

In this project, we explore the design space of renewable tree delivery systems. Working with the company MiON Forest, we worked on designing “tree pods” that deliver saplings to recently burned areas via a drone. The drone is mounted with artificial intelligence that can determine the optimal planting location for the pod. We were tasked with finding a biodegradable and cost effective material to mass produce. Additionally, we were tasked with decreasing the size of the pod while maintaining the effectiveness of the current design. Achieving this allows the company to 5x the capacity of the drone, making it financially viable to take more contracts and in as a result, plant more trees in the reforestation effort. Our designs take inspiration from things such as lawn darts, bullets, and even competitors of MiON Forest. We use the Fusion 360 suite to find terminal velocities, and air drag to find a design with the highest chance of firmly embedding into the ground. We expect to have multiple designs of varying designs, shapes, and materials from which we will test using static force programs and deliver these designs to the company for them to review and ultimately pick to use in their drone. This research into the aerodynamics of the seed pod is of the utmost importance as this allows trees to be planted in places that would normally be dangerous for humans to get to. Additionally, these seed pods will have much higher survival rates than other methods available, leading to a fast, safe, and effective way to reforest Canada one tree at a time.