AIDA simulation model
Simulation viewpoint diagrams

Abstract

This document presents the Simulation viewpoints and the associated views that enable to define the simulation architecture of the AIDA simulation model from the AIDA system Architecture.

Content

1 Simulation viewpoints

The AIDA simulation model is derived from the AIDA system architecture V4.2, available in the same forge at https://sahara.pf.irt-saintexupery.com/AIDA/AIDAArchitecture. Not all the system has been simulated.

The simulation viewpoint, developed in the frame of MOISE project (IRT Saint Exupery, Embedded System) enable to enrich a system architecture (at functional level) to trace the modification made from the system architecture to define a simulation architecture.

Additional information on MOISE project work, refer to Cosim CPS 2018 paper : *Towards a co-simulation based model assessment process for system architecture* https://drive.google.com/open?id=1R7YkaabZNmISmsTdQ6Alt_pyR8DELuII
(B. Boulbene, B. Bossa, S. Dube and M. Pantel)

2 Simulation views

The following diagrams are the output of the work done with the simulation viewpoint:

Each diagram is annoted with the Simulation viewpoint graphic representation description:

- Simulated, not simulated or partially simulated function
- Added or not simulated dataflow
- Simplification or complexification of functional group

First, the following diagram extracted from the AIDA shows which functions are taken into account for simulation purpose:

