Drone Delivery System Application

SOFE3700 – Project Phase I: Project Proposal

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Introduction

The *WeDrone* Delivery System is a future facing drone delivery service helping consumers with their delivery needs. The applications for this type of service are endless, including; parcels and packages, peer-to-peer delivery, food delivery, medical/emergency supply, business-to-business delivery, etc. As the technology matures, automated drone technologies of the future will strive to be energy efficient and cost effective. This will empower the *WeDrone* service to inherently become more affordable and accessible to all users. This project will enable users to fulfil their automated delivery needs via a web-based application. The application and associated database will provide a means to track the progress of drone deliveries. This project will serve as a proof-of-concept, and will not involve the use of real drones/deliveries. Additionally, the scope of the delivery service will be limited geographically, focusing on the Greater Toronto Area.

Problem Our Project Will Address

The *WeDrone* Delivery System will have several advantages over current delivery services:

- Automation allows for more economical and efficient delivery solutions
- Fast, safe, eco-friendly and reliable 24/7 point to point delivery capability
- Very convenient, self-managed and user friendly delivery service for consumers and businesses

Goals and Motivations

Our goal is to build a web application and database that will serve as the platform for creating, managing, tracking, recording and invoicing deliveries using the *WeDrone* delivery service as a complete end-to-end solution for *WeDrone*. Although we are not using real drones, deliveries, customers and transactions, our application will provide a means to simulate and demonstrate the process for typical use case scenarios. The motivation behind this project was to actualize a real-world application that would overall benefit consumers and businesses of various scales. We all use and rely on delivery services one way or another in our day to day lives. Enhancing this experience whilst making it more convenient and economical for

all parties involved will overall be beneficial for society. Another main motivation for *WeDrone* was to provide an eco-friendly and environmentally sound solution to the fast growing trade and commerce needs of our growing cities and communities. Although this project will target the Greater Toronto Area, the *WeDrone* system could potentially be established and executed anywhere in the world.

Related Work and How Existing Work differs from our Project

Although there are some smaller scale private automated delivery systems (e.g. military, hospitals etc.) or experimental drone delivery projects being used by large e-commerce organizations (e.g. Amazon, Alibaba, etc.), there is yet to be a solution for any user or business to ship their items using an on-demand fully automated drone delivery system. To fulfil these needs currently, you would need to use a courier service or rideshare, which employs a driver and requires a vehicle likely running on fossil fuels today, to pick up and drop off your items. How *WeDrone* differs is that you can get this service without the hassle and inefficiencies between. Imagine a scenario where you wanted to send a parcel to a friend in your area right from your home, or where your favourite restaurant or retail store can send an order directly to you without any dissatisfaction or delay caused by a driver and vehicle subject to traffic and congestion in a large city. *WeDrone* will satisfy these needs whilst saving the users' time and money.

Methodology and Plan For Our Project

To build the *WeDrone* user platform application, we have decided to use ASP.NET Core for our backend, Microsoft SQL Server for our database management system and Tailwind CSS framework for the front end. Our goal is to publish the application on a live web server for demonstration, although at the very least it will run locally. An internet connection will be required to use the Google Maps/Places API that will be embedded into our system to obtain real-world delivery location geocode data. All of our project progress and planning will be tracked using the KanBan Project board on github:

Project Task Board: **https://github.com/users/danielgrewal/projects/2**

GitHub Repository: **https://github.com/danielgrewal/SOFE3700Project**