

## Assignment 04

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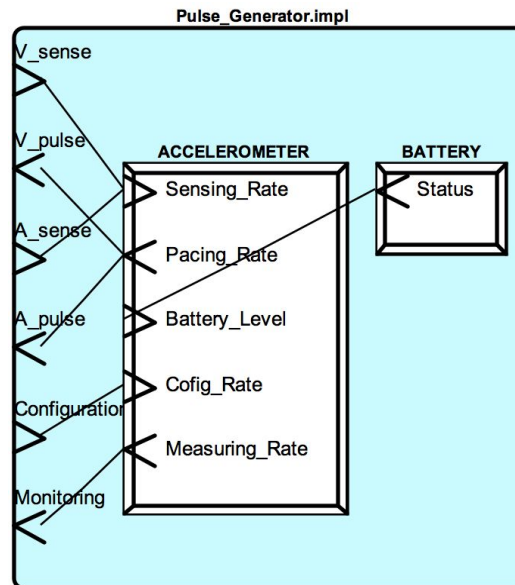
### Description

In this assignment, I used three design tactics to refine my pacemaker design.

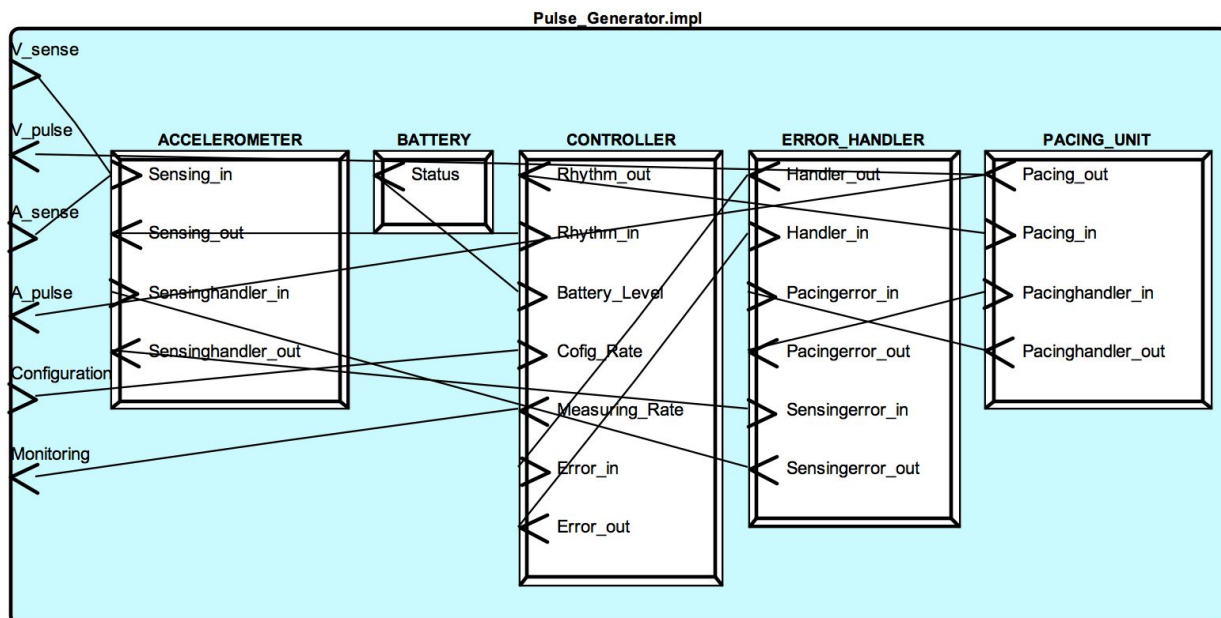
#### Tactic 1: Splitting

The Accelerometer module in Pulse Generator system is divided into four modules, including Accelerometer, Controller, Error Handler, and Pacing Unit. Each module is responsible for respective functions after modification.

