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# Laser guided wheelchair for the blind pdf

The goal of this project is to evaluate the Smart Wheelchair Component System (SWCS) for power wheelchairs and the Smart Power Assistance Module (SPAM) for manual wheelchairs in realistic indoor environments with target users performing realistic tasks. We will combine group trials involving individuals who have a visual impairment (but do not have a mobility impairment) with several single-case studio involving individuals who have a visual and mobility impairment. Our long-term objective is to provide independent mobility to veterans with mobility and sensory impairments. Condition or disease Intervention/treatment Phase Blindness Spinal Cord Injury Device: Smart Power Assistance Module (SPAM) Device: Smart Wheelchair Component System (SWCS) Not Applicable There are currently very few mobility options for veterans who have a mobility impairment and visual impairment, and this population will grow as the number of older veteran's increases. The goal of this project is to evaluate the Smart Wheelchair Component System (SWCS) for power wheelchairs and the Smart Power Assistance Module (SPAM) for manual wheelchairs in realistic indoor environments with target users performing realistic tasks. We will combine group trials involving individuals who have a visual impairment (and may or may not have a mobility impairment) with several single-case studies involving individuals who have a visual and mobility impairment. The key questions that will be addresses by the proposed research are: Can smart wheelchair technology improve performance on realistic navigation tasks for individuals with visual and mobility impairments? Will smart wheelchair technology increase the amount of independent travel by individuals with visual and mobility impairments? Will using a smart wheelchair for an extended period of time diminish a person's ability to operate a "traditional" wheeled mobility aid? Arm Intervention/treatment Experimental: SPAM and SWCS Smart Power Assistance Module (SPAM) Smart Wheelchair Component System (SWCS) Device: Smart Power Assistance Module (SPAM) Experimental Power wheelchair utilized to traverse prescribed course Device: Smart Wheelchair Component System (SWCS) Experimental power wheelchair utilized to traverse prescribed course Primary Outcome Measures : Time to Complete Trial Wheelchair Course [ Time Frame: Two years ]Time to complete the course was recorded. The indoor course was set up in the research laboratory to include a straight path and 90 degree turns that included obstacles such as a cardboard box, a large orange cone, and a desk chair. The location of these obstacles were randomly placed in order to test whether or not the SPAM or SWCS was able to detect objects. Inclusion Criteria: All participants will be completely blind Participants will be able to operate a power wheelchair with joystick control Participants will be able to push a manual wheelchair a minimum of 300 yards Exclusion Criteria: Layout table for location information United States, Georgia Atlanta VA Medical and Rehab Center, Decatur Decatur, Georgia, United States, 30033 United States, Pennsylvania VA Pittsburgh Healthcare System University Drive Division, Pittsburgh, PA Pittsburgh, Pennsylvania, United States, 15240 VA Office of Research and Development Layout table for investigator information Principal Investigator: Richard Simpson, PhD VAPHS

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