

# Trust System offers more flexibility to clients by using color 3D printing technology

## Trust System Corporation

- Industry leader in providing accurate 3D topographic models for museums and municipalities.

## Challenge

- Reducing lost business opportunities due to workflow inefficiencies and limited resources, and improving client communication.

## Strategy

- Introducing the high-quality 3D Systems Spectrum Z510 3D printer to quickly build advanced, color topographic prototypes.

## Results

- Increased the volume of business by enabling quick turnaround times.
- Cut prototyping time by 50% and improved communication with clients.
- Created new business opportunities and ventures into new markets.

*“We were aware of powder-based modeling, but we needed a machine that could apply colors. That is why the 3D printer from 3D Systems, which is the only printer on the market with full color capability, was so attractive to us as a printer that could quickly build prototypes.”*

– Mr. Yukio Mita,  
Representative Director of  
Trust System

For years, Trust System Corporation has been building accurate 3D models of cities and topographic features by using satellite terrain data, urban buildings data and other 3D data. The company developed its own CAD system and cutting tool to enhance the reproduction of topographic models, but realized that there were inefficiencies and workflow challenges in their operations. By adopting an engineering approach to using 3D digital data, Trust System has become an industry leader in creating accurate topographic models. The company now uses the Spectrum Z™510 full color 3D printer from 3D Systems to quickly create multicolor 3D models, and the process changes have resulted in increased client communication, fewer lost business opportunities and new value creation.



Topographic 3D model of Shibuya (provided by the Tokyo Digital Map Corporation)

## CHALLENGE

### Reducing lost business opportunities

Trust System started out by cutting topographic models using their original automatic topographic model cutter which was capable of reproducing detailed, complex topographic data. The company then developed CAD/CAM software to create topographic models and started accepting commissions to build both smooth and contour 3D topographic models using mesh data or contour data. Trust System has expanded and taken on commissions for 3D maps and 3D postcards for customers in various sectors such as museums, exhibitions, municipalities and government. During this transition, the company investigated the benefits of 3D printers because they realized that having physical prototypes was essential when meeting with clients. The Representative Director of Trust System, Mr. Yukio Mita, explains why it was important for the company to invest in the Spectrum Z510 3D printer from 3D Systems.

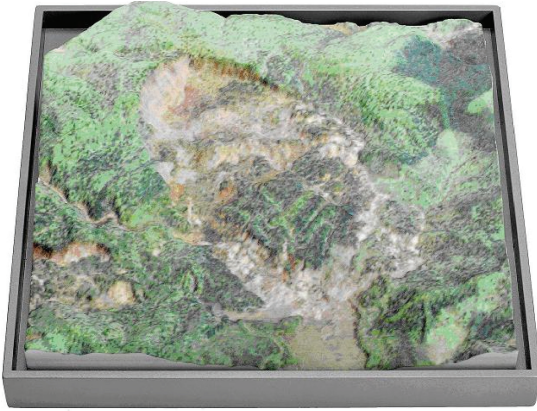
“In the 3D topographic modeling industry, when meeting with clients, you often show sample prototypes before building the final product, but creating even simple prototypes requires the work of skilled model builders. We can also build prototypes with our cutting tools, but the machine might be tied up with other projects or the operator may not be available. We found ourselves in a situation where we were unable to easily create 3D topographical models when we needed them fast.”

In the past, the company used samples of previous topographic models, photographs and sketches in meetings to discuss what the finished model should look like. When the prototypes were made by model makers, it was difficult to respond flexibly to client requests because of the cutting machine's limitations. It was also challenging to respond to their requests because the cutting machine was incapable of producing prototypes in multiple colors. That is why the company was looking for a new technique that would create new business opportunities, compensate for the lack of human resources and create prototypes in multiple colors.



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## Case Study: Trust System Corporation



Topographic 3D model of the Iwate-Miyagi Inland Earthquake (provided by Asia Air Survey Co., Ltd)

### STRATEGY

#### Introducing the Spectrum Z510 3D printer

Mr. Mita describes what led him to explore the potential advantages of the 3D printer from 3D Systems. “Our cutter uses topographic model data to create 3D models by slicing from the top. But the cutter is not good at building models with overhangs (portions where the upper structure extends past the lower structure) or structures with internal cavities. We experimented with laser stereolithography using liquid plastics and with laminated object manufacturing that works by bonding together many layers of thin sheets of paper, but we were unable to find a satisfactory technique.”

That was when the company took note of the capability of the full-color 3D printer from 3D Systems and realized the machine could apply color to blueprints, which is a laborious and time-consuming process when cutting topographic models. Mr. Mita comments, “We were aware of powder-based modeling, but we needed a machine that could apply colors. That is why the 3D printer from 3D Systems, which is the only printer on the market with full color capability, was so attractive to us as a printer that could quickly build prototypes.”

After reviewing different technologies, Trust System decided to invest in the Spectrum Z510 to boost their operations. As a result, the company is now able to present color prototypes to their clients, which has contributed to improved communication. Creating prototypes, which had not been so easy in the past, is now a simple process, and the company has been able to broaden the range of their proposals by minimizing miscommunication with their clients.

### RESULTS

#### Multicolor prototypes in half the time

Trust System uses cutting tools to produce 3D maps, topographic models and production models of relief maps, but before creating large-scale 3D topographic models, detailed consultation is essential. By making efficient use of the 3D printer from 3D Systems, they can easily adapt to client requests which could involve changes in prototype scaling, height or stress ratio.

Mr. Mita comments, “3D Systems 3D printers can simultaneously build and print colors at the prototype stage, which has had a huge impact in simplifying their work. Because 3D printing is so similar to 2D inkjet printing, anyone can easily operate the system. One might say that the functionality of a 3D printer could one day replace model makers.”

With improved productivity, the company is now able to respond quickly to new requests. For example, at the time of the Iwate-Miyagi Inland Earthquake, the company created a 3D model using 3D topographic data from aerial photography taken on the day of the earthquake. It took only two days after the earthquake hit to complete the prototype. “Compared to the usual processes, we were able to complete a topographic model of the epicenter of the Iwate-Miyagi Inland Earthquake in about half the time. If the topographic model of the epicenter is not colored, it is difficult to see what areas collapsed under landslides, but because we used the 3D printer from 3D Systems, we were able to create a precisely colored prototype in a short amount of time.”

Trust System uses a cutter to work with rigid urethane resin and other production materials. Using the 3D printer from 3D Systems does not involve cutting, which removes an element of danger from operating the device. The printer is highly rated from an environmental perspective because it builds prototypes using a layering process, which keeps waste to a minimum. In addition, since the machine can easily print multiple copies of models once a 3D topographic prototype has been created, it is possible to efficiently create accurate topographic models.

Mr. Mita, commenting on their future development, “We have the only product in the field of 3D topographic models, but we are considering launching a business of providing online services that will allow anyone to create 3D models from photographs. With the user-friendly 3D printer from 3D Systems, it should be fairly straightforward for anyone to give tangible form to ideas. We hope that the spread of new concepts will tie in with our business prospects.”

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Representative Director  
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