Virtual Walkthroughs of Panoramic Environments with Virtual Objects

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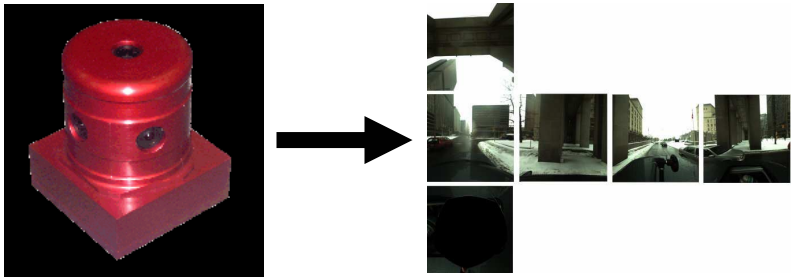
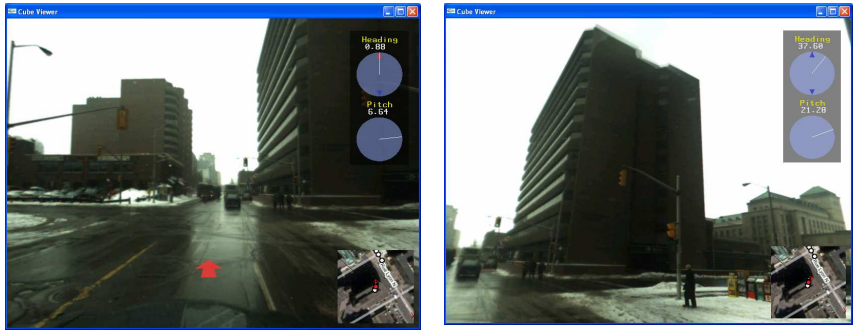
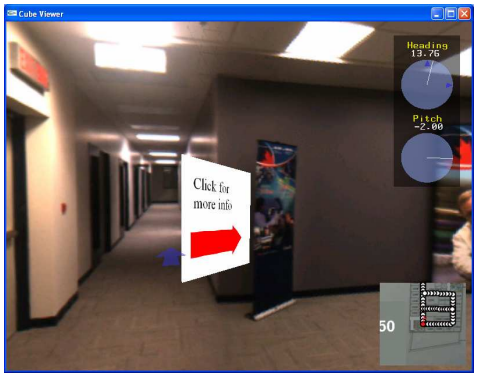


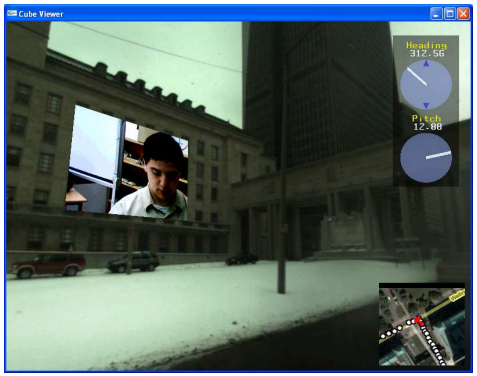


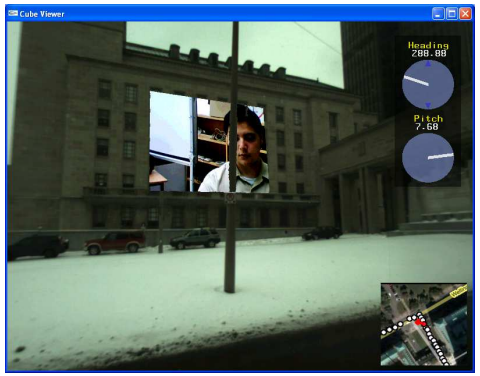
Using images captured using the Point Grey Ladybug panoramic camera, we generate cubic panorama sequences. This demo will allow users to virtually walk through a panoramic environment with added virtual objects.

From each frame in the sequence, the user can look in a near-complete sphere around the point of image capture. The user can also navigate between captured positions by following arrows marked on-screen. An on-screen map indicates the current position of the viewer in the sequence. The sequence can be viewed with either a traditional or head-mounted display.

For this demo, we would demonstrate walkthroughs of pre-prepared panoramic sequences, with added virtual objects.







These images illustrate some screenshots taken during walkthroughs, with virtual objects in the scene. In the left image, a virtual sign is inserted beside the physical poster. In the center and right image, a live video feed from a camera is augmented onto a wall of a building. In the right image, part of the camera image is occluded by a foreground pole.

The photographic panoramic imaging allows for more realistic environments than are possible using model-based virtual environments. The navigation interface is simple and intuitive, most users require only a few seconds of instruction before being able to navigate through the environment, making it very suitable for demo purposes.