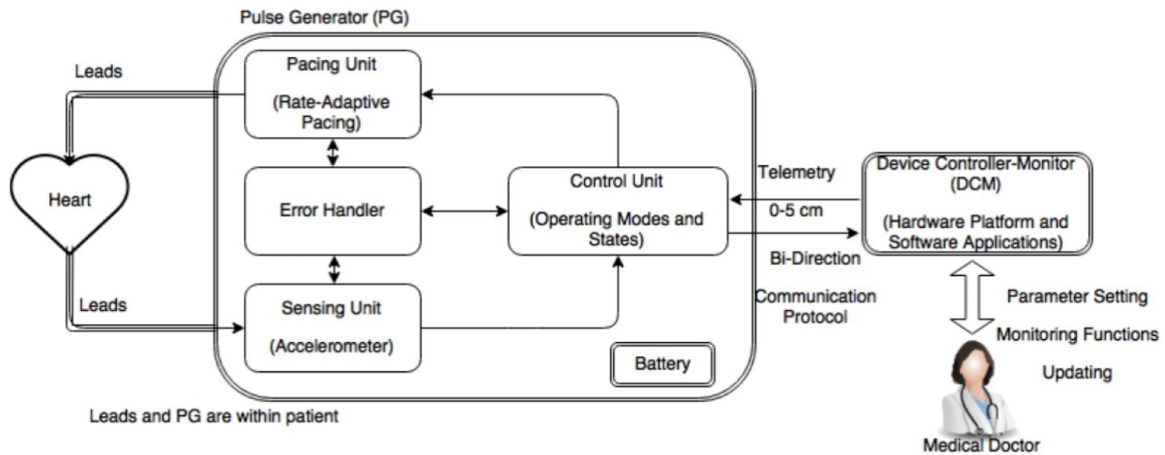
Before modification :



After modification :

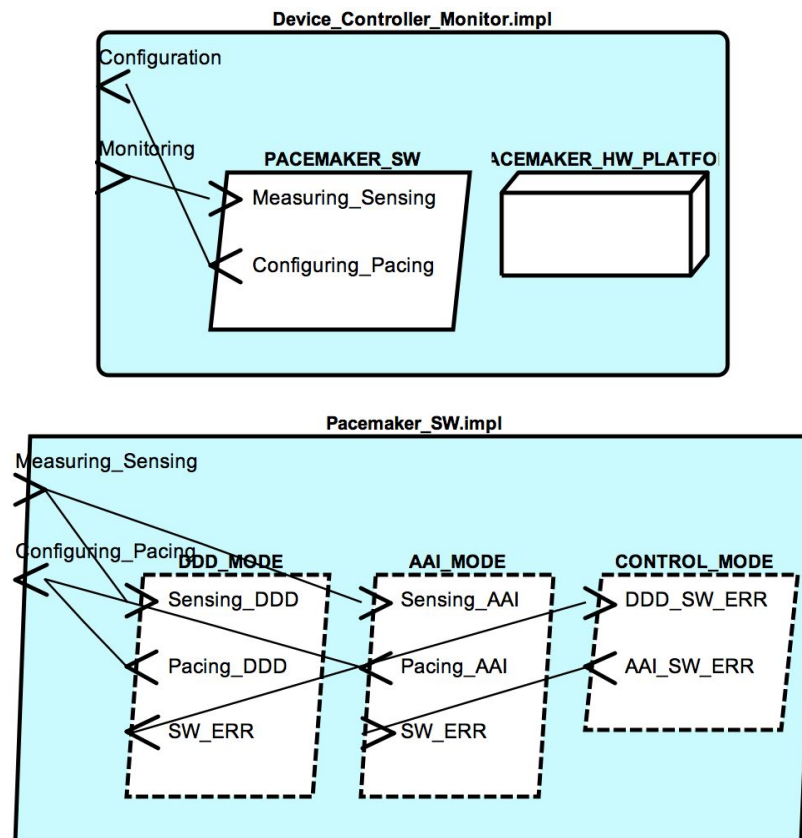


The new model is similar to the Pacemaker System below:

