

Falls among the elderly and other individuals with sensorimotor impairments (i.e. post hip fracture; reduced vision; etc.) are an epidemic and extraordinarily costly. George Fox Physical Therapy is working on a project to aid these people. This project addresses the problem of poor balance through a wearable device that translates body sway into modes of haptic feedback (physical touch) that have already been demonstrated to improve stability through the application of neurophysiologic principles. Last year, a group of students developed a prototype that didn't quite meet all the specifications. Over the summer, testing was done to find new ways of improving the design. This year, Dr. Meszaros has once again enlisted the aid of the Engineering Dept. to build a prototype to address this problem.

Actuators

The actuators use two DC motors in a rack-and-pinion system to displace a sliding factor and provide haptic (or touch) feedback to the user. The motors are contained in a 3D printed housing with slots on the side flanges and on the removable lid for attachment to the garment. This also allows for adjusting the actuator placement.