

CHAPTER 1

INTRODUCTION

1.1 Background

The technology of nowadays is advancing. The advancing technology is also used in agriculture especially for rising the amount of crops. Although it has expanded, but there are some farming activity that still do manually, for example sorting tomatoes base on its color manually. Sorting tomatoes manually have many disadvantages, like requires a lot of time, because the farmers have to sort it manually so it takes many time. Besides that, the result is ineffective because the result base on subject's view.

To anticipating those disadvantages, researcher has developed a device that sorting tomatoes automatically. With this device, the tomatoes sorting job quickly and effectively because farmers just need to put the tomatoes on the device and it automatically separated based on its color. And the result can be seen on the website.

This project using Arduino Uno as the microcontroler, TCS3200 Sensor for detecting RGB values, three servo used for tomatoes' movement progress and Step Down used for reducing electricity voltage from the adaptor. This project starts from Arduino Uno controlling servo's movement and directing the tomatoes onto the TCS3200, the values of tomatoes' RGB will be acquired from TCS3200 sensor. The RGB values will be processed with Arduino UNO and the tomatoes will be separated based on its color. And the result will be send to the server using ESP8266 module.

The result from this project is to separate tomatoes into three level of ripeness in short time. Tomatoes are classified as ripe, half-ripe and unripe. And the result of the tomatoes separating can be seen on the website.

1.2 Scope

There are problems that have to be fixed in this project:

1. How to design and develop tomatoes' sorting device automatically using TCS3200 sensor and measuring the accuracy and device swiftness?
2. What is the ideal distance for reading the TCS3200 sensor?

1.3 Objective

The purpose of this project is to develop a device that can sorting tomatoes quickly and accurately, and the result can be seen on the website.