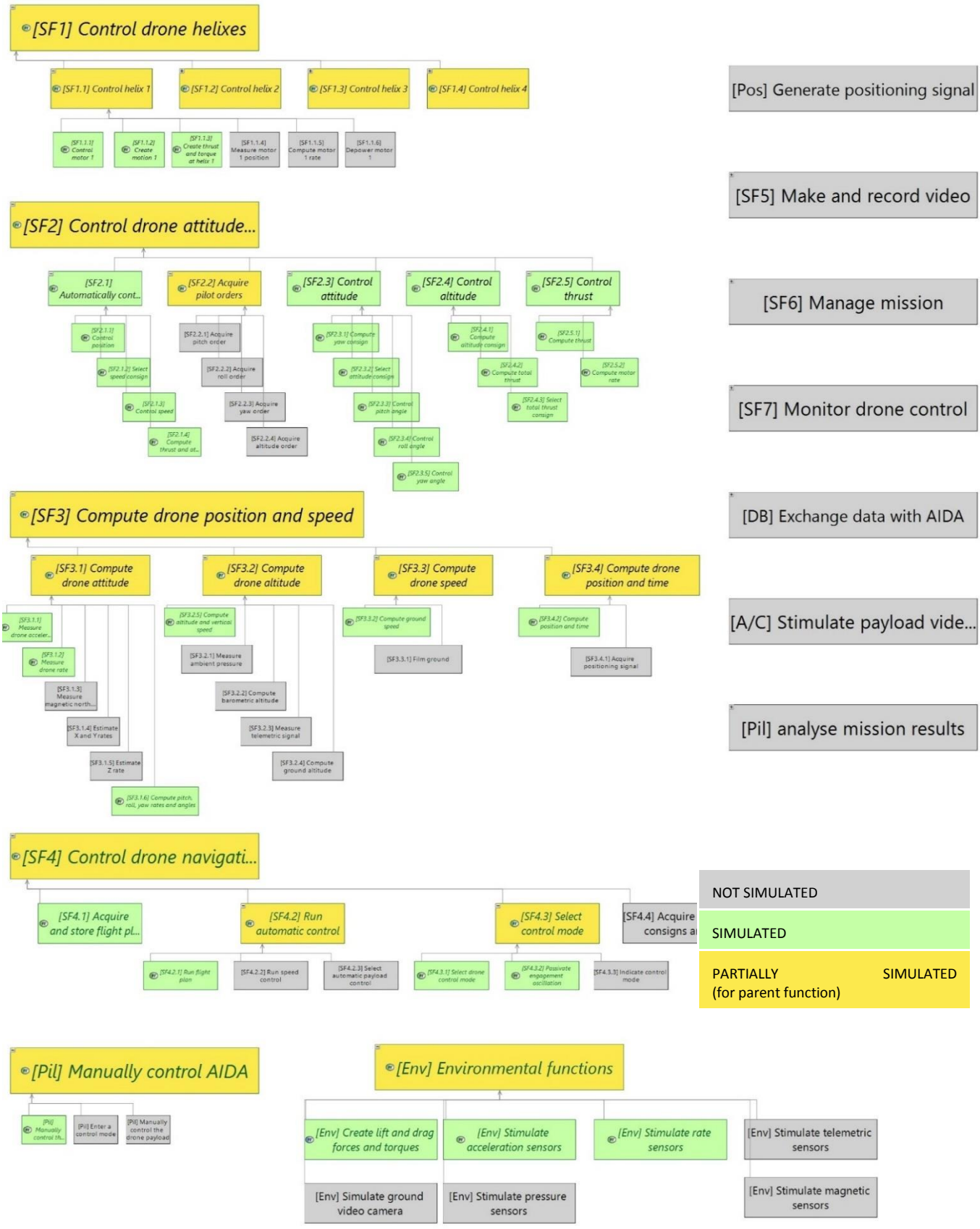
