LuminoCity: a 3D-Printed Illuminated City Generated From LADAR Data
Technology #16951

Applications

Applications for this technology are found in architecture, urban planning, mapping, homeland security, military strategizing, disaster relief, status indication and alerts, exhibit design, and artistic display.

Problem Addressed

This technology blends active display capabilities with physical relief models to create vibrantly illuminated informational and interactive visualizations of data and overlays of art across true 3D surfaces that can be observed simultaneously by multiple viewers from viewer-selected perspectives. By design, the illumination is self-contained and therefore need not be subject to or affected by viewer interposition, making the technology ideal for all manner of public exhibitions and group collaborations.

Technology

A 3D model is constructed by importing or generating a dataset representing a surface and rendering the same by 3D printing or other means of physical formation through any series of fabrication steps. The final embodiment of the 3D model is composed of hollow or solid, transparent or translucent base material upon which a light-diffusing surface is applied or formed (e.g., as a result of a coating or surface profiling). A projection device is then mounted in a configuration so that distinctive patterns of light are directed, possibly through the transparent base surface, toward the diffuse surface of the 3D model to distinctively illuminate portions of the model. This distinctive illumination may be applied in selective fashion to highlight particular spatial features of the physical model or visually express spatial distinction even where no corresponding feature exists in the physical model.

Advantages

- Ability to present a physical 3D model viewable from multiple perspectives with additional, spatially-corresponding image and video data conveyed upon the surface while avoiding undesirable viewer interference

Categories For This Invention:

Data Visualizations
Lincoln Laboratory
Intellectual Property:
Illuminated 3D model
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Publications:
LuminoCity: A 3D Printed, Illuminated City Generated from LADAR Data
2014 IEEE International Conference on Technologies for Practical Robot Applications
2014

External Links:
Lumino City
http://illuminatethepossibilities.com/
Lincoln Laboratory
https://www.ll.mit.edu/

Image Gallery: