**Project Plan**

*Automation of a fruit sorting system*

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Food waste is a huge problem in today’s society and 33% of it happens before the consumer ever sees it. Fruits are a big part of this problem where we often throw out perfectly fine products because they either don’t look perfect or are simply packaged in groups with fruits that have gone bad. Humble ehf collects those boxes/nets of fruit on their way to the bin and upcycles those who are still perfectly fine.

The sorting of good and bad fruits is done manually at this point but is in fact a task perfectly suited for almost complete automation. This task subject to classifying the fruits in real time and triggering a reaction based on the classification.

The final goal of this project is to implement a image recognition system in real time that given a stream of good and bad fruits can sort them, both digitally and physically.

The focus points of the project are the following:

1. Implementation of data collection system
   1. Data collection physical setup
   2. Mobile application
   3. Quality tests of data and setup
   4. Data generation
2. Modeling
   1. Literature of existing models
   2. CNN image recognition model
   3. Object detection literature
   4. Object detection model
3. Implementation of real-time classification system
   1. Design of prototype
   2. Implementation of physical setup
   3. Implementation of developed models
   4. Actual sorting system implementation (reaction based on classification)

**Time schedule is as follows:**

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**Risk evaluation:**

1. Implementation of data collection system (25%)

Physical setup takes place in Iceland, we do have a flight to catch and therefore a very natural and strict deadline. Solution to delays is abandoning data generation and working completely with the data already acquired

1. Modeling (50%)

Modeling involves training two different models, and this can always be more difficult than expected. If results are not satisfying enough when this deadline hits, we need to either find a quick solution or accept those results and start writing about why it is not working.

1. Implementation of real-time classification system (75%)

The physical implementation depends on many factors to go our way that simply cannot be influenced. Here the group will have to try and come as far as possible in the time frame.

1. Writing (25%)

Some sections might be delayed but the final writing cannot be delayed, the only solution if this part is behind schedule, is longer nights.

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# Time Plan