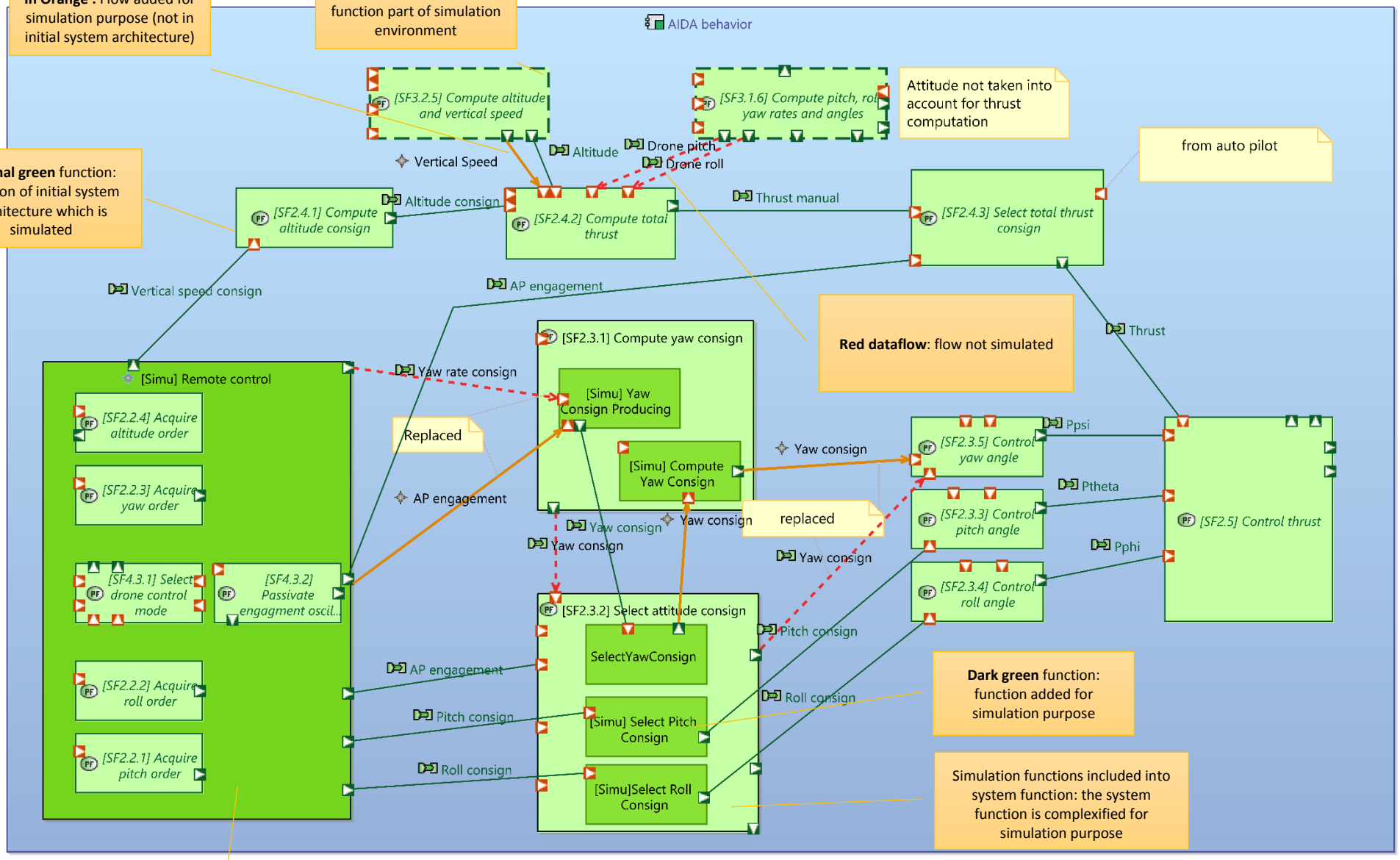


