Deliverable #3

SE 3A04: Software Design II – Large System Design

Group Number: G8
Group Members:

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1 Introduction

1.1 Purpose

This document provides further information about the RideRecon car identification system architecture, including state chart diagrams, sequence diagrams, and a detailed class diagram. This document is intended for internal RideRecon stakeholders, including but not limited to, project managers, developers, domain experts, and RideRecon team members/investors.

RideRecon Deliverable 1 and 2 should be read prior, and technical knowledge may be beneficial in better understanding the contents of the document.

1.2 System Description

The RideRecon system is a vehicle identification platform that processes user-provided text and image inputs to accurately recognize and classify cars. The system leverages a hybrid blackboard-repository architecture, where multiple expert modules—including a trained ML model (G8M), a reverse image search engine, vector imaging techniques, and GPT-based text processing—collaborate to determine the most accurate identification. The blackboard component acts as a shared workspace where expert modules contribute insights, iteratively refining the identification, while the repository component ensures efficient data management, storing user inputs, past identifications, and expert processing outcomes for future reference.

This document builds on the foundational system description provided in Deliverable 2, expanding the technical details through state charts, sequence diagrams, and a detailed class diagram. These artifacts provide a deeper understanding of the system's data flow, processing logic, and user interactions. The diagrams illustrate how user inputs progress through various system components, from input validation to expert analysis and final result generation. Additionally, this document clarifies how user accounts, history tracking, and car collection management integrate into the broader system. Through these detailed design elements, we establish a clear roadmap for the system's implementation and behavior.

1.3 Overview

a) Describe what the rest of the document contains

b) Explain how the document is organised

2 State Charts for Controller Classes

This section should provide a state chart for each controller class for your application.

3 Sequence Diagrams

This section should provide a sequence diagram for each use case of your application.

4 Detailed Class Diagram

This section should provide a detailed class diagram for your application.

A Division of Labour

Include a Division of Labour sheet which indicates the contributions of each team member. This sheet must be signed by all team members.

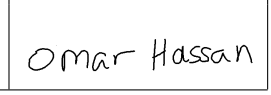
Hashim Bukhtiar	Jaden Moore	James Ariache	Olivia Reich	Omar Abdelhamid
Section 1.1, 1.2 3 Sequence Diagrams in Section 3 Compiled Final Doc 	12 Cards in Section 4 X Class Diagrams in Section 4 	X State Charts in Section 2 Y Class Diagrams in Section 4 	3 Sequence Diagrams in Section 3 Z Class Diagrams in Section 4 	Section 1.3 Y State Charts in Section 2 

Table 1: Division of Labour

IMPORTANT NOTES

- You do NOT need to provide a text explanation of each diagram; the diagram should speak for itself
- Please document any non-standard notations that you may have used
  - *Rule of Thumb*: if you feel there is any doubt surrounding the meaning of your notations, document them
- Some diagrams may be difficult to fit into one page
  - It is OK if the text is small but please ensure that it is readable when printed
  - If you need to break a diagram onto multiple pages, please adopt a system of doing so and throughly explain how it can be reconnected from one page to the next; if you are unsure about this, please ask me
- Please submit the latest version of Deliverable 1 and Deliverable 2 with Deliverable 3
  - They do not have to be a freshly printed versions; the latest marked versions are OK
- If you do NOT have a Division of Labour sheet, your deliverable will NOT be marked