**Lab 4: ESOS Sensor Service**

Stuffing, Soldering, and Partial-Build Testing Procedures

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**Purpose**

The purpose of this document is to outline the steps the team took to test the code written for this lab.

**Process**

The first step for this lab was the setup of the helper files for proper sensor functionality. The team created files esos\_pic24\_sensor.c and esos\_pic24\_sensor.h based on the templates provided in the lab repo. Hardware configuration functions were added to the revF14.h file and the hardware functions were filled out by the team in the esos\_pic24.sensor.c file. The team also added definitions for the sensor channels, format constants, and processing constants within the esos\_sensor.h and esos\_sensor.c files. Once all the helper files were constructed, the team created and completed task 1,2, and 3 files t4\_sensor1.c, t4\_sensor2.c, and t4\_sensor3.c.

**Testing**

The testing procedure for the written code began with compiling all files that were modified by the team. Once the compilation was able to complete without any errors, a code review was conducted by the team to catch any errors or missing comments. After this was done, the target board was programmed and the functionality of the code was tested.

The board testing started with verifying the functionality of the potentiometer in displaying the correct range of hex values on the terminal for t4\_sensor1. The team verified that a press of SW1 produced a single output of the potentiometer hex value and that a press of SW2 produced an output of the hex value every second. The next step was verifying the function t4\_sensor2 in taking user input to change the processing mode of the potentiometer data. The team tested every possible combination of inputs to verify that the output was concurrent with the designated processing mode. Lastly, the team tested the same functionality as in t4\_sensor2 with the temperature sensor added in t4\_sensor3.