The transportation of plants is often an overlooked aspect of horticultural industries such as nurseries or botanical gardens. To mitigate this problem, people often treat it as a logistics issue and ship multiples of the same plant in a shipment to ensure that if some are damaged or perish in the journey then the customer still can receive the plant they ordered, but what if the plant they ordered is of a rare and expensive variety or if someone interested in transporting a particular specimen for scientific inquiry. These cases it may be cost inefficient or outright impossible to take the standard approach of just shipping multiples of the plant. We are proposing instead of treating the issue like it traditionally is to take a more technologically sound approach via our proposed Portable Plant Preservation Pod (P-Quad). This preservation system will act as a safe housing enclosure and monitor and response system in order to assure the safe relocation of the plant in question. This project could help revolutionize the way industries often attack these issues surrounding plant management by encouraging an approach not from the logistical side, but rather as quality assurance issue. While this may start as an increase overhead it will ultimately lead to a cheaper and more secure method which can become normalized due to intended scalability of our design and product.

Traditionally the transpiration of plant life in many ways is a fragile and delicate process. The plants that need to undergo transport are typically exposed to little or no light, a lack of water, improper humidity levels, and otherwise unfavorable conditions. Our objective is to build a prototype of a P-Quad for a small plant to be sustained and monitored over an extended time interval. Most plant monitoring systems will be connected to 120V AC current sources and our goal is to provide a cost efficient, scalable, and portable version that can not only monitor the plant’s vitals but also sustain the plant for a short time period.

The brains of our pod will be the electronic sensors. The sensors will keep track of all different environment variables such as: temperature, humidity, soil moisture, and light intensity. These sensors will relay the data to a microcontroller that regulates different pumps and lights to satisfy the plants needs at a given time. Our power to the pod and various subsystems will be utilizing AC power when the pod is stationary. This will be interchangeable with a secondary power system integrated in the pod that will use DC power when the pod is being transported. The backbone of P-Quad's design will be the plastic housing enclosure. The tentative design for the housing will be a flat box housing all the electronics with a circular depression to hold the soil and plant then surrounding this depression will be another box shaped enclosure that will stand upright and house the plant and hold the sensors and lighting fixtures.

Currently there is nothing comparable to what we are proposing on the market today as far as portable solutions. In terms of transportation of plants, the only carrying devices are all mechanical, usually a bag or box with handles that cradles the plants as they are transported. Some models have hard cases with wheels on the bottom but none that have a full enclosure for the plant being relocated. Monitoring systems in the market today are also very limited in comparison to our design project. In the market, the most resemblance to our device comes in the form of wi-fi enabled watering systems. Our product aims to not only solve the problem of monitoring the plant while undergoing transport but also to shelter and provide correction that potentially cause harmful environmental stress on the plant.