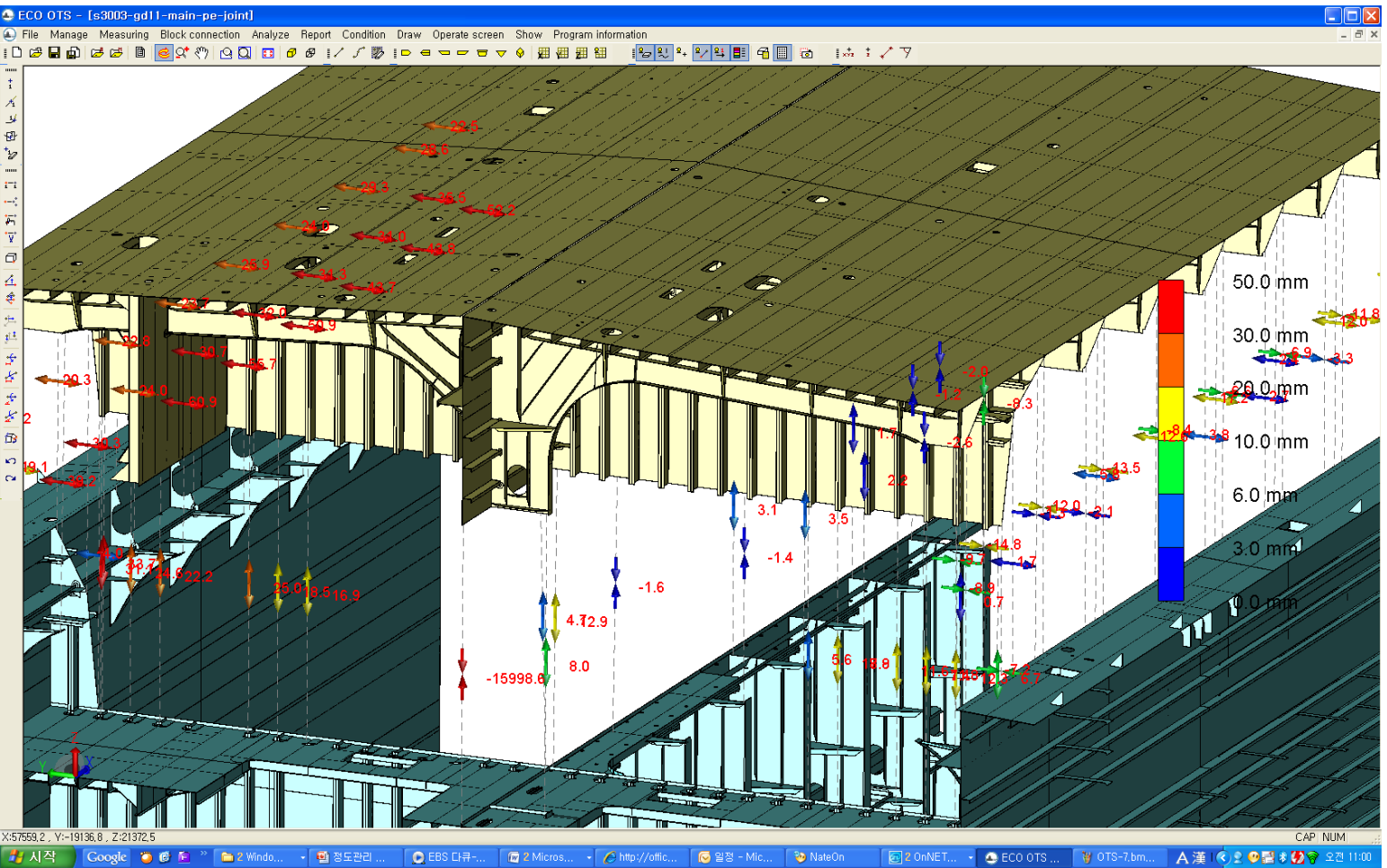


SAMIN Information System Co.



SAMIN Information System is a leading provider of dimensional accuracy control and erection forecasting simulation systems for the Asian shipbuilding industry.

Market:

Accuracy control and erection forecasting simulation systems for shipbuilding

Product:

3D ACIS Modeler, 3D InterOp Suite, HOOPS Application Framework for 3D Visualization

Challenges:

SAMIN required a robust 3D modeling kernel that had Boolean functionality and a graphics infrastructure in order to develop its 3D accuracy control and erection simulation systems.

