Introduction

Purpose

In this world there is a need to sort seed. This could be for many reasons from a farmer wanting to take bad seed out of the seed he is saving, to a lab tech tasked with categorizing seed. In the case of this project we are working with the osu seed lab. They are sent many packets of random seed and are tasked with grading it. this process o grading seed requires researchers to go through the seed on by one under I microscope to determine the seed type and sort it. When doing this usually 90 percent or more of the seed is good seed. Because the lab tech needs to sort these seeds by hand it is a very taxing job. Thus, our goal is to remove 80% of the good seed so that the seed given to the lab tech is the seed he is interested in. making it so that he is only focusing on the seed that is important to his job.

Scope

The scope of this project is removing good grass seed from bad grass and weed seed. The projects scope only requires we be able to sort one type of grass seed out of the others and that the seeds we are sorting will look no similar than perennial rye grass and tall fescue.

Definitions acronyms and abbreviations

Client: In this case our client is OSU Seed Lab

Labtech: someone who sorts and identifies seed for OSU Seed Lab

Researcher: someone who works at OSU Seed Lab

OSU: Oregon State University

Over all description

Product functions

The primary function of this product to sort grass seed and remove all the bad or undesirable seed (in this case tall fescue and perennial rye grass are the hardest two we will need to sort and make it the focus of this project). In the future the client expressed a desire to have the device determine the type of each seed running through it however as they require 100% success this is something beyond the scope of this project.

User characteristics

The use case for this device is twofold. The first and primary user is the Seed lab. Where the user would be some sort of lab tech who would be using the device to reduce their work. The other possible user is a seed enthusiast in the public. The client said somethings about wanting to in the future expand the project into some sort of product that could be used by anyone who wanted to sort seed.

Constraints

This project has a few true constraints provided by the client. These constraints are we must have no false positives. We must be able to remove at least 80% of the good seed from the bad seed. We must identify about 14 seeds per second. In addition to this the client expressed a desire for some additional systems in the future and wanted us to take that in consideration when building our system. These future projects are, allowing the client to change the seed sorted on the device by allowing the client to train it or get an update to the device that will train the device and the other possible expiation project was to identify the bad seed that was removed from the good seed.

Assumptions and dependencies

Though our project has some equipment we can use from a previous project the client seems to be wanting us to start from scratch. That said we do have some access to a camera system the last group was able to setup and get working. The assumption is being made that we don't need to build any of the hardware components. We are also assuming that we only need to send a true false signal to the hardware team. Finally, we assume that the hardware specs are what we specify regardless of what the mechanical team makes.