In fall 2014, I had the opportunity to take part in an independent study under the direction of Dr. Sunho Lim. The objective of this independent study was to create a way to notify drivers that there is a bicyclist in the area. This is especially a large problem around college campuses. With four students pursuing the solution of this problem, we were split up into two groups. One group took an embedded system approach and the other took a mobile application approach. I was in the embedded system approach group with Zachary Brasuell. With little experience with embedded systems, this course allowed Zach and me to explore the new possibilities of utilizing hardware to meet the needs of the problem we faced.

As stated, being in the embedded system team, we were faced with technologies that were new and exciting. To tackle the issue of proximity detection, we explored development with the use of Arduino boards and compatible sensors. We spend many hours learning how to set up and program our Arduino Uno boards and sensors. It was a great learning experience. We learned how design devices, wire them, and program them as needed. By the end of the semester we had created a server/client Arduino based system that notified a user when each device was within a set proximity of each other. These devices utilized GPS, radios, and Bluetooth to acquire locational data and transmit the data to each other. After we had our system up and running, it was really a great feeling to see something that was merely an idea, come to life in just a short few months.

The goal of this course was to give students free reign to develop a solution to a problem, using little direction. This was an invaluable learning experience because it gave me the chance to use my own knowledge and time management skills to achieve a set goal. I could really go at my own pace. This experience helped me really learn how to overcome real world obstacles. If any student has the opportunity to take an independent study, especially with Dr. Lim, I recommend they take full advantage of it!

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