**COMPUTER ENGINEERING**

**EGCP 471 MULTIDISCIPLINARY PROJECTS SPRING 2019**

**IN COMPUTER ENGINEERING – II**

**VOICE CONTROLLED SHOWER**

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# **ABSTRACT**

Our Senior Design Project inspiration came from an ALS patient who suffers from a progressive neurodegenerative disease that affects nerve cells in the brain and the spinal cord. This causes diminishing motor functions and limits mobility which requires the need for constant assistance. This inspired our design to try and improve the quality of life for anyone that requires assistance to do simple tasks, such as taking a shower. Our goal is to have the voice controls assist the user and remove the need for any additional help while showering. This would be beneficial for the elderly or anyone with disabilities that restricts their motor functions.

We have been designing and building a motorized track to operate a shower by use of voice recognition and a web page controller. Our prototype will control a shower head on a motorized track, open and close water valves, and control the temperature of the water. To accomplish this we are implementing the voice controls by interfacing with Alexa, Amazon’s AI, through the use of an Amazon Echo. The use of AWS Lambda, which is Amazon’s Web Service, will enable us to use our ESP8266s to communicate between the devices in order to activate the stepper motors, valves that will be utilized for the functionality of our design. Our prototype is currently behaving as expected with our web page controller.

WIth the weight of the shower head and for faster track movement after several trials we decided to go with a stepper motor with higher amperage. The temperature valves have been working as expected and we are able to adjust temperature as needed. Our expected outcome is to have our Alexa voice interfacing completed, have a profile with users presets (i.e water temperature, shower head position) and our track running smooth Future additions to our project include retrofitting it into households, as well as major articulation of the shower head and a secondary track for dual coverage.