

# ITCS 3160 Spring 2020 Project

## Introduction

Food delivery has been steadily increasing in popularity over time. With the rise of COVID-19, delivery and take-out services is the only way several restaurants are staying in business. Experts hypothesize the increase in demand for this form of food service may last even after the stay-at-home mandates are lifted. College students are often getting food delivered to them on campus. This makes it very convenient for them to get their food without losing their parking spot or spending too much time between classes navigating lunch rush traffic. Additionally, students can utilize this service to order ahead of time saving even more time than they might otherwise spend waiting in line at campus restaurants. Campuses, however, are uneasy about delivery persons wandering around campus without a formal connection to the university. As such, they are seeking alternative solutions to consider for handling on-campus delivery for the health and safety of everyone on campus.

This project attempts to design a concept that will provide an alternative solution for campuses to consider. It is important to note that this project is only a prototype for the purpose of considering campus-controlled food delivery service and is not a working model. This prototype explores a non-profit third-party service controlled by a campus to compete with existing third-party services.

## How It Works

### Incentivizing Students

Campus could attempt to force students to use their system by disallowing the use of third-party delivery services on campus. However, this rule would be too difficult for most campuses to enforce, so their only choice is to use incentives. Some students use campus meal plans, and a great incentive would be making their meal plans include allowances for this new delivery system. However, several students, particularly commuters, often don't use meal plans, and would require different incentive. The best incentive for these students would be offering to deliver food for a lower price than the alternative delivery systems.

Third-party delivery systems vary in "delivery fees and service fees" that can quickly force students to pay a steep price for convenience. A non-profit campus delivery system should be able to offer lower fees for their services, saving students money and increasing campus safety. Some restaurants such as Jimmy Johns, Panera, or most pizza franchises already have private delivery services in place that have a much cheaper delivery fee than third-party services can offer. Campuses should not try to compete with these businesses for deliveries. These delivery drivers usually have a topper on their car and wear a uniform, making them more easily identifiable. Deliveries made directly by restaurants can be traced back more easily than deliveries made by a third-party. Campuses should view these deliveries as acceptable, less of a threat to the overall security of the campus; campuses should not try to compete with them.

Campuses can further incentivize students to use their system with discounts, a rewards system, or similar methods companies use to inspire repeat usage of their services.

## Campus Delivery Methods

Only delivering to a specific set of people in a fixed area will give the campus an advantage over other third-party delivery systems. Their drivers will save more time and gas than other systems drivers. The campus can further the time saved and gas spent by creating a campus delivery hub. Delivery drivers can use cars to retrieve the food from restaurants and bring it to the hub. There would be special parking spaces directly beside the hub for them to use while on the clock. Food can then be delivered from the hub directly to the students. Depending on the layout of the campus, delivery drivers employed by the campus can save mileage and gas money by walking or being given electric scooters to use to deliver food. This is another campus advantage third-parties won't have. Students could also be offered a lower delivery fee if they opt to retrieve the food themselves directly from the hub instead of having it personally delivered to them.

## Project Description

This system will employ delivery drivers to retrieve customer food orders from nearby restaurants and deliver it to students and faculty on campus. This project is based on a campus with a layout similar to the University of North Carolina at Charlotte. This system prototype utilizes the idea of a delivery hub but will also be able to operate without one. This system is meant only for college campuses to use for students and faculty while they are on campus, and not while they are away from campus. This system could potentially be modified to fit business campuses seeking to reduce delivery traffic as well.