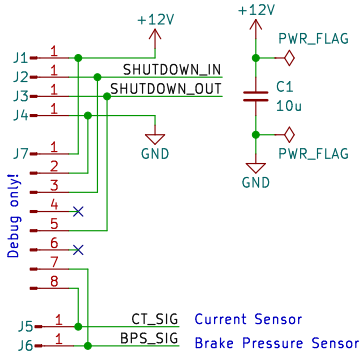
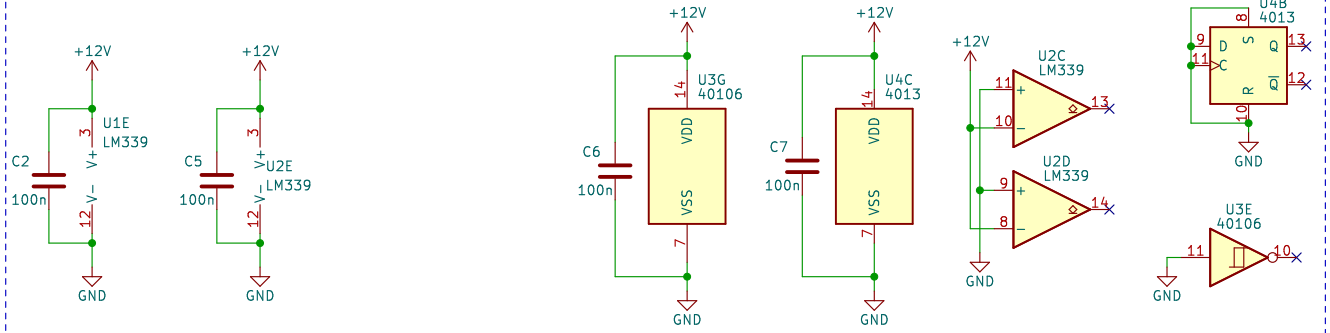
Connectors



"Connectors" are solder pads
Pin headers included for testing only

H1 MountingHole
H2 MountingHole
H3 MountingHole

IC Power and Unused Gates



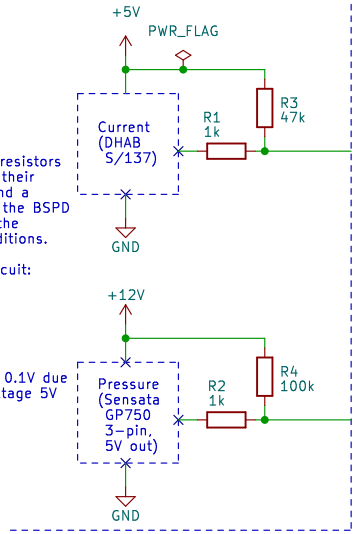
Not part of the BSPD

The sensors will have resistors soldered directly onto their terminals as shown, and a pull-down resistor on the BSPD PCB. This will enable the detection of fault conditions.

