0.0.1 Plant

The top level of the plant is a variant subsystem which is used to switch between plant configurations. It is depicted in Figure **??**.

The possible plant configurations are:

- Actual hardware drivers. [*Hardware implementation only.*]
- Hardware-equivalent model of nonlinear dynamics. [*Simulation only.*]
- Hardware-equivalent model of linear dynamics. [*Simulation only.*]

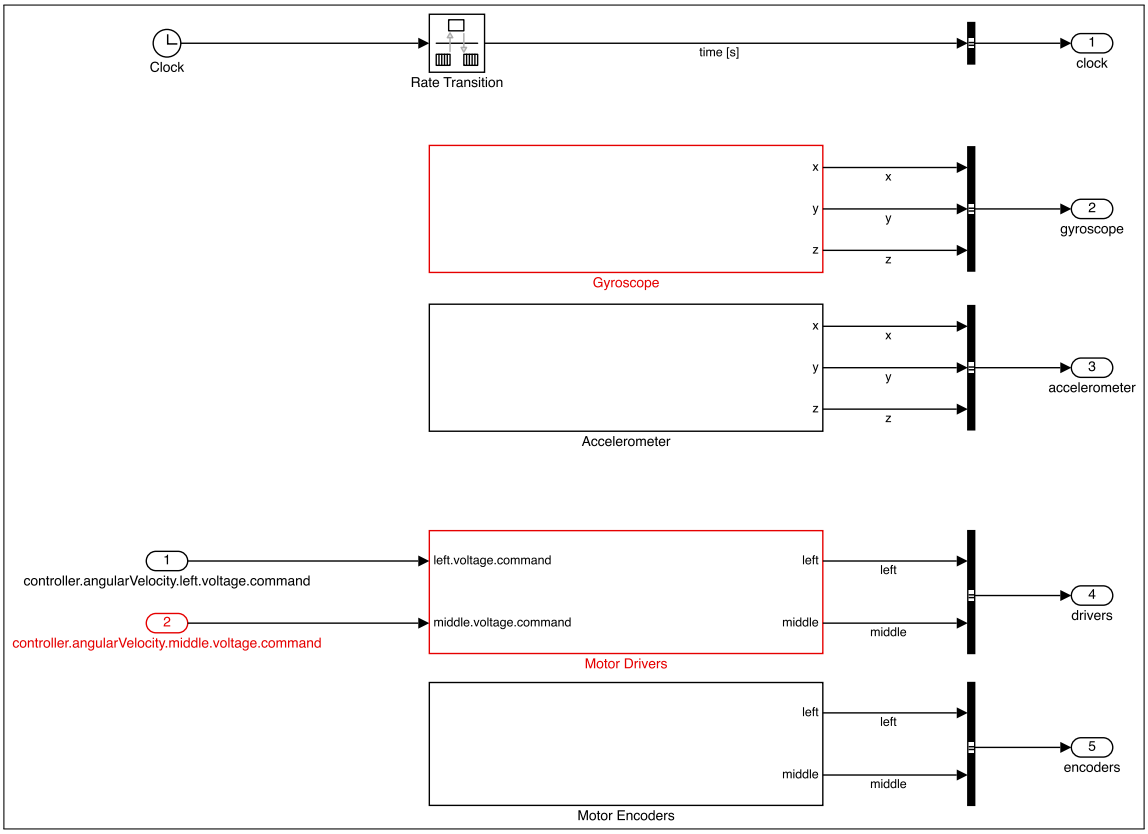

Figure 0.1: [minseg_M2V3_2017a]: Plant

0.0.1.1 Hardware

The *Hardware* variant of the plant contains subsystems for the various hardware components, [*not including the controller*]. It is depicted in Figure **??**.

