

Application of an Object Recognition Algorithm from Two Camera Inputs

Project Definition Document (Initial Brief)

Purpose of this document

The purpose of this document is to define a proposed project with enough information for an informed decision to be made on whether to approve the project to proceed.

This document is the **responsibility of the Project Team**.

Project approval is dependent upon the document being completed and reviewed by the teacher of the project course.

- If the project is approved, it can then begin planning and execution,
- If the project is not approved, the **Project Team** can review the project and resubmit for reconsideration.

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1. Project Definition Information

Project Name:	<i>Application of an Object Recognition Algorithm from Two Camera Inputs</i>
Project Team:	Joshua Kisnorbo
Mentoring Teacher:	Mr. Edwin Griffin
Proposed Project Start Date:	24/07/2023

2. Project Idea

The project defines an implementation of an object recognition algorithm that will take an input from two raspberry pi cameras and identify objects.

3. Project Purpose

The project exists to develop a further understanding of Machine Learning and how different algorithms work. It is designed to be applicable to W.I.N.S.T.O.N.'s vision to allow for further development of the dog's features.

4. Team Member Capabilities

Team Member	Capabilities
Joshua Kisnorbo	Knowledge of Python

5. Project Outcomes/Requirement Objectives

Outcome	Description
<i>Tak in data from CV</i>	<i>Take the input data from two raspberry pi cameras to feed into the algorithm.</i>
<i>Identify objects</i>	<i>With CV data, it will be able to pick up on the fact that an object exists and output the object.</i>

6. Initial Scope of the Project

In Scope	Out of Scope
<i>Use CV data as input data</i>	<i>Multiplayer</i>
<i>Output list of objects</i>	<i>Recognise a person's identity</i>
<i>Output position of object on screen</i>	

7. Time Objective

The timeframe for this project is: 14 Weeks

8. Parties Involved

Party	Involvement
<i>Joshua</i>	<i>Testing and Training of the ML model</i>
<i>Image datasets</i>	<i>Datasets of labelled object images to train the model on</i>

9. Constraints

Constraint	Impact on Project Success (High/Med/Low)
Time, because another project is being completed at the same time, there will be less time to optimise and train the model.	Med
Computing power	Low

10. Feasibility

Skill Required	Resource with skill / capability
<i>ML Model Creation</i>	<i>Joshua Python</i>

<i>Object Dataset Usage</i>	<i>Joshua Kaggle</i>
<i>Image interpretation</i>	<i>Joshua Python</i>

Feasibility Scale: **100%**

11. Roles & Responsibilities

Team Member	Roles / Responsibilities
Joshua Kisnorbo	Project Lead System Analyst Developer Tester

12. Initial Issues

Issue	Description
<i>Lack of Machine Learning Experience – Joshua</i>	<i>Joshua doesn't have much prior experience with Machine Learning.</i>

13. Risks

Risk	Description	Impact of Risk (L M H)	Mitigation / Reduction
<i>Loss of data</i>	<i>The code backup or training data may get corrupted or lost.</i>	<i>H</i>	<i>Backup to GitHub on change of code or files;</i>

14. Deliverables, Timeframes and Dependencies

Timeframe estimate: 5 weeks (Before PyCon)

Deliverable	Duration	Completion Date	Dependencies
<i>Algorithm Written</i>	<i>2 Weeks</i>	<i>End Week 2</i>	<i>None</i>
<i>Model Creation</i>	<i>1 Week</i>	<i>End Week 3</i>	<i>Algorithm Completion</i>
<i>Data Acquisition</i>	<i>2 Days</i>	<i>End in Week 4</i>	<i>None</i>
<i>Train Model</i>	<i>1 Day</i>	<i>End in Week 4</i>	<i>Model Creation</i>
<i>Final Optimisations</i>	<i>1 Week</i>	<i>End Week 5</i>	<i>Database complete Front-end complete</i>