APPS V3 Design Goals

* Reduce component count, combine comparator outputs
* Microfit plugs instead of minifit
* Remove voltage regulation (5 V now available off board)
* A0341A (mosfet) reverse protection, DMG’s
* Eliminate reliance on close voltage tolerances, separate OC/SC and Vmin references
  + Separate OC/SC detection from expected minimums and maximums to eliminate oscillatory behaviour
  + No fault detection should be susceptible to small noise or tolerances
* Remove LED’s
* Digital outputs for fault detection, to datalogger
* Daughter debug board for troubleshooting, pin header implementation?
* Remove redundant fault state latching, 555 for single latch?
* Fewer outputs? capture details with debug, debug board with TP’s
* Redo pinout
* Power sensors off-board
* male pin header for jumper to allow for live readings of faults OR replace button with switch?
* redundancy
  + 2x replicated outputs
  + 2x digital outs
* Duplicate output filtering stage

I/O

Inputs:

* TPS\_1 signal
* TPS\_2 signal
* Brake signal

Outputs:

* Throttle signal
* Trail braking
* Boundary condition
* Tolerance condition

~~Combine boundary and tolerance into 1 plausibility signal~~

~~Protect brake signal input~~

Power:

* 5 V from off-board regulator
* GND

Todo:

* Assign comparators and amps
* Verify 555 latch layout
* Label Resistors
* Matlab script for R calculations

Functional Blocks:

* Input Processing
* Averager
* Signal Gate
* Output Stage
* Boundary Check
* Tolerance Check
* Trail Braking
* Fault Timer

Note: Can combine OCSC and TOL outputs and TRAIL and DELAY signals in V3.1 if V3.0 success