TECHNOLOGY

Three Dimensional Pointing Device Monitored by Computer Vision

OVERVIEW

Researchers at the University of Maryland, Center for Automation Research, have developed an inexpensive and simple three dimensional (3-D) computer vision system using a single camera which allows the user to manipulate the position and 3-D orientation of the computer displayed articles of interest. In operation, inexpensive IR light sources are mounted on a rigid "wand-like" device for detection by the camera. Background ambient light does not impede detection of the IR sources. An object matrix is computed only once from the wand IR sources for a given configuration. Locations of IR-based images are then detected in each video image and the system's associated "firmware" uses these data to obtain close approximations of the rotation matrix and translation vector of the object.

The system can output the translation and rotation of the wand through the conventional serial ports found on IBM, IBM-clones or Apple platforms every time the camera transmits a new image. For virtual reality applications, the system can monitor the motion of the hand or head of an operator, to display a 3-D scene from various angles (useful in architecture design applications) and also allow the operator to interact with the displayed articles.

CONTACT INFO

UM Ventures
0134 Lee Building
7809 Regents Drive
College Park, MD 20742
Email: umdtechtransfer@umd.edu
Phone: (301) 405-3947 | Fax: (301) 314-9502

Additional Information

INSTITUTION

University of Maryland, College Park

PATENT STATUS

A U.S. patent, #5,297,061, has been issued on this technology.

LICENSE STATUS

Available for exclusive license

EXTERNAL RESOURCES

UM-92-062