Figure 1: AIDA functional breakdown - simulation view

Then, at interaction level, some other diagram enable to refine the simulation architecture. The following diagram represents:

- The manual mode control of the drone
- The automatic mode control of the drone
- The drone motors
- The drone dynamic behavior



re 2: Manual mode - Simulation view – with annotation

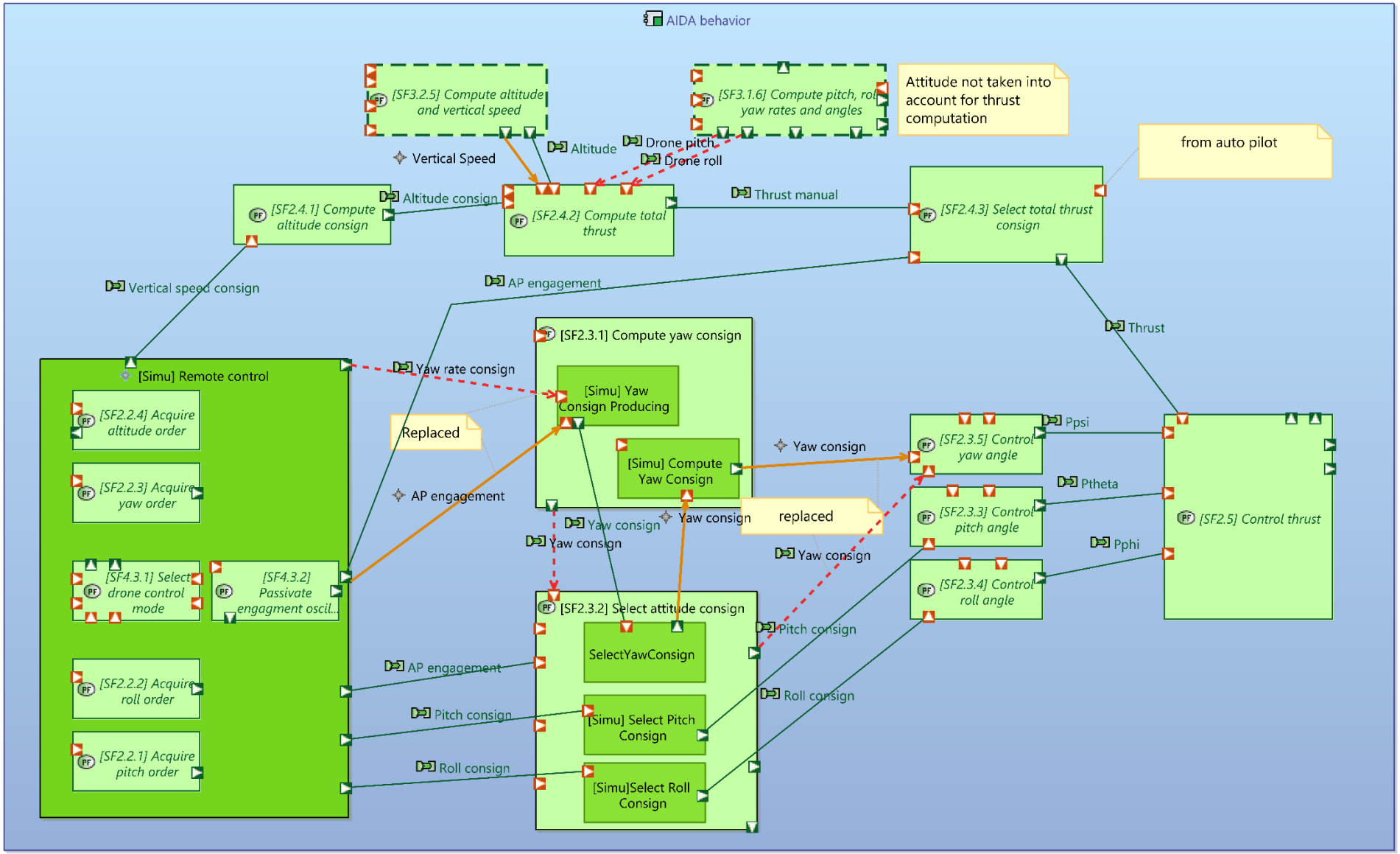


Figure 3: Manual mode - Simulation view – without annotation

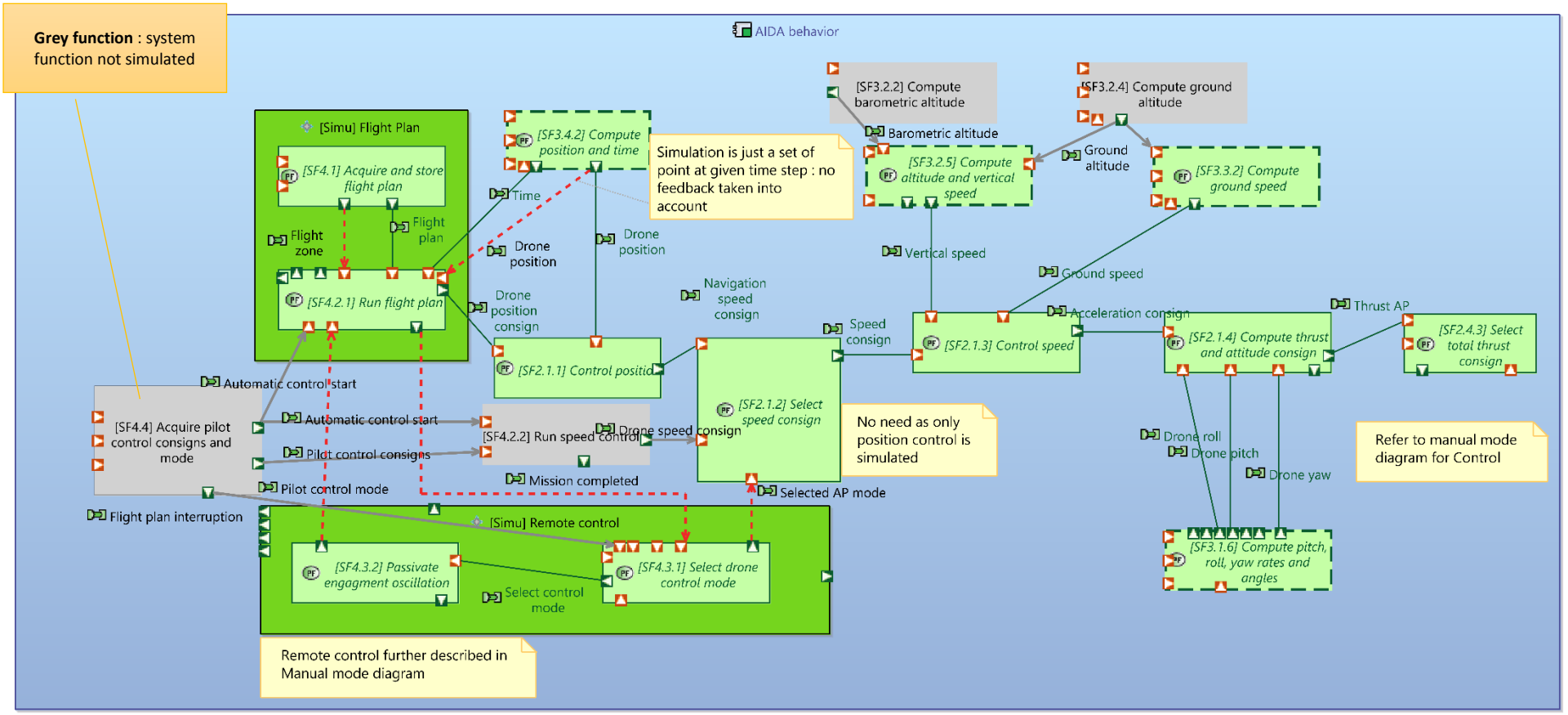


