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Senior Design I

### Self-Assessment Essay

My team's project for senior design is a network management and device location system. We will be building a desktop and mobile application designed to help individuals manage and locate the devices on their network. The core functionality of the tool will allow individuals to view devices connected to their network and pinpoint the location of these devices within their facility. They will be able to configure settings to geotag their facility, the central processing server on the network, and notifications for when devices disconnect from the network. Network transparency is key to this project's success. Therefore, all of this will be done through a simple and sleek user interface. To see this project through, I will be utilizing skills obtained through my academic and work experiences.

At the University of Cincinnati, there are several courses I've taken that will be particularly useful. Network and Cloud Computing (CS 4065) and Information Security and Assurance (IT 2030C) taught me about computer networking and the applicable methods to secure a network. Software development will be at the core of this project. I learned the basic concepts of this in various courses including Data Structures (CS 2028C), Programming Languages (CS 4003), Design and Analysis of Algorithms (CS 4071), and Database Design and Development (CS 4092) and expect to apply it to the application development. Software Engineering (EECE 3093C) exposed me to a major software development project, including software development lifecycles and various methods to attack software development. I think this will be helpful in managing the group and project over the course of the year. In addition, I am currently in User Interface I (CS 5167) which will help me in making decisions regarding the UI/UX of our applications. These courses would not mean much, however, without my co-op rotations.

All my work experience has been with Siemens out in Milford, Ohio. There, I worked five rotations (including some part-time) as a software developer on the Development and Operations team in their Cyber Defense Center. My time there allowed me to hone the technical skills I learned during class including Python, SQL, JavaScript, Linux, and more. The real benefit of co-op was the non-technical skills I picked up or improved. Collaboration and communication will better enable me to work with my team members. Flexibility and time management will be key in juggling this project with the rest of my coursework and other priorities. Organization and the more technical agile development methodology will help me keep my and my teammate's progress on track. Collectively, the fusion of my past experiences (in addition to my teammate's) led us to selecting this project.

Our motivation behind this tool stems from the cost and complexities associated with similar tools on the market currently. The overall goal is to reach individuals who may not be savvy with technology or networking and provide them with a tool that makes it easy to enhance the security of their network. This goal is what motivates me, specifically, to complete the project. If I'm able to take the final product home with me and see my parents using it, I know we will have succeeded. My previously mentioned experience in security and application development will make this project fun. In addition, I believe the project will give me a good experience in networking and software engineering lifecycles.

Our preliminary approach to this project is already underway with the project description we have created. I believe that clearly identifying the problem and stating our goals will provide us with solid direction moving through the year. The next step is to take those goals and generate specific requirements to fulfill every one of them. As I've stated before, we expect to create a tool simple enough for non-tech savvy individuals (such as my parents) to use and enable them to watch over their networks. We will measure our accomplishments and overall success by how well we solve the problem and the difficulties experienced by users in tests we perform. If we design and implement the core functionalities we have brainstormed, I have no doubt that this project will be successful. At the end of the day, senior design is still an academic course. If we exit the course without completing the project, I will be disappointed. But if all team members learn something new to help them in their professional careers, then the project will be successful.