The hardware components include:

- Clock
- Gyroscope
- Accelerometer
- Motor Drivers
- Motor Encoders

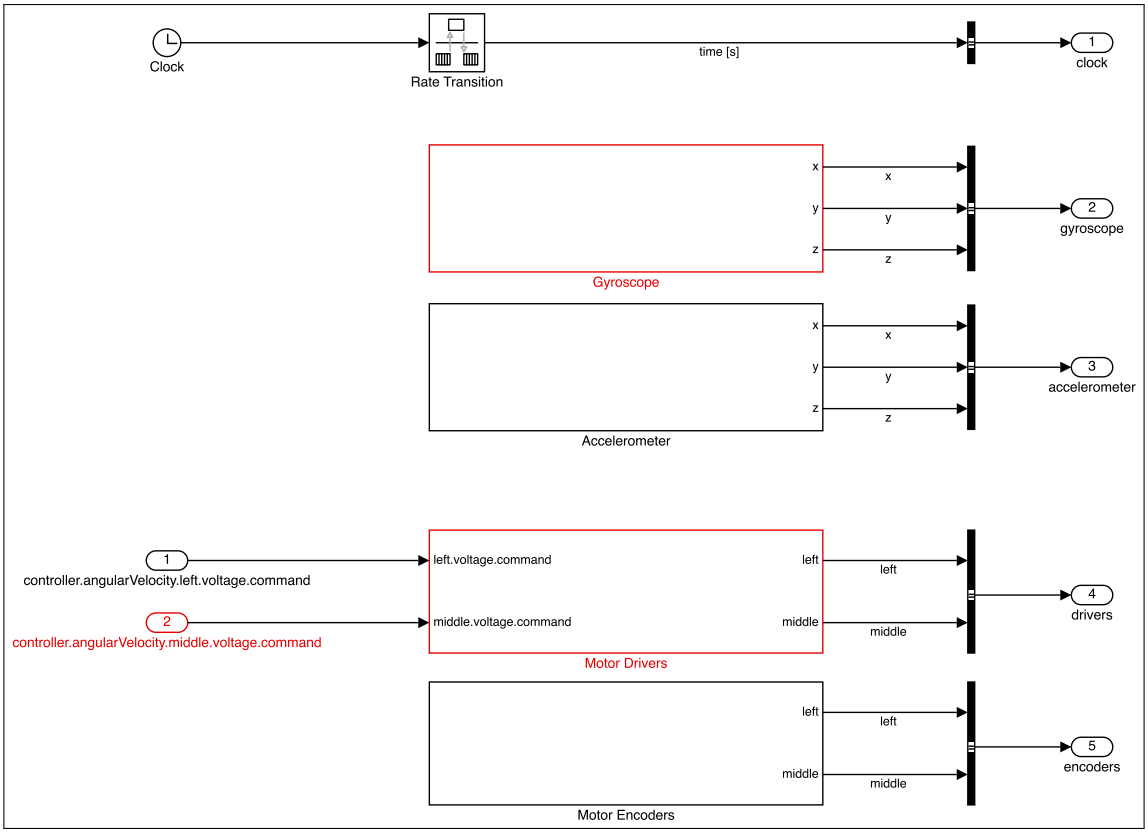

Figure 0.2: [minseg_M2V3_2017a:Plant]: Hardware

0.0.1.1.1 Motor Driver

0.0.1.1.2 Motor Encoder

0.0.1.1.3 Gyroscope

0.0.1.1.4 Accelerometer

The *Accelerometer* subsystem is depicted in Figure **??**.

It reads raw data from the accelerometer driver for each of three dimensional axes [*x, y, z*]. For each axis that data is reformatted into SI units.

