“What I Did During My MATC Summer Internship”

MATC Summer Internship Program

Report

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This summer has truly been an experience that I will forever cherish, from the scope of work, to the people that I have had the honor to work with. As a civil engineering student, I have been exposed to different fields of study as well as different career paths. I have seen, learned, and gained so much more than career experience but life lessons that will stay with me through my journey as a civil engineering student. My main focus this summer was the application of Radio Frequency Identification Devices (RFID) technologies and the benefit of using the technology for NASA and transportation. Radio-frequency identification (RFID) is the use of an object (typically referred to as an RFID tag) applied to or incorporated into a product, animal, or person for the purpose of identification and tracking using radio waves

I work in the radio frequency supply chain and logistics (RfSCL) lab ran by Dr. Erick Jones. The mission of the lab is “Providing integrated solutions in logistics and other data driven environments through automatic data capture, real world prototypes, and analysis.” The lab has a family atmosphere and everybody helps everyone. We have had group building activities to get to know each other to make the work environment more comfortable. The equipment we used was the Sirit Infinity 510 reader, passive tag (does not need a battery), and a think pad laptop with the Sirit software.

I was introduced to a few projects with my time in Lincoln, Nebraska. The first project I was introduced to was the Commercial Vehicle and Information Systems and Networks (CVISN) project. The goal of the research is to investigate the viability of embedding RFID tags into license plates so that readers strategically located alongside streets and roads can capture information. This project was a hand-on experience that

allowed us to go out into the field, utilize the equipment, and gain experience with testing.

The second project that I was assigned to was the NASA-Inventory Control Modeling Using Radio Frequency Identification (RFID) Technologies. The purpose of this project is to investigate the usage of Radio Frequency Identification (RFID) technologies to help the astronauts with inventory control on the space station and decrease the amount of the time locating assets. The astronauts are having problems with inventory audits and locating items within the space station in space and want to find a more efficient way of locating items and conducting inventory audits. We feel that RFID technology will accommodate the astronauts' needs as well as give them more time to do more important tasks. I did some base line testing with two different types of tags. We wanted to determine the readability of a tag in stationary positions mimicking items that are strap down to the walls and mobilizing the tags to mimic items that may be floating around. We collected the received signal strength indicator (RSSI) values to determine how the tag would read compared to another tag. (RSSI) is a measurement of the power present in a received radio signal. The closer the tag is to the antenna, the stronger the signal is.

This summer has been a great experience both professionally and personally. I have gained so much from this experience and will practice the lessons that were taught to me throughout my career.