Project Identity:
S-90 Go-Kart
Weeks 3
February 5, 2009- February 12, 2009
Eric Leknes

Work Completed:

The main focus of work this week was on fine tuning the wireless control and getting the speedometer working. The wireless fine tuning involved making sure that the controls did not overflow when the wireless joystick reached extremes. This was accomplished by sacrificing some of the resolution at the extremes and instead setting the full brake threshold to occur earlier in the joystick stroke. This change made the throttle and brake axis work normally and correctly.

The speedometer is still being developed at this point. The equipment making up the speedometer is a simple limit switch attached to a pull-up resistor circuit. The limit switch closes the circuit to ground every time the axel rotates. On the software side the closing of the limit switch triggers an interrupt. A loop counter of the 20ms loops is read and reset after each interrupt. The number of counts is then converted to rotations per second and subsequently mph. At this point the speedometer function is unreliable and needs to be improved.

In addition to finishing the wireless control and working on the speedometer the emergency shutdown routine was slightly modified. The routine was modified to allow the user to maintain control over the steering while the emergency shutdown is in effect. This makes sense, because it could be necessary for the operator to steer away from an obstacle while the S-90 is coming to a stop.

Figure 1: Speedometer limit switch
Future Work:

This week the main focus will be on finishing 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 when the components come in. Additionally, the PCB will be designed.

Time Line:

Feb 12th – Feb 19th: Finish speedometer and start PCB.

Hours Worked: 20