Short to GND/open circuit:
0V measured

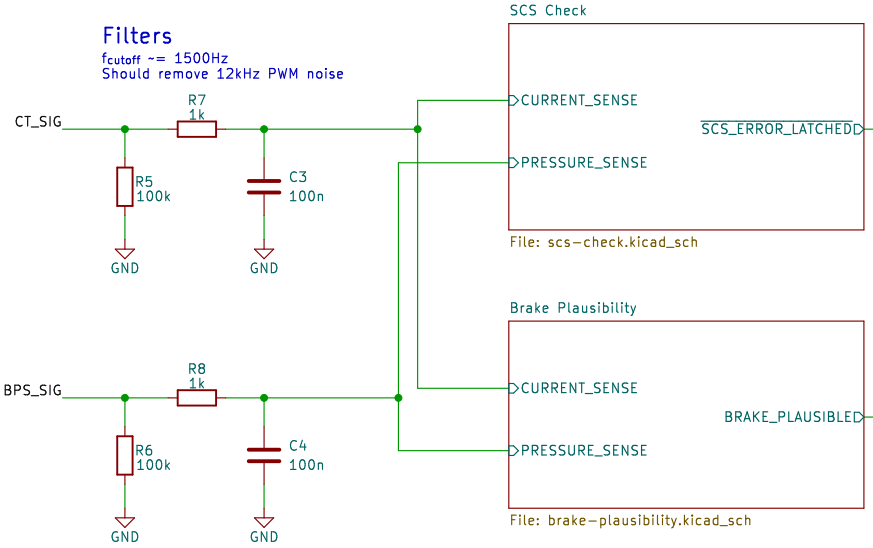
Short to +12V:
12V measured

Normal operation:
Minimum voltage ~= 0.1V due to resistors, max voltage 5V



Filters

f_{cutoff} ~= 1500Hz
Should remove 12kHz PWM noise



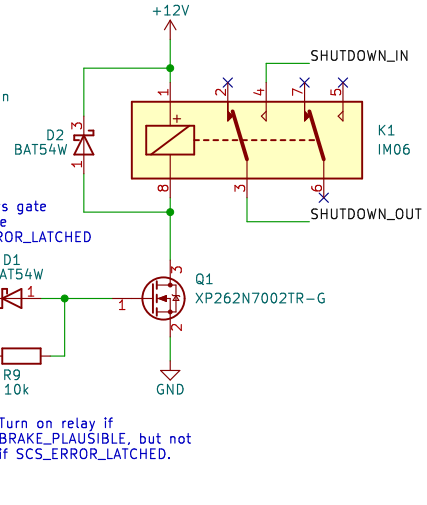
SCS Check

File: scs-check.kicad_sch

Brake Plausibility

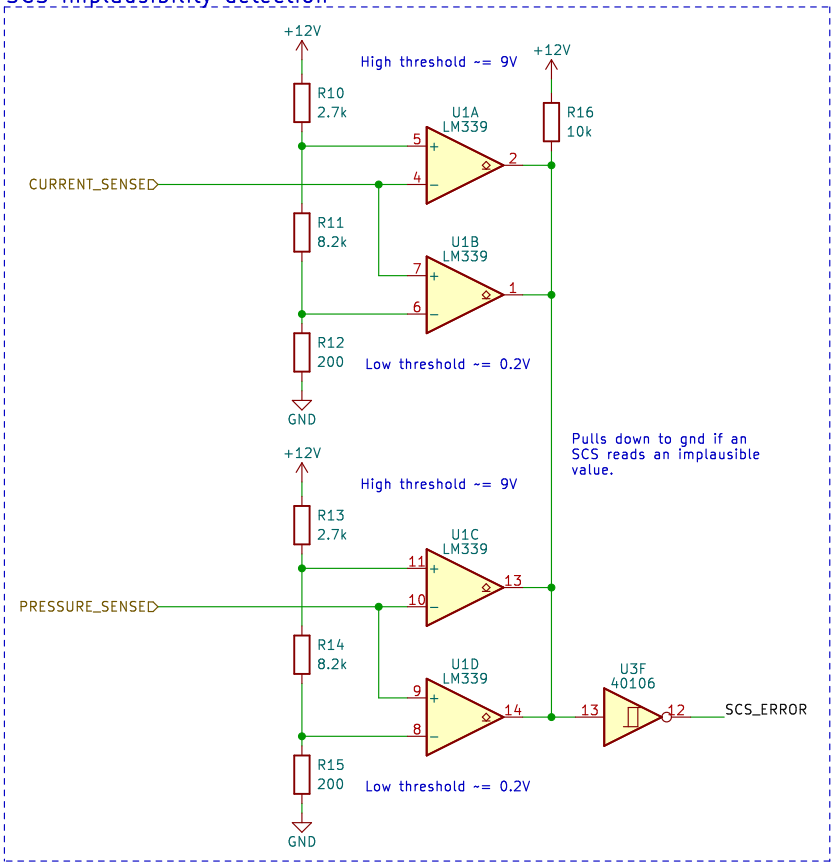
File: brake-plausibility.kicad_sch

Relay

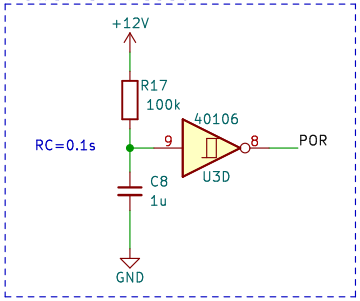


Vehicle: STAG 9	
Drawn By: Joe Pater	
Checked By: Marek Frodyma, Tim Brewis	
CAD Part:	
SUFST – Southampton University Formula Student Team	
Sheet: /	
File: BSPD.kicad_sch	
Title: BSPD	
Size: A4	Date: 2023-04-02
KiCad E.D.A. kicad (6.0.11-0)	**Rev: 1.1.0**
	Id: 1/3

