Work Completed:

The main focus of work this week was on getting the speedometer working and reading correctly and getting the PCB design started. The speedometer was fixed in the software by changing the location of the speedometer function call. At this point the speedometer works by taking an average of time between the most recent four pulses from the switch transducer. This number is then converted to a speed within the software and an array of LEDs increments based on the speed. The auxiliary PIC with the speedometer routine on it outputs a certain pin high if the speed governor is active and the speed is over the limit. This high pin transfers the message to slow down to the throttle and braking PIC. The auxiliary PIC also outputs when the speed is essentially at zero (no hits for 1.5 seconds). This allows the other PICs to know that it is safe to allow speed sensitive routines to work, like changing modes of control.

PCB design was the other main focus this week. The circuit data was first input into the Multisim circuit design program to make sure all of the connections were running to the correct place. This became the basis for the connections between parts on the actual board designer. Multisim integrates with the PCB design program Ultiboard, and the circuit design was transferred. Much of the time this week was spent getting familiar with the Ultiboard software. At this point most of the components are placed in the software. The layout of the access ports needs to be created, and the location of some of the smaller components needs to be finalized. Once these things are taken care of the board will be ready for final copper trace connection.

Figure 1: Preliminary PCB design
**Future Work:**

This week the main focus will be on finishing the PCB design. At this point the software is waiting for the final PCB to be ready. The only things that remain to be done for the software are designating the correct ports on the PICs so everything works together.

**Time Line:**

Feb 19\textsuperscript{th} – Feb 26\textsuperscript{th}: Finish PCB.

**Hours Worked:** 17