WeDrone Delivery System Application

SOFE3650 – Deliverable I: Project Proposal

October 18, 2021

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Introduction

The *WeDrone* Delivery System is a web application supporting a drone-based delivery service. It allows users of the application to request pick-up and delivery of items after providing source and destination addresses. Users will also be able to see if their delivery is pending pick-up, in progress or delivered to its destination. The application will also use Google Places API to provide autocomplete data for users as they are typing address information into the origin and destination form fields. This project will act as a proof-of-concept of the web application, so will not use real deliveries, financial transactions, or drones. Additionally, the interface/communication protocols between drones and the application will also be out of scope of this project.

Stakeholders

The application provides nimble self-serve delivery services to users, allowing the customer to have direct point-to-point management of their own deliveries. This approach minimizes the need for multiple parties to be involved in parcel delivery.

C	Customers

Functional Requirements:

FR001	The system shall allow a customer to create an account with a unique username and password.
FR002	The system shall allow the user to login or logout of their account.
FR003	The system will only allow authenticated users to create orders or view their order history.
FR004	Users will only be allowed to view their own orders.
FR005	The system shall enable customers to create a delivery order using an origin and destination address.
FR006	The system shall provide autocomplete suggestions for address entry.
FR007	The system will only allow valid addresses as potential delivery/pickup points.
FR008	The system shall determine if the addresses provided by the user are in the serviceable area.
FR009	The system shall allow customers to cancel a delivery order before it is picked-up.
FR010	The system will not allow customers to cancel a delivery once in progress.
FR011	The system shall enable customers to track the status of their orders.
FR012	The system will calculate the cost of delivery.

FR013	The system shall generate a quote for every delivery order.
FR014	The system will allow the user to accept the generated quote and initiate the delivery or decline the quote and cancel the order.
FR015	The system will generate a unique invoice for every accepted order.
FR016	The system shall enable customers to view a history of order activity with delivery details and invoices.
FR017	The system shall optimize the distance a drone will need to travel for delivery.
FR018	The system shall allow the user to specify parcel size and weight for their proposed delivery.
FR019	The system shall support two types of drones; light and heavy. Delivery costs will depend on the class of drone required for delivery.
FR020	The system shall compare parcel size and weight of the item to be delivered to determine whether it can be carried by an available class of drone (light vs. heavy).
FR021	The system will prompt the user if the delivery is considered to be overweight or oversized.
FR022	The system shall ensure the drone returns to its home location after delivery.
FR023	The system shall determine if multiple drones are required to make the delivery. Depending on the distance between the origin and destination locations, a relay of drones may be required.
FR024	The system shall generate a series of flight paths to fulfill a delivery order.
FR025	The system shall ensure the drone has enough power to return home following the completion of its flight path.

Non Functional Requirements:

NR001	The system shall be secure and protect the privacy of the customer.
NR002	The system shall be available 24/7.
NR003	The system shall have a modern and user friendly interface.
NR004	The system shall support English as a language.
NR005	The system shall be stable and performant.
NR006	The system shall be interoperable with address and location APIs.