For my senior design project, my team and I will be developing a crowdsourced litter pickup website that allows community members to report areas with high levels of litter so that local volunteer groups and city organizations can prioritize cleanup efforts. From my perspective as a computer science student, this project represents the integration of web development, data visualization, and civic engagement. Our goal is to create an intuitive and reliable platform that collects geotagged user reports and translates them into information for community stakeholders. This project requires balancing both technical challenges, such as designing a responsive user interface and maintaining a secure database, with social considerations like accessibility and community participation. By applying my academic background and professional experiences, I will be able to contribute to a project that bridges technology with environmental sustainability. Ultimately, this project embodies the type of meaningful real-world impact I have been preparing for throughout my undergraduate education.

My coursework in computer science has given me the technical foundation to approach this project with confidence. Courses such as CS2028 Data Structures and EECE3093 Software Engineering have equipped me with the ability to design and collaborate in team-based projects. These courses where I worked projects with a team taught me about collaboration and project planning, both of which will be important for this senior design project. I got my first experience of full stack development in CS4092 Database Design where I worked with a team to build a mock online shopping website with a working database and creative UI. That project sparked my interest in web development and eventually led me to want to do some form of web development for my senior project. The combined experiences from my academic curriculum have prepared me to be excited and ready to tackle the challenges of this project.

In addition to my coursework, my co-op experiences have also prepared me to contribute to this project. At Emerson/Copeland, I worked as an Intelligent Automation co-op, where I got exposure to the layout of websites due to the need to search through their code to find accessible paths to certain elements, this got me interested in front end development. During my time there as a co-op, I learned a lot about working with a team, even when we were all working on our own separate tasks. I believe this will be important for my senior project as we will want to work on our own parts of the project while still being open to helping each other when someone needs it. At the University of Wisconsin as a Software Lead co-op for the eigenvalue project, I learned a lot about figuring out my own problems by myself but also not being afraid to ask questions when I got stuck because I was working on a difficult topic I was less familiar with and the people I worked with were professors who were busy with their own classes, leading me to need to adapt and learn things on my own sometimes. This will be important for me in this senior project because we will be developing our website in c# which I am unfamiliar with, meaning I will need to do a bit of learning before we start working on it. The technical and non-technical skills I have learned through co-op will help me and my team succeed on this project.

I am highly motivated to work on this project because it combines my technical skills with a meaningful social cause. Growing up around communities where litter is a recurring issue,

I have volunteered many times to help clean up the streets and sidewalks of surrounding neighborhoods. The opportunity to be able to apply my computer science background to promote litter clean up and awareness excites me. I am also excited to design a platform that will have real world impact, not just a project for a class assignment, but an actual tool to be potentially used by local organizations. Knowing that the work we produce could inspire positive changes for cleaner communities drives my commitment to making this project successful. I hope that this project will lead to cleaner neighborhoods and make it easier to identify places in need of cleanup.

Our preliminary approach to the project involves designing a website that allows users to quickly mark littered locations with an interactive map. My expected contributions will include helping to design the front-end interface, as well as helping with database integration and development. I know that there will be some new tools and languages I might have to learn for this project, and that excites me because I am always looking to diversify my skillset. I will measure my success by whether the system functions reliably, whether the design is intuitive, and whether volunteer groups find the information useful. I know that I have done a good job when our platform not only works as intended but is also easy to use. Throughout this project, I hope to deliver a solution that blends technical innovation with community benefit.