

# SP-MAPS<sup>®</sup>

## — Scanning and Projection Mapping System —

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The measurement and its visualizing system that integrates the three-dimensional laser scanning and the projection mapping technology, SP-MAPS<sup>®</sup> (Scanning and projection mapping system) has been developed. Using the system, an image is projected directly on the invert excavation in a mountain tunnel, showing the difference between the designed and actual shape of the excavation surface. In the conventional method, the excavation degree of invert is controlled by using a marked rod and a string. But it is time-consuming, and it requires more manpower and entails greater risks of injuries and accidents.

The SP-MAPS<sup>®</sup> operation such as setting of the equipment, 3D scanning and the image projection can be conducted by one person without entering the excavation site. Thus, labor saving and safety improvement for confirming the excavation shape are expected. The visibility and the accuracy of projected images were examined by the field test.

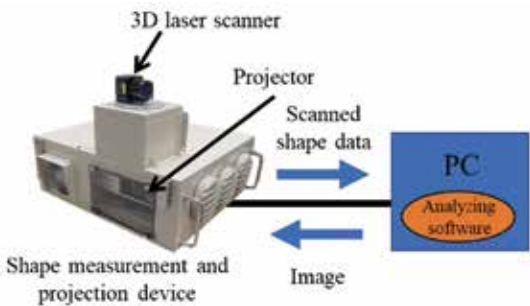


Fig. 1 Configuration of equipment for the system

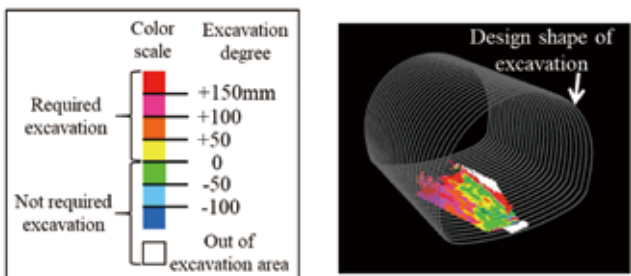


Fig. 2 Relationship between colors and positions of projected points

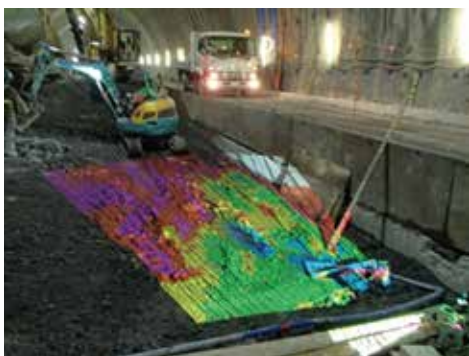


Photo 1 Projected image on the excavation area