

Thesis Portfolio

Horse Show Administration Program Improvements

(Technical Report)

**A Comparison Study of the Smart Parking Infrastructure Between Shenzhen and
Charlottesville**

(STS Research Paper)

An Undergraduate Thesis

Presented to the Faculty of the School of Engineering and Applied Science
University of Virginia • Charlottesville, VA

In Fulfillment of the Requirements for the Degree
Bachelor of Science, School of Engineering

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Spring, 2020

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Thesis Prospectus

Sociotechnical Synthesis

The technical portion of this thesis was composed of modifying an existing codebase that was built by a previous team and writing documentation on branching strategy, JIRA usage, and installation instructions for all products used. The development and maintenance of this software was guided by a client from the Charlottesville area who runs horse shows, which the software was originally built for. There were five specific bugs that were initially requested to be fixed, but more bugs and potential improvements were recognized throughout the semester. Our team would meet bi-weekly with this customer to showcase our changes and discuss further improvements. Throughout this process, we documented the steps we took to modify this existing codebase, including both how our team delegated tasks and how to use various technologies. The documentation that we produced throughout this project will be utilized in the future by teams that aim to perform maintenance on and further develop other software products.

The STS portion of this thesis aims to identify the successful aspects of Smart Parking infrastructure within China's province of Shenzhen and analyze whether it could successfully be applied to Charlottesville. Parking is a growing problem for many different cities across the world, and to tackle this problem, many cities are looking towards investing into Smart Parking to ease their problems. Smart Parking takes form in many different ways, whether it's through a simple application displaying available parking, automated robots parking and storing cars for their drivers, or a sophisticated application capable of reserving and paying for a parking garage spot. Shenzhen has successfully implemented many Smart Parking ideologies; however, the cultural, social, and physical differences between Shenzhen and Charlottesville are vast, and similar implementations may result in very different outcomes.

The technical and STS theses are not related.