# Introduction

This proposal is in response to the Engineering Innovations Innovations in Engineering Award. The purpose of this proposal is to recommend the development of a USU Parking and Transportation app. This proposal discusses the problems universities have with the mobility of their campuses and the solutions that have been suggested so far. The proposed app aims to make mobility on campus simple and accessible through map APIs, computer vision, and the centralization of information. An estimated schedule, needed resources, and funding costs are later detailed and explained.

A USU Parking and Transportation app will help students find their way around campus through a map service which will guide them from class to class. To help students find parking spaces, the app will allow them to see which parking spots are occupied or empty on campus. Since necessary student information is scattered across several different apps and websites, the proposed app will also centralize student information into one area. Students will benefit from being able to easily find where their classes are and where open parking spaces are, allowing them to focus on their classwork rather than getting around campus.

Students will be able to sign in to the app using their banner accounts, which gives the app access to the student’s class schedule, parking passes, and other account information. A USU Parking and Transportation app will use existing APIs provided by USU to aid in the development process. For example, the class map feature will use the Google Maps API which allows us to easily draw walking paths on a map of USU and find the shortest path between two classes [2].

To provide real-time parking information to students, the app will take pictures of the parking lots and use a computer vision algorithm to detect if each parking space is open or not. Using computer vision techniques cuts down on the cost and raises the scalability of this feature [3].

The development process of the app will be guided by the following workflow: requirements gathering, design, development, testing, and deployment. The development team projects the total development time of this project will take 6-8 months, and the total cost of this project will be $301,260.

Development of a USU Parking and Transportation app will help both new and returning students find their way around campus. Students will spend less time worrying if they are going to be late to class because all the parking spots filled up and more time focusing on class. The development team consists of four Computer Science majors from Utah State University, each with adequate experience in building web or mobile applications. The team is confident they will be able to successfully complete this project in the mentioned time frame and on budget.