PSU Leafy

Overview
Leafy is an agricultural monitoring system used to efficiently cultivate crops and other environmental resources. The purpose of this project was to create more robust and functional designs and prototypes of the sensor clip, circuit box, and a stand, which are the three main components of the system.

Objectives
- Create functional prototypes of the box, clip, and stand
- Give a manufacturing plan for each item that can be used to mass produce deliverables
- Understand all design requirements in developing deliverables

Approach
- Methodology
  - Sketch
  - Design
  - Print
  - Revise
- The team had weekly meetings with the sponsor to understand all design requirements
- Used the Learning Factory 3D printers to fabricate beta prototypes from CAD files
- Purchased materials at Home Depot to construct the stand
- At each meeting, changes were made to help improve the designs of the leafy system
- Performance testing was completed for each deliverable, while gaining constant feedback from sponsor
- Approval was given to each deliverable, granted it met all requirements and expectations from sponsor

Outcomes
- As seen in figure 1, the newly fabricated sensor clip is considerably smaller and lighter than the original, while still having the same functionality
- The circuit box as seen in figure 2 in fully functional with Wi-Fi capability and is fully waterproof
- All circuit boards and electronic components fit securely in the box to maintain same functionality
- Stand was produced that is height adjustable, can have the box attach to it, and is also capable of having multiple clips attach to it as well
- Due to weekly meetings with the sponsor, there was constant feedback on the designs, allowing the team to create exactly what the sponsor intended.