Thesis Portfolio

Where2Park
(Technical Report)

Role of Social Context in Technological Advancement

(STS Research Paper)

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

Nawar Wali
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Department of Electrical and Computer Engineering

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Sociotechnical Synthesis

The submission of this portfolio includes a technical topic and STS components.

The technical topic is a summation of my capstone project, Where2Park. It was completed Fall 2020 under the supervision of Professor Harry Powell. Where2Park is an IoT system that tracks the status of parking spots in real time, and conveys this information to a users via GUI (Graphical User Interface). The system uses multiple metal detecting sensors, one per parking spot, which form a mesh network that relays information about each spot (i.e., the presence/absence of a car).

My responsibilities included designing and testing the metal detector schematic as well as planning the detector coil. The circuit has a few different parts and has to take into account the output/feeding into the microcontroller. The first part of the schematic is the Colpitts Oscillator where the main feature is a tank circuit. A tank circuit is a theoretical circuit where an inductor and capacitor keep each other running.

The STS components include a Thesis and a Prospectus. The focus of the thesis discusses how social acceptance, context and design implementations effect the value and progress of technological advancements. Using the technology in question as smart parking, something that my capstone project is building, I have explored my thesis in regards to deployment of the project in Charlottesville.

My STS Thesis, Prospectus and Technical Topic are related in content.