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|  | Project document |
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Version 1.0

# Version Control

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| --- | --- | --- | --- |
| Version | Date | Who | Changes |
| 1.0 | 10-04-2022 | Sara van Eersel | Made a start at the document and wrote the Project organization and the risk analysis.  Started on writing on the Introduction, Project idea and goal. And added parts from the documents of both groups. |
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<<Add it in the table if you have made any changes>>

# Introduction

In this document you can read about our project for the Blended international Project. This is a collaboration with the UAS Technikum Wien, Lapin AMK and Fontys University of Applied Science.

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# Project

## The idea

We are going to make a robot that is going to recognise whether some fruit is ripe or unripe and sort it based on the information whether the fruit is ripe or not.

Our project is designed to be a part of the sorting mechanism, when a botanical product is harvested, there are often products that need to be separated by a specific attribute like colour, size, shape, or texture. The camera can detect the attributes of a product and decide whether to redirect it or not by sending a command to move the robot arm. There is a node-red dashboard that allows the user to observe and control the robot.

We’re doing this project because we’ve discovered that it’s very difficult to move the robot based on camera input. Having the product approach, the system means that locomotion is not an issue either. The robot is not very flexible or quick, so having it redirect things that are already in motion prevents overcomplication.

## Goal of the project

Our goal is to be able to examine a product with the camera, and to have it be placed in the correct group based on that examination.

### Must have

### Should have

* Be able to quickly change the directory of the conveyor belt
* Be able to seamlessly interpret signals coming from the camera
* Be able to store multiple pre-set conveyor positions

### Could have

* Be able to send data over MQTT
  + Extensive data gathering
* Be able to be controlled manually both physical and digital

### Would have

## System description

Diagram

Description automatically generated

Diagram

Description automatically generated

Still needed a diagram with how the parts are communicating.

## Finished products / Deliverables

* A robot that can sort projects based on the input of the camera.
* Project document
* Document of the robot group
* Research document of the camera group

<<Add if you come up with anything>>

# Approach and Planning

## Approach

We are working in sprints of three weeks with at the end of each sprint and delivery to our supervisors. We will have meetings each Sunday at 19:00 CEST with our group, and we will have a meeting with the supervisors each Monday at 12:30 CEST.

### Test approach

We are making to different test setups that contain the same hardware. One of these setups will be built in Finland and one of them will be built in the Netherlands. The

## Research methods

## Time plan

# Project Organization

## Team members

We have a group of 8 people. Our group leader is Sara van Eersel, and the note taker is Chiara Babiak. We spilt the group into two groups one being the camera group and the other one being the robot group. The camera group exist of Sara van Eersel, Chiara Babiak, Simon Schreurs and Miko Koivula. The robot group exist of Laura Vallinaho, Marko Tiitto, Jorrit Triest and Thomas Schenk.

## Communication

The communication within the group is via Discord. The communication with the teachers goes through Teams. All the code and documentation are uploaded into git. The notes of every meeting are posted in the Discord channel Notes and will be posted there shortly after the meeting by Chiara. All tasks are maintained in the Trello.

# Risk analysis

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| --- | --- | --- | --- |
| Risk | Probability | Impact | Counter measures |
| The morobot breaks | Low | Moderate |  |
| Members leave the group | Low | High | Be aware of all aspects of the project so we can redistribute work easily. And make sure that all code is uploaded in git. |
| Members do not attend meeting | Medium | Moderate | Talk about it as a group the prevent it in the future. On repeated occurrence involve teacher on what is possible. |
| Members do not follow deadlines | Medium | Moderate | Communicate-in-between deadlines to access process and set realistic deadlines. |
| Lack of knowledge | Medium | High | Attain additional information with other groupmates. Do additional research. |
| Losing code | Medium | High | Make sure everything is uploaded into git |
| Lack of motivation | Medium | Moderate | Set realistic goals for the project.  Support team members in case of lack of motivation. |

<<Add if you think of anything else>>