Solutions:

3D ACIS Modeler for geometry creation and modification components to construct and visualize 3D ship structure models. ACIS for clash detection between pipes and panels, and facilitates the calculation of physical properties of blocks. 3D InterOp Suite to translate the 3D ship model (Tribon design file) into other data formats (CATIA). HOOPS to accelerate development process of graphical infrastructure.

Results:

Spatial components enabled SAMIN to become first to market, in early 2008, with a 3D accuracy control system that met the high standards of the demanding Asian shipbuilding market.

SAMIN's EcoOTS is the world's first 3D based erection simulation system for accurate erection analysis in a short period of time. Particularly, One Time Setting (OTS) is an advanced technology that analyzes and predicts erection state to find any gaps or overlaps of blocks prior to erection. Any error detected blocks, are adjusted prior to actual erection allowing for a single erection to be completed for any job. EcoOTS technology reduces the erection period significantly, which shortens the overall shipbuilding period. This enables companies to maximize productivity while minimizing resources to complete ships more quickly and economically, achieving a competitive edge in today's shipbuilding industry.

"Spatial's components enabled us to be first to market in the highly competitive Asian shipbuilding market. In turn we've enabled our customers to accelerate their product development plans and reduce costs at the same time. And also at the shipyards existing workers can provide high quality education to new workers with 3D models using our EcoSystem. It makes it easy to educate the new workers and they can understand fast what they are going to do. It's really one of the necessary functions to have to go to the next generation of shipbuilding."

-- Kim Deok Eun, SAMIN CEO and Director of Research Center

COMPANY

Based in Korea, SAMIN Information System delivers accuracy control and erection simulation systems to the major Korean and Chinese shipyards. The company also markets its products in Japan, Vietnam, Turkey, and India. SAMIN's customers include Asia's largest shipbuilding companies: STX Shipbuilding & Marine Co., Ltd. in Korea; Shanghai Waigaoqiao Shipbuilding Co., Ltd.; Dalian Shipbuilding Industries Co., Ltd. in China; and Halong Shipyard Co., Ltd. in Vietnam. The Company estimates it has 25-30% market share in the Erection Forecasting Simulation System market and 13-14% market share in the Accuracy Control System market.

SAMIN's product line includes EcoMES, EcoBLOCK, and EcoOTS for shipbuilding production, and EcoVIEWER and EcoPINJIG for shipbuilding design.

SAMIN's EcoBLOCK is a 3D-based block accuracy control system that interfaces with shipbuilding 3D CAD systems such as AVEVA MARINE, Tribon, CADD5, ERSPD, ShipConstructor, and AutoCAD. Using EcoMES and Total Station, blocks (composed of several steel plates and sections with various sizes and shapes) in production are accurately measured and compared with imported design models created with 3D CAD systems to easily and accurately analyze any errors. Using the analyzed output from the EcoBLOCK, a modification method is derived for any blocks that need correction through cutting and rearing. The output is used to produce blocks that accurately meet ship owner's requirements.

CHALLENGE

In its bid to be the first to market with a 3D accuracy control system that met Asian shipbuilding standards, SAMIN needed to source 3D modeling technology to develop a drafting module and extract the 3D design information (Geometry, Attribute) from Tribon. The company had been doing the internal development work prior to looking for a component solution code.

SOLUTION

SAMIN discovered Spatial Corp. through the book 3D Modeling with ACIS. After considering the Parasolid kernel, in early 2007 SAMIN decided that Spatial's ACIS 3D modeling kernel and HOOPS application framework would be the best solution for its 3D accuracy control system.

