

Configuration

The *metaField* consists of a video camera and projector mounted 30 ft above a 12'x12' retro-reflective floor surface. The camera and projector are focused on the floor, and are attached to a Silicon Graphics O2 computer. The retro-reflective material creates a desirable high contrast between the people and the floor when viewed from above. This contrast facilitates the task of locating the people standing on the floor.

The software driving the system has two distinct components. The first is vision software known as *glimpser*, which accepts the incoming video stream and draws basic information from it. The second takes this information and uses it to control the display. The *glimpser* has the ability to find regions of a specified size and specified color from incoming video frames, as illustrated in Figure 3. The *glimpser* and display software run separately, but simultaneously.

The display software begins by telling the *glimpser* what sort of image data it requires. For the purpose of the metaField Maze, it is required to find regions of black that correspond to 4 inch squares at floor level. This granularity is chosen to allow for the recognition of the limbs of the subject while not being so fine as to slow the performance of the *glimpser*. Once the *glimpser* is calibrated to the specifications of the display software, a steady flow of location data moves between the two. The display software incorporates a three-dimensional model of a maze created in Open Inventor; this maze is projected onto the floor. The 3-D maze model is tilted on X and Y axes depending on the location data provided by the *glimpser*.

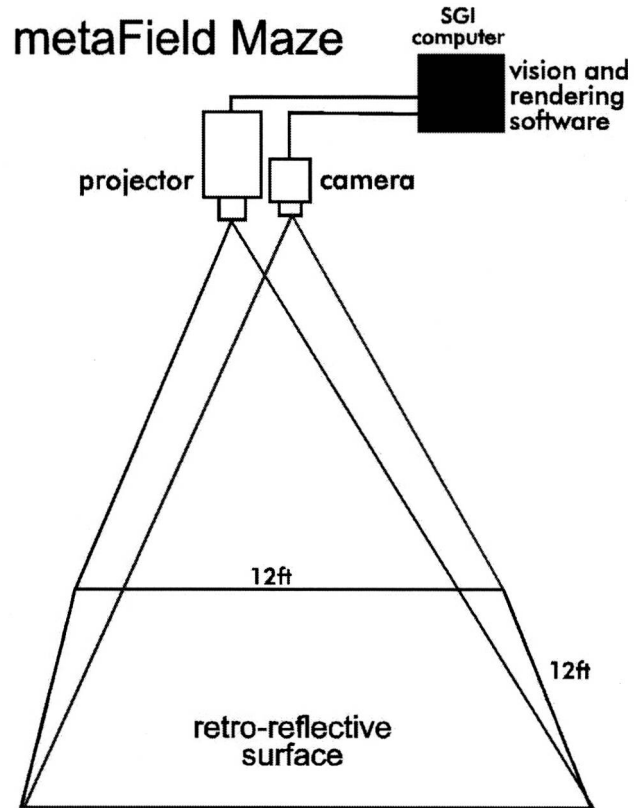


Figure 2: metaField Maze configuration diagram.

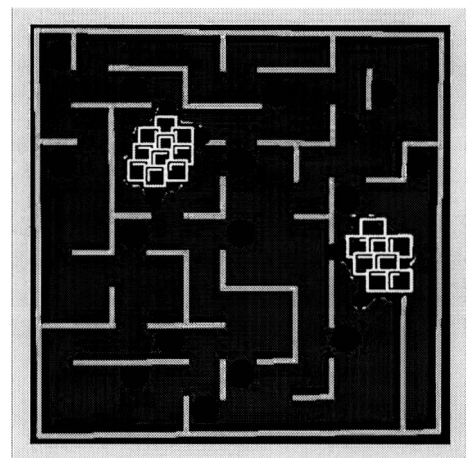


Figure 3: *Glimpser* vision system identifying two people standing on the metaField Maze.