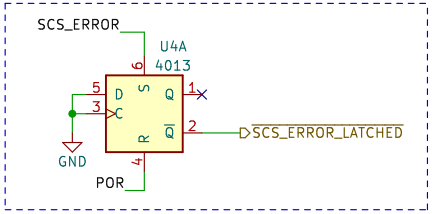
SCS implausibility detection



Power On Reset



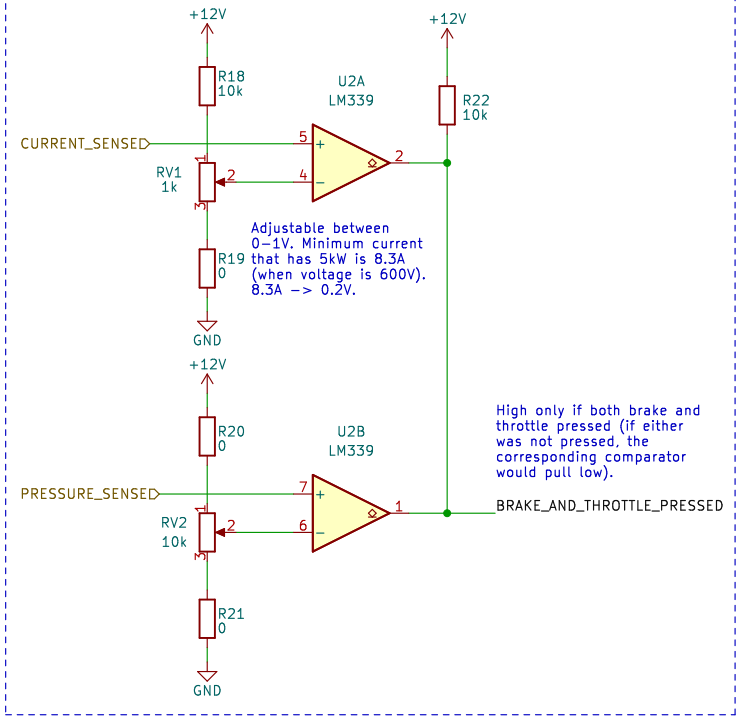
Error Latch



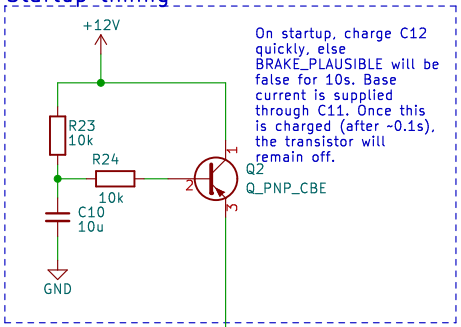
Vehicle: STAG 9	
Drawn By: Joe Pater	
Checked By: Marek Frodyma, Tim Brewis	
CAD Part:	
SUFST – Southampton University Formula Student Team	
Sheet: /SCS Check/	
File: scs-check.kicad_sch	
Title: BSPD	
Size: A4	Date: 2023-04-02
KiCad E.D.A. kicad (6.0.11-0)	Id: 4/3

Rev: 1.1.0

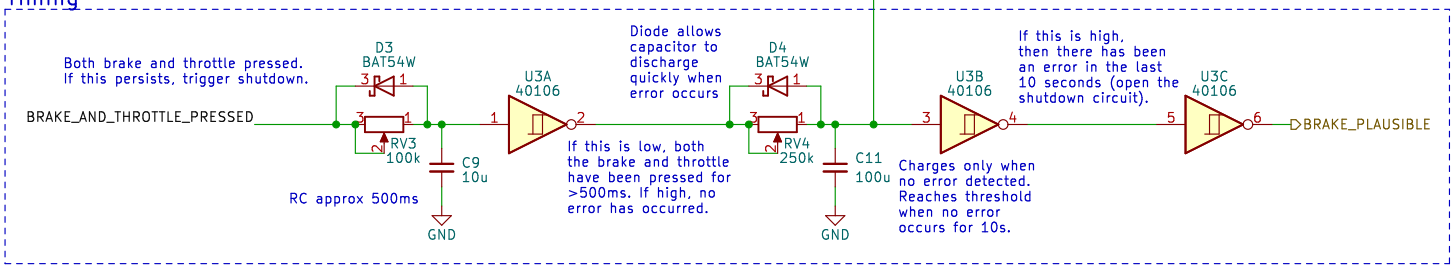
Comparators



Startup timing



Timing



270k changed to 250k

Vehicle: STAG 9	
Drawn By: Joe Pater	
Checked By: Marek Frodyma, Tim Brewis	
CAD Part:	
SUFST – Southampton University Formula Student Team	
Sheet: /Brake Plausibility/	
File: brake–plausibility.kicad_sch	
Title: BSPD	
Size: A4	Date: 2023–04–02
KiCad E.D.A. kicad (6.0.11–0)	**Rev: 1.1.0**
	Id: 5/3