

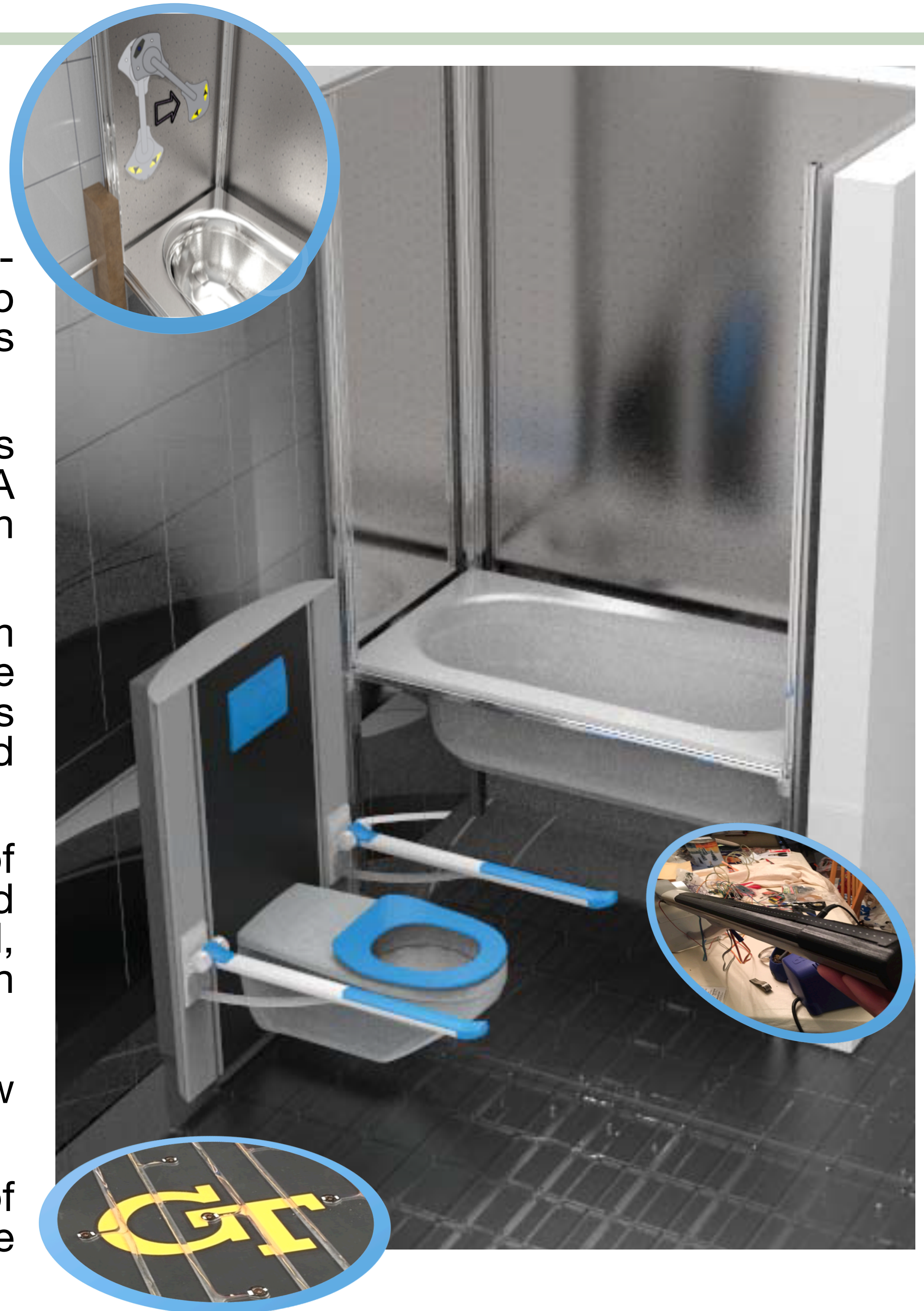
## Introduction

The bathroom is an integral part of people's everyday life, enabling individuals to carry out basic activities of daily living and helping to maintain their well-being. However, as people grow older, the design of the bathroom environment can require increasing demands due to normal age-related changes to an individual's physical, sensory and/or cognitive abilities, resulting in a range of difficulties with these basic tasks. This project will explore the task performance of older adults (60+) who can ambulate with or without a caregiver, but who have physical impairment (upper or lower body).

## Activities

### Current focus: Toilet transfers

- **Toilet:** Will use a Pressalit **Toilet System** for auto-up and down toilet movement. Will adapt for side to side movement. Toilet seat will have load cells embedded.
- **Floor** will use an array of load cells at 8" intervals to sense weight and location during transfer. A prototype floor (v6) is complete. Final floor plans in progress
- **Grab bars** will be mounted to the Pressalit system with a 4-load cell mount designed to measure weight on the bars. Mount is designed, load cells installed. Next load cells will be connected and visualized.
- **Grab bars** will sense location and pressure of hand grasp(s) along the arm using sensors installed on the handles. U-bar prototype is functional, Pressalit grab bars needed to be redesigned with 3D printed insert to protect wires.
- **Bath tub** will move up and down on 80/20 to allow bath or shower transfer tests
- **Shower Grab bar wall** will consist of an array of holes in steel with bars able to orient in multiple angles and locations.



## Challenges

Multiple design and technology challenges have resulted in lab completion delays. As a result, the team decided to focus on toilet transfer first.

## Future Directions

Studies of toilet transfers are expected to begin in Fall, 2016. These studies will help evaluate the accuracy and benefit of the lab.