

# Phase 2

## Use Case

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### Current/Voltage Measurement

#### **BASIC COURSE:**

The User plugs in the microcontroller and starts up the PV Smoothing System. The system generates a PWM Signal and sleeps for a specified time. After the specified time has lapsed, the system loops through the following steps indefinitely; wakes up, reads battery temperature and determines if temperature is above limit, reads ADC Inputs for Voltage and Current sensors from Sensor ADC, performs PI calculation, updates PWM Signal, and sleeps for specified period of time.

#### **ALTERNATE COURSES:**

Battery Over Temp: The system reads battery temperature and determines temperature is above specified limit. The system shuts off PWM signal and sleeps again.

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NOTE: We do not know how the system will monitor the battery temperature yet. The Electrical Engineering students still need to design this part of the system. Therefore, the details for this part of the system was intentionally left vague.

# Robustness Diagram

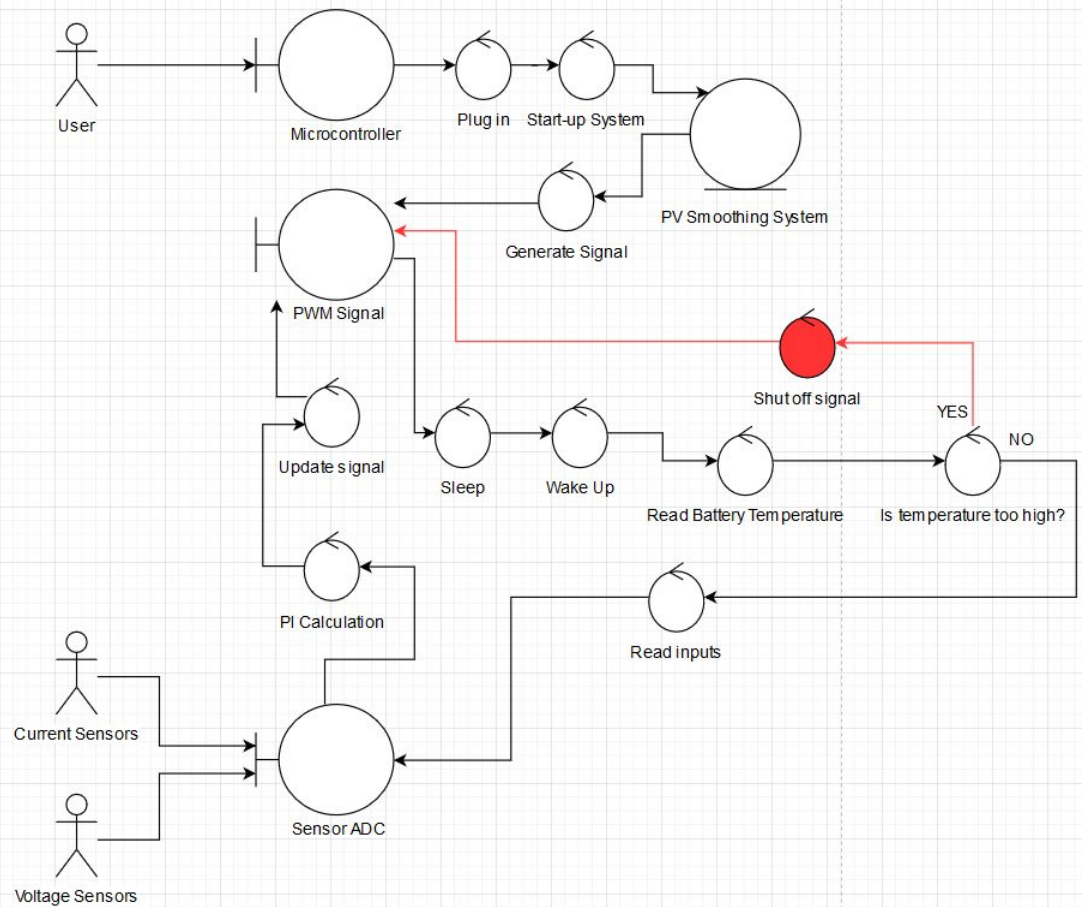
## Current/Voltage Measurement

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# Sequence Diagram

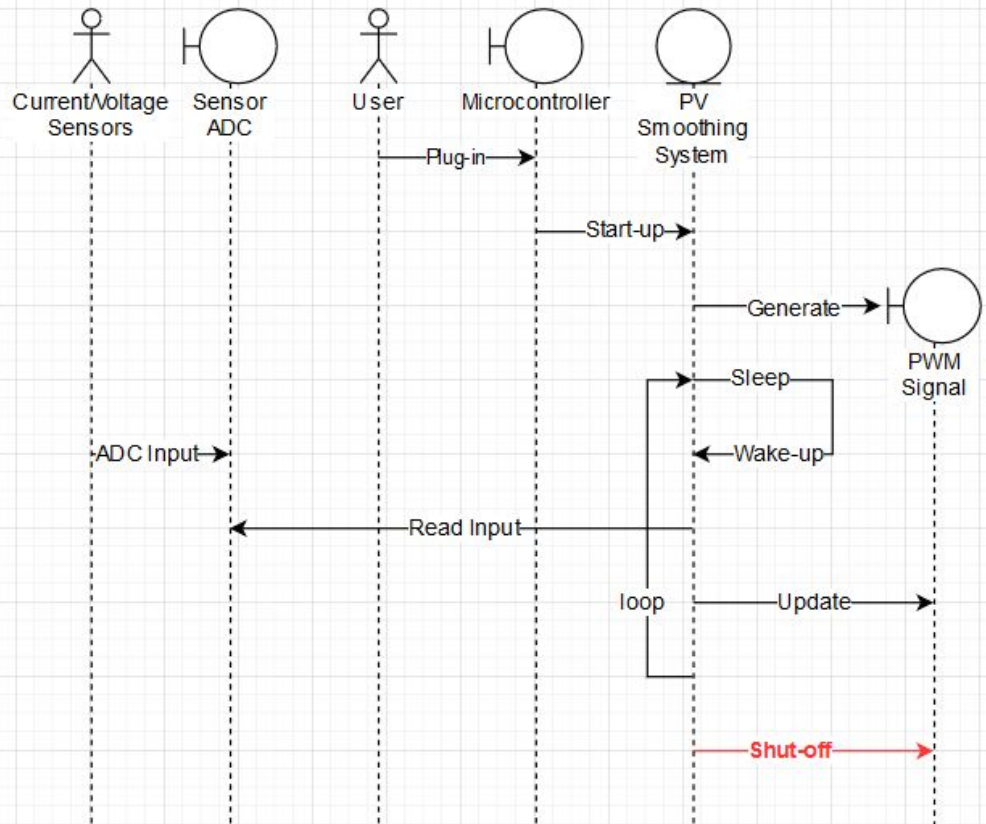
## Current/Voltage Measurement

### BASIC COURSE:

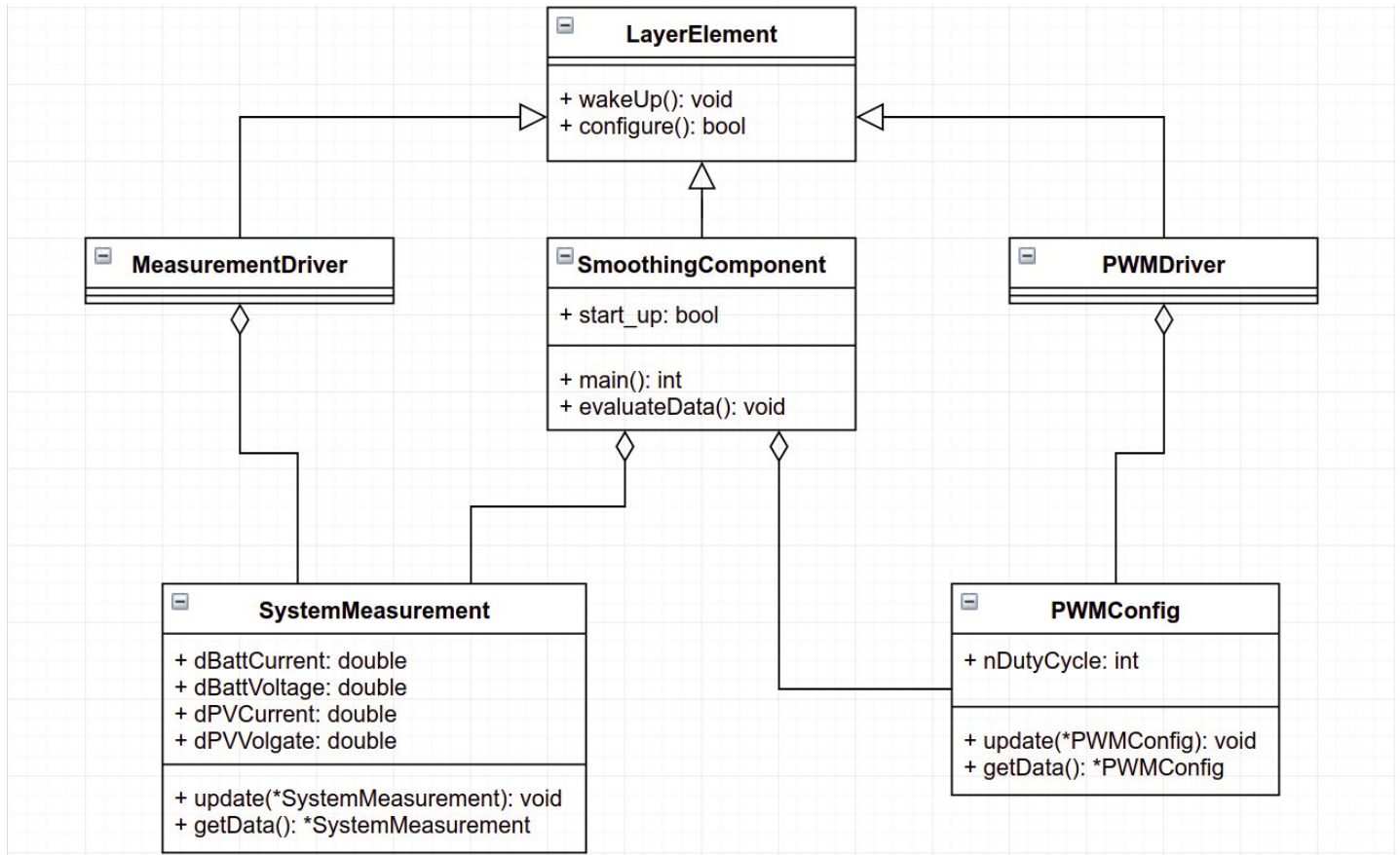
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## Static Class Diagram



## Framework/Tool Kits

Texas Instrument's Code Composer Studio (CCS) and the embedded CCS compiler will be used to develop and debug the software for this project.

# System Architecture