One major factor for selecting ACIS was the prevalence of ACIS-based shipbuilding applications. The Asian shipyards use design systems specifically developed for building large, complex ships and off shore vessels. These 3D design programs are typically based on Spatial's ACIS kernel, which greatly influenced SAMIN's decision to purchase ACIS. The use of ACIS ensures that EcoBLOCK and EcoOTS interwork with all leading

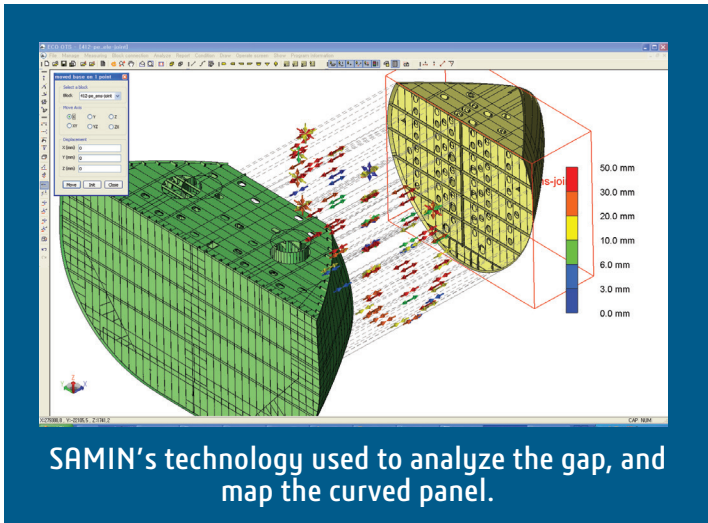
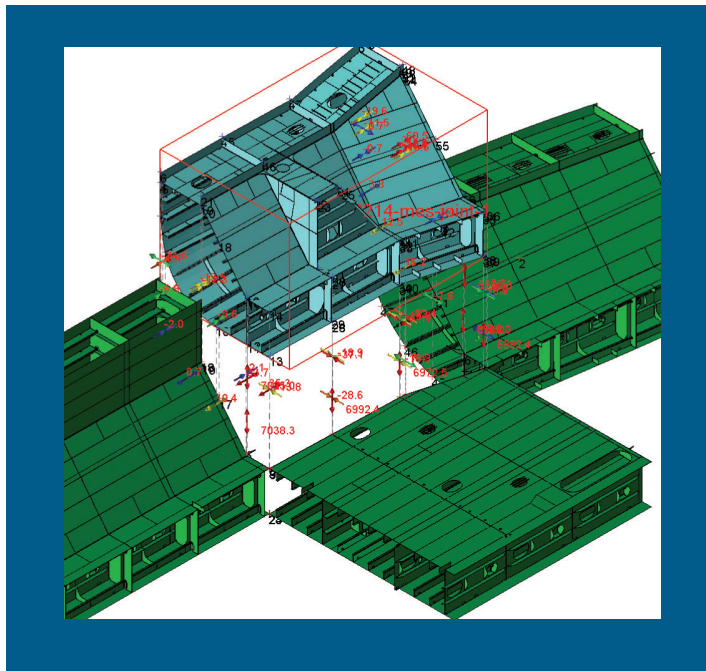
shipbuilding CAD systems, being able to leverage all of the ship component terminology, such as the names of pipes, panels, structures, as well as the measurement data itself.

Another key consideration of developing SAMIN's accuracy control system with ACIS was its intersection function which detects interferences for blocks during the assembly process. And ACIS facilitates the construction of 3D solid models of ship blocks based on Tribon (3D CAD system for designing commercial and naval vessels) geometry data.

HOOPS' open architecture and robust graphic functionality enabled SAMIN to quickly develop and maintain its high performance 3D visualization applications. The Company particularly found that HOOPS' Reference Applications source code greatly accelerated the development process.

SAMIN cited these Spatial capabilities as integral to the success of its software:

- Construction of 3D solid models of ship blocks based on code
- Tribon geometry data using ACIS
- Visualization of 3D ship models using HOOPS
- Translation and rotation of 3D ship models using ACIS/HOOPS
- Obtaining the coordinates of 3D ship models
- Clash detection between ship parts using ACIS
- Visualization of the various markups using HOOPS



RESULTS

The EcoBLOCK and EcoOTS software were ready for market in early 2008, initially introduced at Shanghai Waigaoqiao Shipbuilding in China. The successful launch of SAMIN's technology quickly opened the doors of many other Asian shipbuilding yards.

By incorporating Spatial's 3D modeling kernel into its accuracy control system, SAMIN was able to quickly develop its software and be the first to market, satisfying the shipbuilding industry's specific needs. The customer response has been overwhelmingly positive with SAMIN's technology being viewed as ground breaking, enabling shipbuilders to reduce costs by building ships more quickly with less labor.

Currently SAMIN is using about 40% of ACIS functionality in its software products and plans to incorporate more of ACIS powerful capabilities in future releases.

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