

CASE STUDY

E-Commerce Enablement for a 3D Printing Leader

Company's Profile

Trigent's client has a state-of-the-art ISO 9001 / AS 9100 B accredited Laser and Metal Sintering facility in Texas and is taking Rapid Manufacturing to new levels. They use layer-built direct digital manufacturing processes, such as plastic laser sintering and direct metal laser sintering (DMLS) to effectively streamline the manufacturing of on-flight parts, tools and patterns and human replacement parts for the healthcare industry.

Project Objective

The client wanted to improve relationships, make the ordering process easy and increase revenue with customers. Trigent recommended ecommerce enablement of their operations in a phased manner. Trigent and the client collaborated on the design of the ecommerce process specifically tailored to the 3D printing industry. The objective was to develop an ecommerce web application that would allow their customers to upload a STL (Stereolithography) file, extract the five dimensional values (x, y z extents, and volume and part surface area) and prepare a price quote for the users to order online. The web application would also allow customer registration, customer login, process payments and place orders. The application will have a dashboard for each customer displaying the quotations and the orders placed. Integration with their ERP application would be planned during the next phase.

Challenges

The needs of the 3D printing industry are specific. It was challenging to extract the dimensional values from the STL files and generate a quote based on the manufacturing process such as plastic laser sintering and direct metal laser sintering.

Trigent's Solution

Trigent developed a solution using a formula to calculate the five (5) dimension values Size X, Size Y, Size Z, Volume and Part Surface Area. Open source libraries were leveraged to render the 3D image from the STL file uploaded. Trigent built several filters for users to choose the manufacturing process such as plastic laser sintering and direct metal laser sintering, based on the selection generated the quotation and purchase orders.

Client's Benefit

- ✓ Quicker turn-around time from order to cash
- ✓ Increased customer satisfaction
- ✓ Reduced paper work and time
- ✓ Improved operational efficiency

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Technology

Platform	Linux, Apache, MySQL, PHP (LAMP)
Tools	NetBeans IDE, SVN, open source plugins
Others	Intuit (QuickBooks) payment gateway, JavaScript, 3D image rendering using JS3D open-source library, Volume calculation – Stackoverflow, Surface Area calculation – Geomalgorithms