

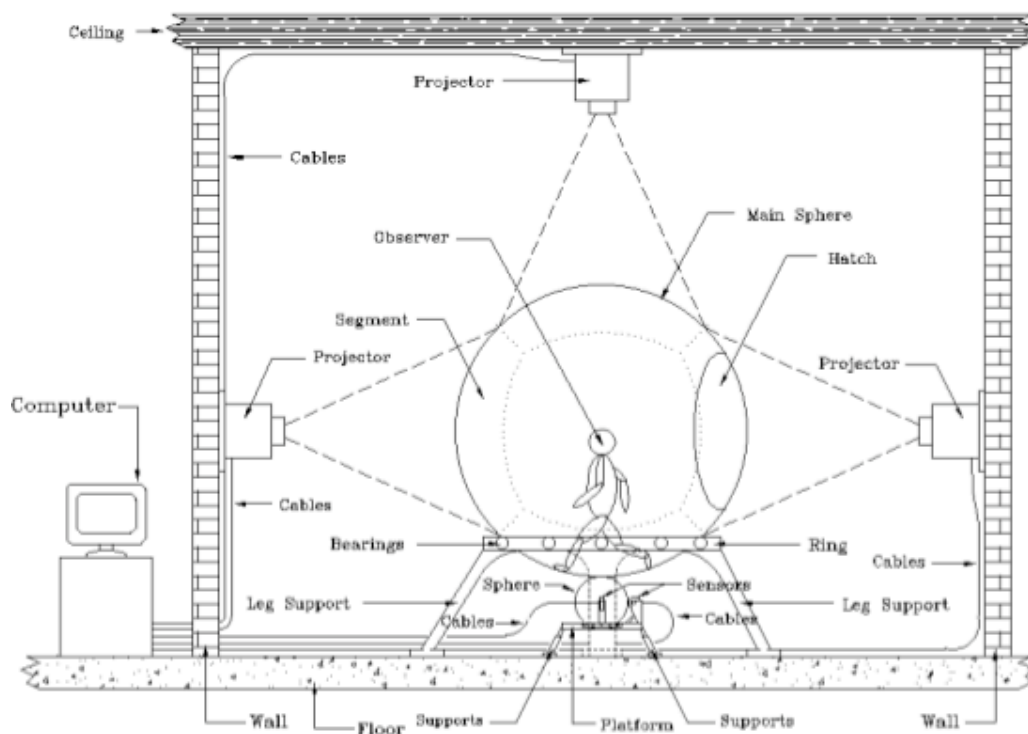
## **Dynamic analysis of the Cybersphere**

Consider the (passive) Cybersphere platform as described in the following documents (included as further material to this proposal sheet):

### **Cybersphere\_FernandesRaja\_ACMComm.pdf**

K.J. Fernandes, V. Raja, and J. Eyre, “Cybersphere: The Fully Immersive Spherical Projection System,” *Communication of ACM*, vol. 46, no. 9, pp. 141-146, 2003.

### **Cybersphere decription.pdf**



Derive a simplified dynamic model of the motion of the Cybersphere that describes the passive rolling of the large sphere, subject to the gravity and inertial forces applied by the walker in motion and the frictional forces exerted at the base by the smaller supporting sphere and the ring. The user can be represented by a moving mass (e.g., a vertical cylinder). Simulate the overall dynamic behavior and select the relevant (unknown) parameters so that there are no oscillations of the platform while recovering the walker to the center position.