

Rainbow 3D Camera[®]

- A Revolutionary Tool for High Speed 3D Surface Imaging

Overview

The Rainbow 3D Camera developed and patented by Genex Technologies, Inc.(GTI), is a novel three-dimensional surface profile measurement system capable of acquiring full frame dynamic 3D images of objects with complex surface geometry at a high speed. A "Full Frame 3D image" means that the value of each pixel (i.e., picture element) in an acquired digital image represents the accurate distance from the camera's focal point to the corresponding point on the object's surface. The (x,y,z) coordinates for all visible points on the object surface will be provided by a single 3D image. By "acquiring dynamic 3D image at a high speed", we mean that the Rainbow 3D Camera is able to capture a full frame 3D image in one snapshot within 1 millisecond, and can obtain a stream of 3D images at a sustainable video rate (i.e., 30 frames per second).

Features:

GTI's patented Rainbow 3D Camera is a revolutionary 3D imaging tool that has several unique features for high-speed full frame 3D-image acquisition:

Real-time 3D Digitization: Inherent ability to capture full frame 3D images at video rate or higher.

Spatial Resolution: Theoretically infinite, and practically limited only by image sensor (640 by 480 or 1024 by 1300 points per frame).

Eyes-Safe: No laser, thus no "eyes safe" problem.

No Moving Parts: No scanning or mechanical moving parts, thus design is simple and reliable.

Low-Cost: Structurally simple.

Both 2D and 3D Images: 2D image registered with the 3D image can be obtained.

Visible or IR or UV Light Projection.Image.

Processing Efficiency: Each image provides a full frame 3D data.



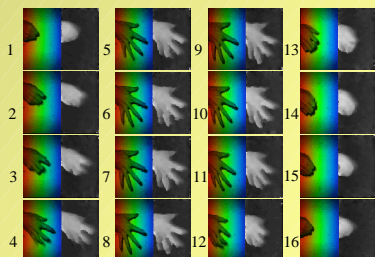
Dental 3D Measurement
Using Rainbow 3D Camera



Precision Dimensional
Measurement



CAD/CAM and Reverse Engineering



Example of High-Speed 3D
Image Stream: Moving Hand
(Left: 2D Color Images;
Right: 3D range Images,
@30 Frames Per Second)

System Specifications:

Resolution: Up to 300,000 points for single 3D image.

Image Acquisition rate: Up to 30 frames per second (fps).

Accuracy: Up to 25 microns for small objects.

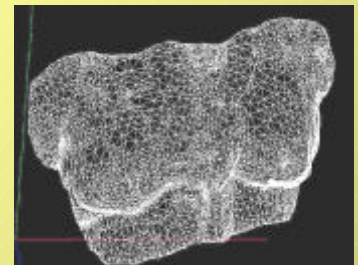
Power: AC 110V / 220V

Software platform: PC with WINDOWS 95, 98/NT OS.

Output Image format: STL, GTI, RAW.

3D Software: offers a sophisticated 3D image processing, integration, and visualization environment.

*System configurations vary according to custom selection. Specifications and Prices are subject to change without notice



Human Body Shape Measurement:
A Breast 3D Model for
Reconstructive Surgery



3D Facial Image

Applications:

- Medical Imaging
- Dental Imaging
- 3D Modeling
- Industrial Inspection
- Home Shopping
- Reverse Engineering
- Special effects, Games and Virtual worlds
- And more ...



GTI

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