passed all the testing required at the first pass, and as a result, the quality of the finished product is excellent.

RESULTS

✔ In this particular project, the company saved 40% in both time and engineering, research, and development costs.

✔ Modeling parts was greatly simplified. For example, tasks that had taken 30 steps in previous systems now took just 11, which allowed the team to explore more design alternatives while still remaining ahead of schedule.

✔ Johnson Controls views this system as one that will continue to improve the productivity of its engineers by allowing them to focus on the tasks that add the most value to the company – designing and engineering – rather than tracking parts and attending meetings.

SDRC

L-5108 Nielsen 7,500 4/98