The hardware components include:

- Clock
- Gyroscope
- Accelerometer
- Motor Drivers
- Motor Encoders

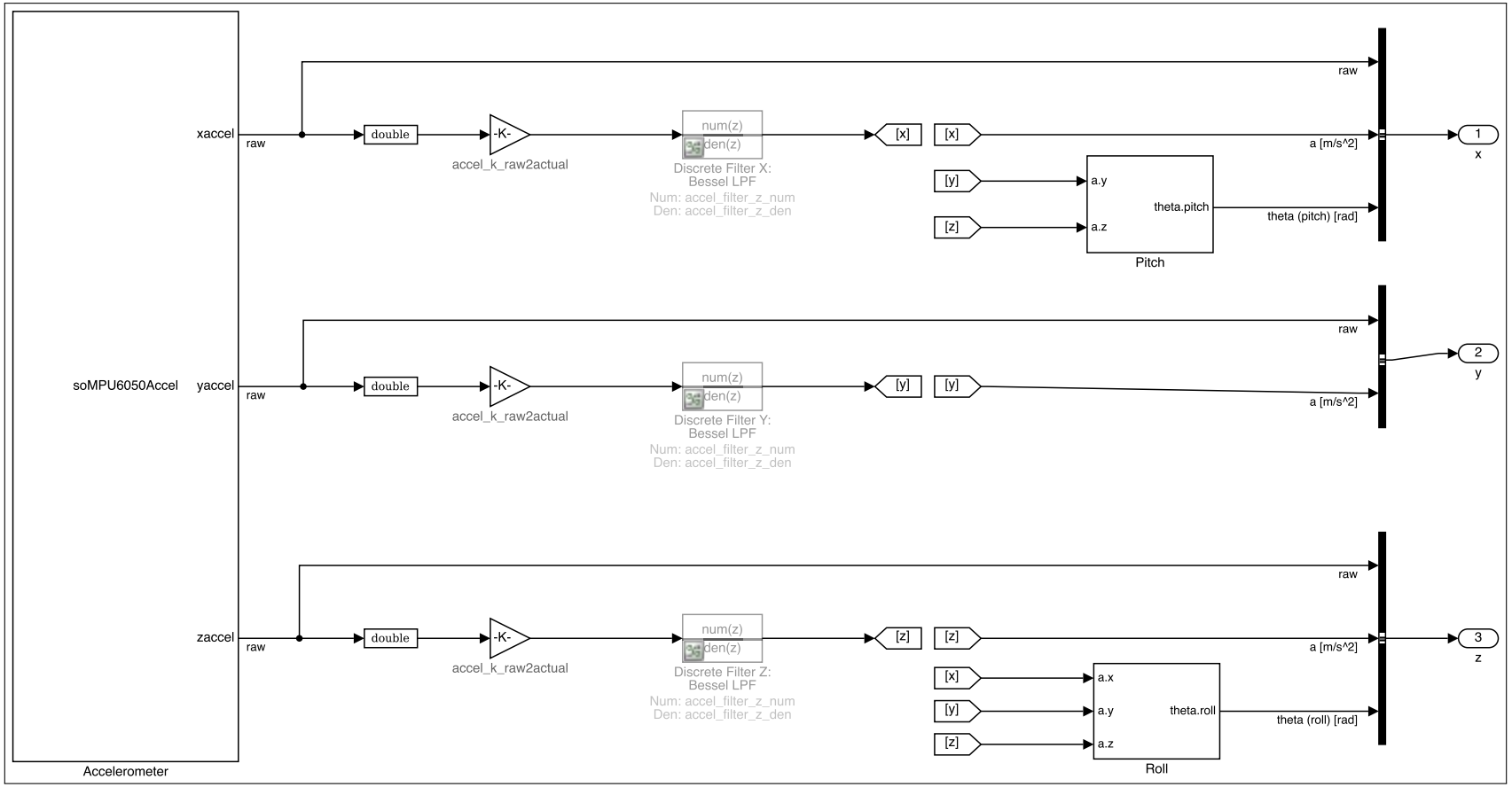

Figure 0.3: [minseg_M2V3_2017a:Plant:Hardware]: Accelerometer

0.0.1.2 Hardware-Equivalent Nonlinear Dynamics

0.0.1.3 Hardware-Equivalent Linear Dynamics