Figure 4: Automatic mode - Simulation view – with annotation

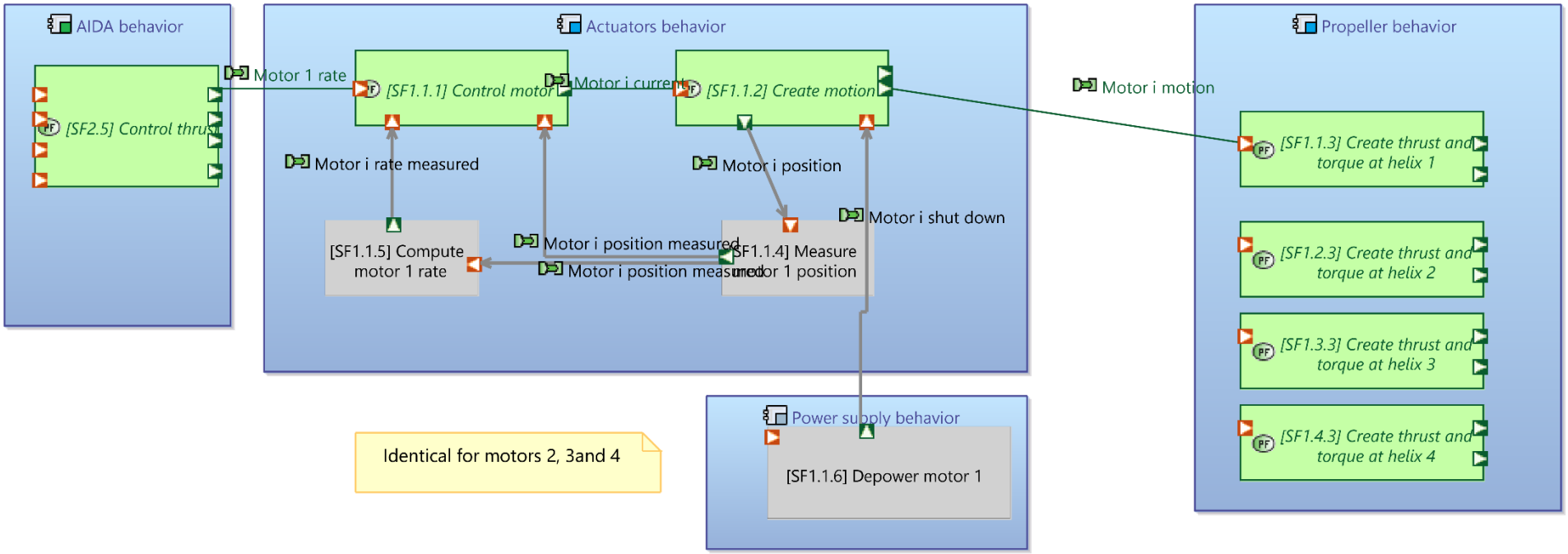


Figure 5: Motors and propellers - Simulation view

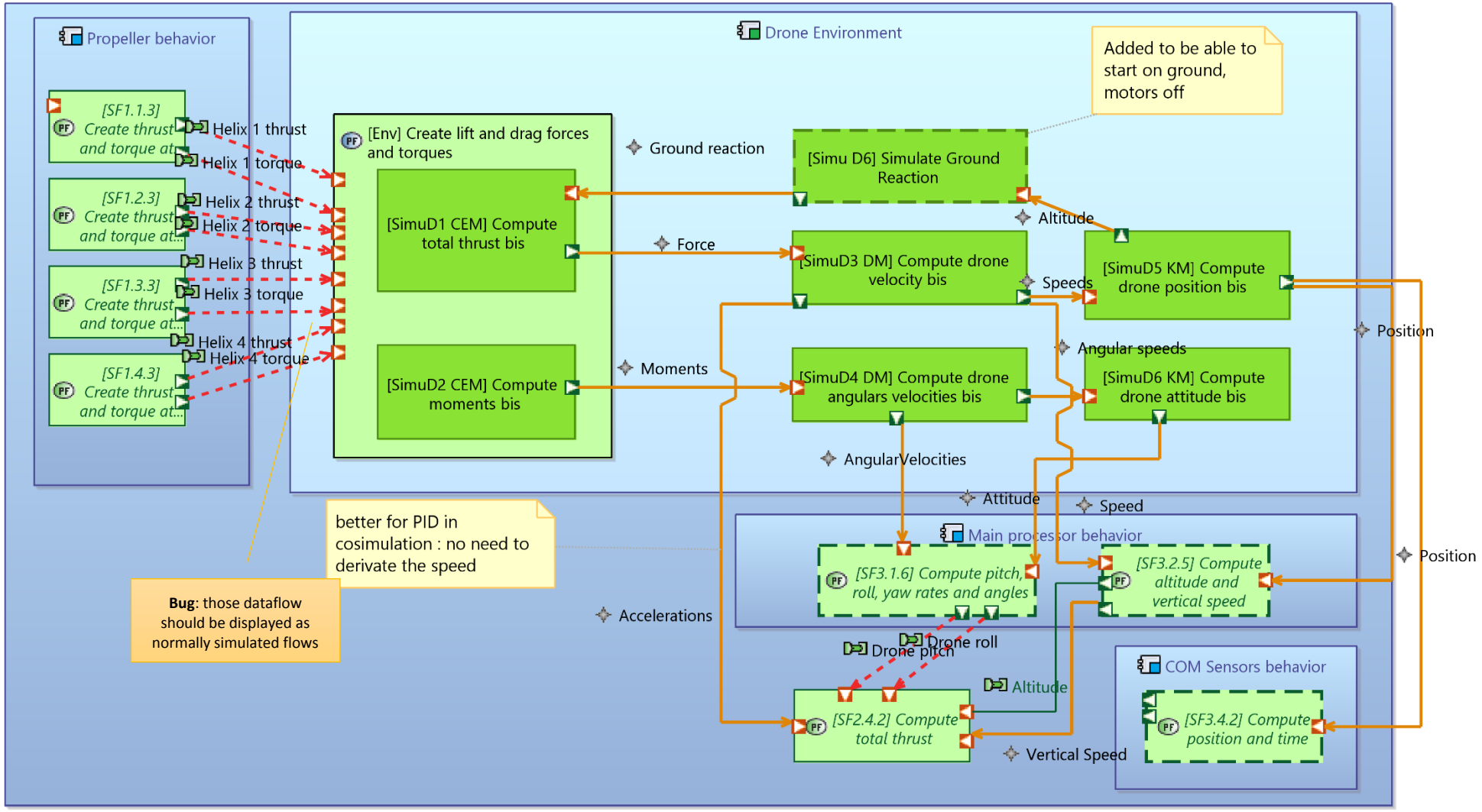


Figure 6: Drone dynamic behavior - Simulation view