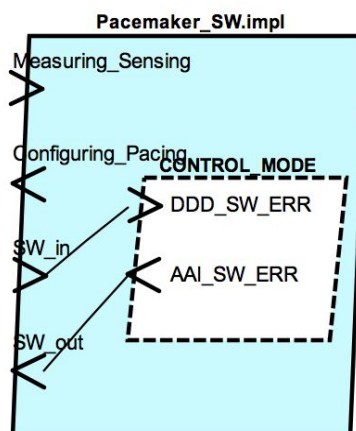
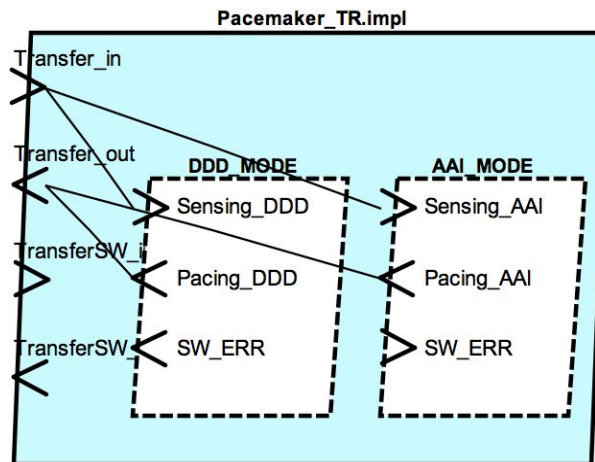
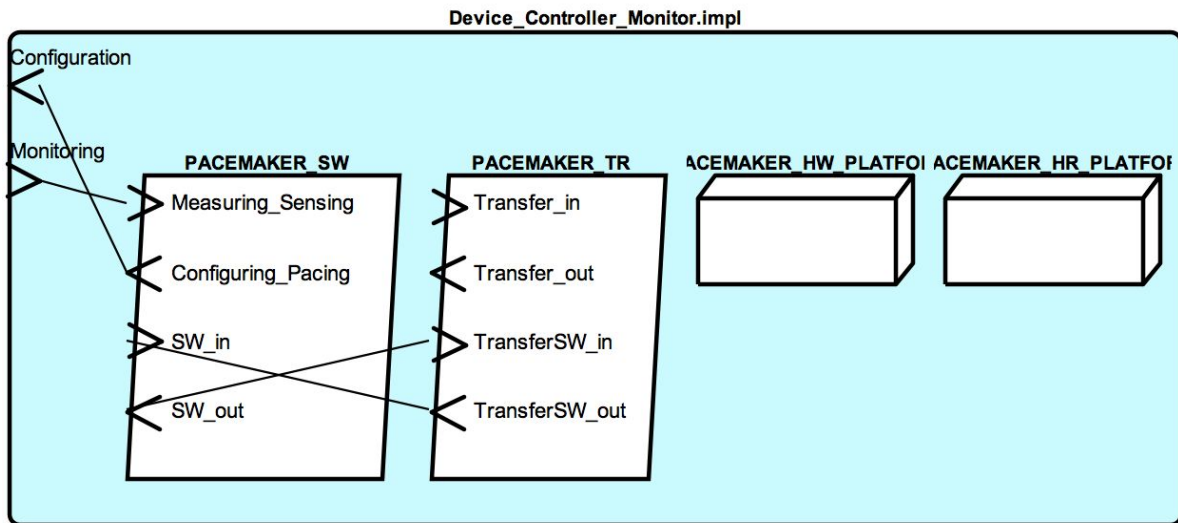


## Tactic 2: Intermediary

The process Pacemaker\_TR is added as an intermediary between process Pacemaker\_SW and general operating modes for better expansibility and performance. Before modification :



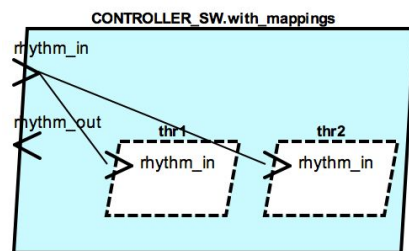
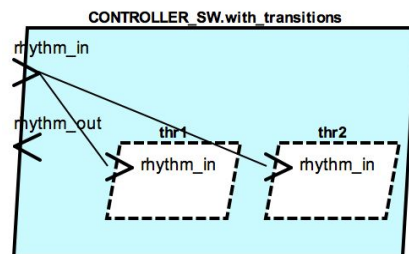
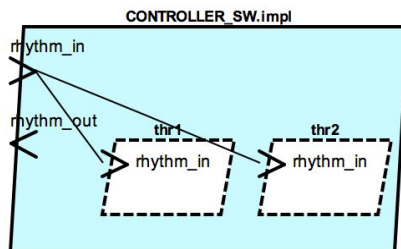
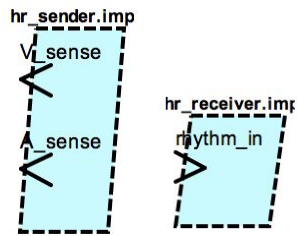
After modification :



Control Mode is separated from general operating modes, because it determines switching of modes and judging of errors.

### Tactic 3: Augmenting

Two additional threads and three additional processes are added to the system in order to implement a feedback control loop including nominal and error flows.



More details are showed in `main_modified.aadl` of `Pacemaker_Easy` project.