

Spherical treadmill

In this design, a 3D-printed base distributes compressed air evenly to support a floating styrofoam ball, while two sensors measure the ball's rotation speed on 2 axes. It is typically used with virtual reality setups for mouse behavior (Harvey et al. 2009 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2771429/>). This open-source project is modified from a design by the Technocenter, Radboud University in collaboration with the Battaglia lab <https://twitter.com/battagliab>.



Figure 1 - Spherical treadmill ready to use. Printed in black PETG.

The original design was adapted to

1. Accommodate the Logitech G502 mouse model (earlier model was discontinued)
2. Distance control – the sensor can be moved closer or away from the styrofoam ball, simply by adding washers between sensor box wall and base.
3. Easy access – The sensor box can be easily open/closed (it attaches with magnets), facilitating cleaning. All sensor components can be removed in that way, giving access to the screws that enable distance control.
4. Easy anchoring on optic tables with 4 feet compatible with M6 screws.

This project requires 3D-printed parts (FDM), 2 Logitech G502 mice, a valve and a few screws. See the Assembly Instructions document for a detailed bill of materials and step-by-step instructions.

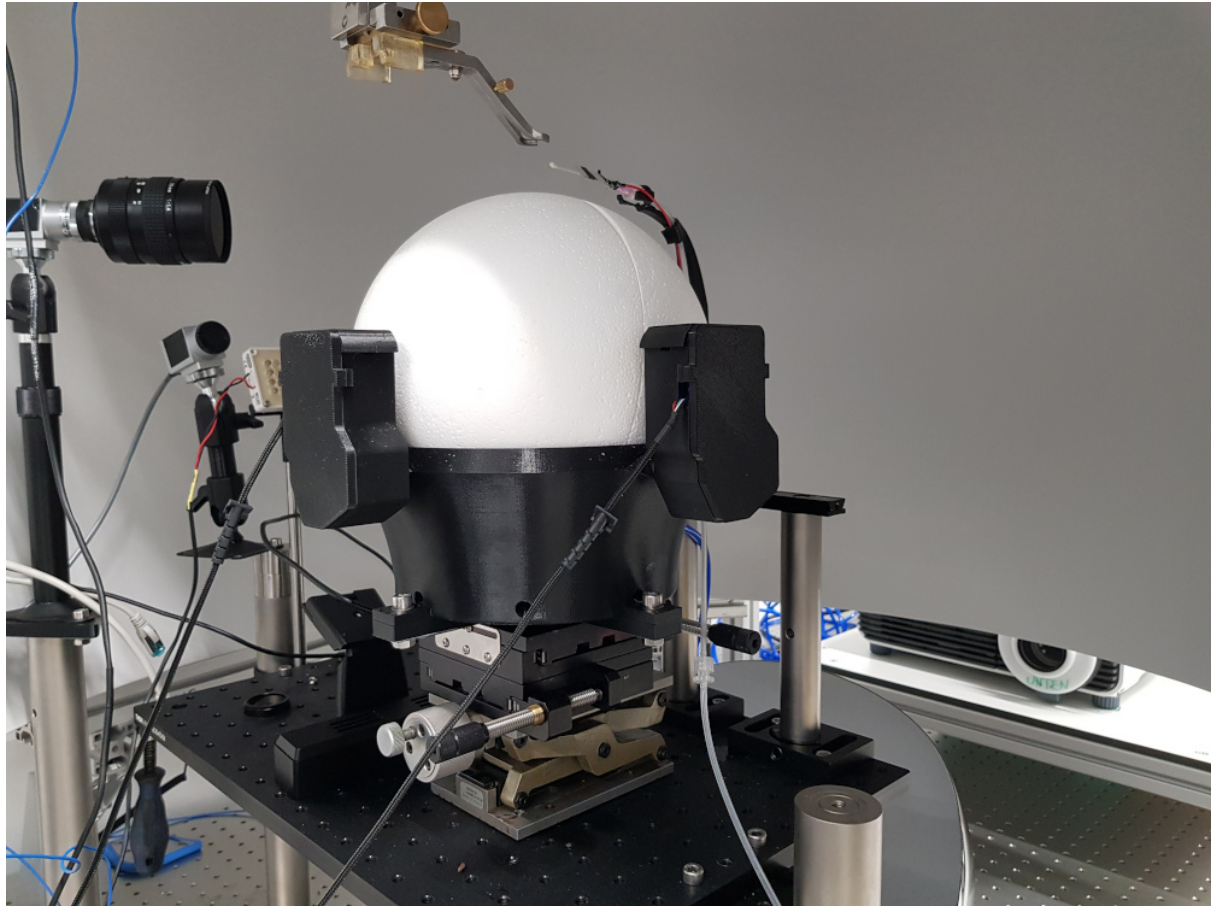


Figure 2 - Spherical treadmill in a mouse VR setup at the Ernst Strüngmann Institute, Frankfurt.

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