

# Paper Project

## Report #1

**Tutor:** Sena

**Date:** 30/12/2020

**Group members:** Orhan & Hasan

## Project Topic Overview

Our project is to implement the method proposed by a paper called "*Automatic Radish Wilt Detection Using Image Processing Based Techniques and Machine Learning Algorithm*"

## Method

The proposed method uses a combination of morphological operations, decision trees and k-means clustering to achieve the goal.

It starts with removing all parts of the image other than the infected parts, it does so by converting the image to HSV color space and then using decision tree with specific values to select and remove the unwanted parts of the image such as the parts where the crop is healthy.

Our method:

We will do the segmentation using deep learning. Plus, we plan to use a few of deep learning models such as mask rcnn, fast rcnn, faster cnn and figure out which one is best.

The Dataset:

The dataset we found is divided into two parts as dataset A and B. In dataset A the picture was manually segmented, the other parts of the picture has been cut. In A, there are 580, 506, 620 datas for bare ground, mulching film and radish in order. In part B there are complete pictures but the problem is that there are only a few pictures in part B. There are 40 total data in B.

## Tasks Done

(Explain clearly who did which parts)

	Orhan (%)	Hasan (%)	Complete (%)	Weight of the task (%)	
Task 1	50	50	100	25	Searching for possible project ideas
Task 2	50	50	100	25	Looking for and deciding on a dataset
Task 3	50	50	30	35	Finding a working method and run it
Task 4	100	0	100	15	Writing the report

**Task 1:** during the search for a project we first thought about classification of handwritten digits. We wanted to determine the digits that are handwritten, then as a novelty, We wanted to classify and match the handwritten digits with the person who has written it. There were many datasets for handwritten digits but the problem was that they do not include the labeling of person inside of the datasets (at least we couldn't find if there is). Then, the idea of tattoo detection came to the mind. We specify it to the animal tattoos. But when we searched it, we saw that the idea has already been done. Then, classifying different instruments was the other idea and we found a good dataset for it. However, after we talked with my tutor, we have come to the conclusion that there will be no real usage of doing such a Project. Finally, we researched for agriculture, and we see it has such a good research area that we can work on.

we both set out to find possible project ideas, eventually it we settled for Orhan's project since he already found a dataset and a very good method proposal.

**Task 2:** the dataset we will use was also used by the researchers who's work we are trying to apply.

**What we have learned:** we read the paper that we are trying to implement, we learned how morphological operations can be used in agricultural applications such as the one we have here.

## Plan: Tasks to be Done

(Explain clearly who will do which parts)

	Hasan (%)	Orhan (%)	Complete (%)	
Task 1	0	0	0	Use HSV decision tree to segment the image
Task 2	0	0	0	Try mask rcnn, fast rcnn, faster cnn