# Executive Summary

Universities are suffering from poor *mobility,* which is the convenience and ability to travel around and into the campus. An increase in students and faculty who drive to school has caused traffic congestion and decreased parking availability. The purpose of this proposal is to recommend the development of a USU Parking and Transportation app. The goal of this project is to optimize parking on campus, help newer students, and centralize information into one easy to use mobile application.

Features of this app include a class map, real-time parking availability information, USU Banner integration, and easy access to information about campus. The class map will help students find their way around campus, guiding them from class to class. Real-time parking information will make getting to campus simpler for students and faculty by allowing them to see which parking lots are full so they can plan their commute accordingly. Integrating USU Banner into the app will allow for easy access of important information such as a student’s class schedule, which parking passes a student owns, live bus routes, and building hours.

To implement these features, the app will use APIs and computer vision techniques. The app will use Google’s API to aid in the development of the class map feature. USU’s API will be used to access the user’s account ID, USU account messages, schedule, classroom buildings, instructors, and live bus routes. Computer vision techniques will be used to determine which parking spaces are open on campus. The class map, live parking data, and information received from APIs will be neatly displayed to the user in one neatly formatted, easy to use application.

Development of a USU Parking and Transportation app will take 6-8 months to complete. This time frame allows time for the requirement gathering, design, development, integration, testing, and deployment of the app. To complete this project, our team will need access to 35 Raspberry Pis and cameras, which cost $75 per unit, and Visual Studio Professional, a development environment which costs $1260. The total cost of this project is projected to be $301,260, which accounts for the needed resources and compensation for our team of engineers.

A team of Computer Science majors at Utah State University will be building this application. Each team member has adequate experience in building web or mobile applications and building software in a team setting. This team is qualified to complete the project, and confident that they will be able to complete the project within the time frame and on budget.

The development of a USU Parking and Transportation app will help students find their way to and around campus. Funding the development of a USU Parking and Transportation app will help both new and returning students find their way around campus. This project will benefit both Engineering Innovations and the students of Utah State University.