1. Purpose

The purpose of this document is to provide a more detailed technical overview of the software system used to control RXSim. The software component will encompass pseudo code along with diagrams. The software system will primarily be comprised of the simulation software and the Arduino

2.Scope

This document does not describe the details of the inner workings of the hardware and software. However, it does provide an overview of the structure, information hiding, separation and modularity. The component design demonstrates the coverage of separate system parts and reflects the full extent of functionality delivered by the system.

3.Module Guide showing how your decomposition was arrived at (secrets and other

attributes).

i.Module [number] name, services (responsibilities) and secrets

ii.Views of the module decomposition (maybe a table showing a Uses Relationship–hopefully a Uses hierarchy)

There are multiple modules that make up the software system for this project.

Module 1: X-Sim Simulation Software

The purpose of the simulation software is to allow the racing video game to interface with the Arduino microcontroller. Using a serial interface the simulation software feeds values into the Arduino Uno microcontroller. This value also modifies and the values to ensure optimal system performance.

Module 2: Arduino Uno Microcontroller

The purpose of the simulation software is to interface the racing video game with the Arduino. Using a serial interface the simulation software feeds values into the Arduino Uno microcontroller. This value also modifies and the values to ensure optimal system performance.

4.For each module:(the documentation does not have to be formal–whatever is good for your purpose)

i.Module Interface Specification (MIS)–at least a definition of behaviour of each “method”in terms of its inputs and outputs–as black box as feasible

ii.Module Internal Design (MID)–enough detail to make the coding close to trivial

5.Scheduling

i.Derived timing constraints (from requirements)

ii.Scheduling of “set” programs

6.Design Notes

7.Data dictionary (if necessary)

8.References

**Simulation Software - X-Sim:**

1. Purpose

The simulation software is crucial in the system as it is the bridge between the racing video game and the Arduino. The selected simulation software provides a direct communication with the Arduino Uno through the USB serial interface. The software is also able to filter and smooth the values returned to ensure a better performance of the system.

2.Scope

The operation of the simulation software is limited to extracting values from the video game and passing the data serially to Ardunio.

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**Arduino Code: (split to data conversion and motor control to match system design or keep as 1?)**

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