

## **Thesis Portfolio**

Title of Technical Report

The Robottoman

Title of STS Research Paper

The Current Woes of Charlottesville Bus Transit

An Undergraduate Thesis

Presented to the Faculty of the School of Engineering and Applied Science

University of Virginia • Charlottesville, Virginia

In Fulfillment of the Requirements for the Degree

Bachelor of Science, School of Engineering and Applied Science

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Spring, 2019

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## SocioTechnical Synthesis

It is basic human nature to want to avoid things that are an inconvenience and/or make them uncomfortable. My theses are related to each other as they both highlight problems and offer solutions to current problems which could make residents of Charlottesville inconvenienced and/or uncomfortable. However, they differ in scale of the inconvenience they attempt to remedy: the STS research paper delves into the current problems with Charlottesville bus transit, while the technical thesis presents a solution to moving furniture for the unable and/or unwilling. This report aims to highlight ways in which people deal with inconveniences and how technology can solve them as well.

The technical thesis focuses on an invention my team calls the Robottoman. The Robottoman is a device which allows a user to move their furniture with their phone. We successfully created a working proof of concept of the Robottoman which moved a small ottoman through a user's phone. The user would just have to open a custom app on their phone and connect to the Robottoman through Bluetooth. We took interest in this project because we see constantly moving an ottoman as a repetitive and annoying task everyone must deal with. We also believe that moving furniture is a big inconvenience for the elderly. Future iterations of this technology could include having the furniture deal with different flooring and/or implementing a microphone which moves the furniture based on sound.

The STS thesis investigates areas of improvement I think Charlottesville should work on when it comes to bus transit. Namely, its unattractive bus stops and an unorganized bus tracking system. Currently many of Charlottesville's bus stops exhibit properties of what scholars deem poorly constructed bus stops have. The system for tracking buses is also not

ideal as a user would have to download many apps and spend a considerable amount of time to find a satisfactory route. Charlottesville's high poverty and car ownership rate, as well as its diminishing number of public transit users suggests that improvements can be made to the current transit scene. This thesis highlights how Charlottesville can create a bus transit scene which is more attractive and welcoming to its users by learning from bigger cities, such as San Francisco.

I would like to thank the all of the Faculty of the Department of Electrical and Computer Engineering as well as Sean Ferguson who advised me though my Capstone and STS Research. I would also like to thank my dear classmates and friends, specifically Zach Struble, Rob Fusek, Matthew McDonnell, Steve Phan, and Daniel Hanson. Working with them over the years has proved to be an amazingly fun and rewarding experience. Finally I would like to thank my parents. Seeing how hard they work to give me a platform to succeed inspires me every day.