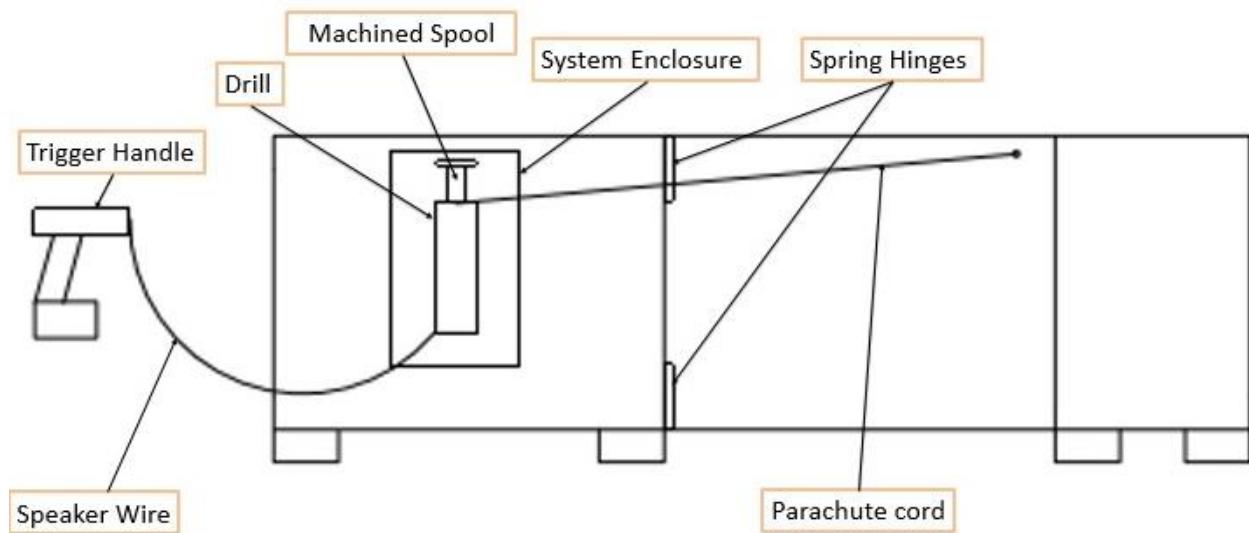


Abstract

Around 15% of all bathroom falls are related to bath or toilet transfers (Aminzadeh, 2000). Walk-in bathtubs present the risk of falling for elderly individuals when they need to open the door. The transfer into the bathtub presents the greatest risk because the height of the entry door causes the elderly individual to bend over, which may result in a fall. It was recommended by therapists that individuals with walk-in bathtubs should acquire and implement a technical aid to help them get into and out of the bathtub (Parker, 1999).

Our team designed and constructed a drill-powered door opener for walk-in bathtubs. It uses the torque of the drill to turn a spool that winds up *Para-cord* to pull the door open. This design works but there are various improvements needed to be made to the system in order to function better: improved waterproofing, cord covering to reduce tripping hazard, trigger governor to manage the opening and closing speeds of the door, making it wireless, and improving the system aesthetically.



Aminzadeh, F., Edwards, N., Lockett, D., & Nair, R. C. (2000). Utilization of bathroom safety devices, patterns of bathing and toileting, and bathroom falls in a sample of community living older adults [Abstract]. *Technology and Disability*, 13(1), 95-103. Retrieved November 17, 2016.

Parker, M. G., & Thorslund, M. (1991, August). The Use of Technical Aids Among Community-Based Elderly. *The American Journal of Occupational Therapy*, 45(8), 712-718. Retrieved November 17, 2016.