System and method for view management in three-dimensional space

Technology #m01-058

In contrast to information presented on a conventional computer display, much of what we see in the real world is dynamic because of the constant motion of our head, and the motion of other objects and people in our field of view. These continual and unpredictable changes are a part of everyday life; however, current graphical user interfaces are unable to take these “on-the-fly” changes into account. This results in an inability to integrate dynamic information into the user’s constantly changing view of the environment. This technology dynamically manages virtual space (i.e. a computer display) such that objects can be continually added or moved in reference to the user’s always evolving three-dimensional real space.

Dynamic adjustment of a graphical interface to account for a user’s reality

Using a series of algorithms, several virtual annotations are added to a virtual space and interspersed among the real-life objects they describe. As the user’s real-life view changes (for example, through motion of the user’s head), the program recognizes the three-dimensional shift in view and automatically reconfigures the virtual annotations without obscuring neighboring annotations or real-life objects.

This invention provides a way to present information overlaid onto the user’s view of the world that avoids interfering or being interfered by other visible objects.

Lead Inventor:

Stephen K. Feiner, Ph.D.

Applications:

- Video game systems
- Virtual annotations for real-time satellite images
- Flight and driving simulators
- Virtual objects in museums, exhibitions and theme parks
- Additional forms of head-tracked augmented reality, wearable systems, and virtual reality

**Advantages:**

- Computerized method to directly annotate dynamic, real-world interfaces in which the computer cannot control the motion of certain visible objects
- Computerized method to directly annotate dynamic, real-world interfaces in which the computer cannot control the motion of the user’s head (which determines the way in which the objects are presented on the display)
- Takes into account three-dimensional object visibility
- Dynamically prevents virtual annotations from obscuring other real or virtual objects in the field

**Patent Information:**

Patent Issued (US 7,643,024)

Patent Issued (US 8,681,146)

Tech Ventures Reference: IR M01-058

**Inventors**

Steven Feiner