Project Identity:

S-90 Go-Kart  
Weeks 3  
January 29, 2009-February 5, 2009  
Eric Leknes

Work Completed:

The main focus of work this week was on the wireless control system. The wireless is based on an RC controller and receiver designed for model airplanes. The receiver outputs a PWM signal that needed to be input to the microcontrollers. This required reconstruction of the PWM signal in the microcontroller using on-board timers. The main complication that was worked out this week was getting the counter in the timer to be calibrated to work with the rest of the program. A linear equation was used to equate the counter value to its corresponding normal input value. By normalizing the PWM input in this way it can be used with existing code. After a little tweaking, this method was able to get the wireless control working up to the standards of the normal joystick control.

In addition to finishing the wireless control the braking system was also calibrated, and the shutdown routine was worked on. The braking mechanism has been built for a few weeks and the software was updated to allow for joystick and wireless control to apply different levels of braking. The brakes were then tested to make sure that they were capable of locking the wheels. The initial programming for the emergency shutdown routine was completed and now it is capable of pulling the throttle back to idle and applying the brakes at the press of a button.

Figure 1: Remote control system
**Future Work:**

This week the main focus will be on tuning the speed governor and interfacing it with the other systems on the go-kart. We will also work on the engine shutdown and gearbox control if the components come in. Additionally, safeties will be added to the other software routines allowing certain routines to only be accessed when the S-90 is stopped.

**Time Line:**

Feb 5th – Feb 12th: Finish software and electronics

**Hours Worked:** 130

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![Figure 2: PIC microcontroller](image-url)