Paul Curry, Elcano Project,

**Design for Throttle Simulator: A simple start for a trike simulator**  
  
The throttle simulator is a .ino that will run on an Arduino mega. The low-level board, which is a mega attached to a wrapper board, will plug into the simulator to send and receive information. The simulator will act as a simulated trike version 1.

The trike sim will sit in a loop sending speed pulses to the low-level board based on its current throttle value (initialized at 0). The trike sim will receive an **analog** throttle voltage from the Low-Level DAC. This voltage will be read with analogRead(PIN = 0) which maps input voltages between 0 and 5 volts into integer values between 0 and 1023. As stated above we will read the analog input through analog pin 0 on the simulator.

The trike sim will continuously send **digital** pulses to the Low-Level board to simulate the pulses from the wheel cyclometer on the trike at a speed based on the throttle value it has last read from the low-level board. The pulses will be sent out of **digital pin 1** (serial out on the mega) so that a monitor connected via usb can also read the pulses being sent out. The pulses will be sent to **digital pin 3** on the Low-Level Board’s mega (IRPT\_WHEEL is defined as 3 in the SettingsTemplate.h, if this changes then the trike sim will break!). These pulses trigger interrupts which call the WheelRev function in Elcano\_C2\_LowLevel.ino.

Todo: get the mapping,

check if will run w/o angle

Note: A = analog

Low-Level: Trike Sim:

Throttle -> Analog <- Speed (Pulse)

(A0 to A0) (D2 to D3)