BSPD Circuit

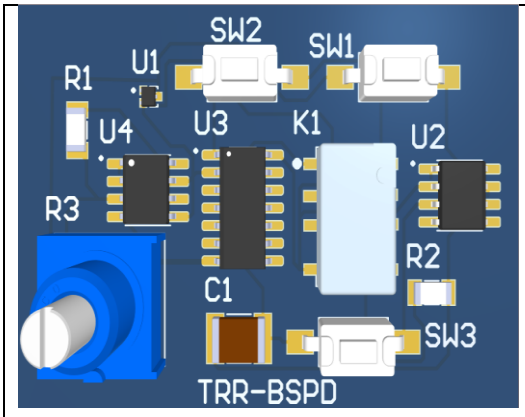
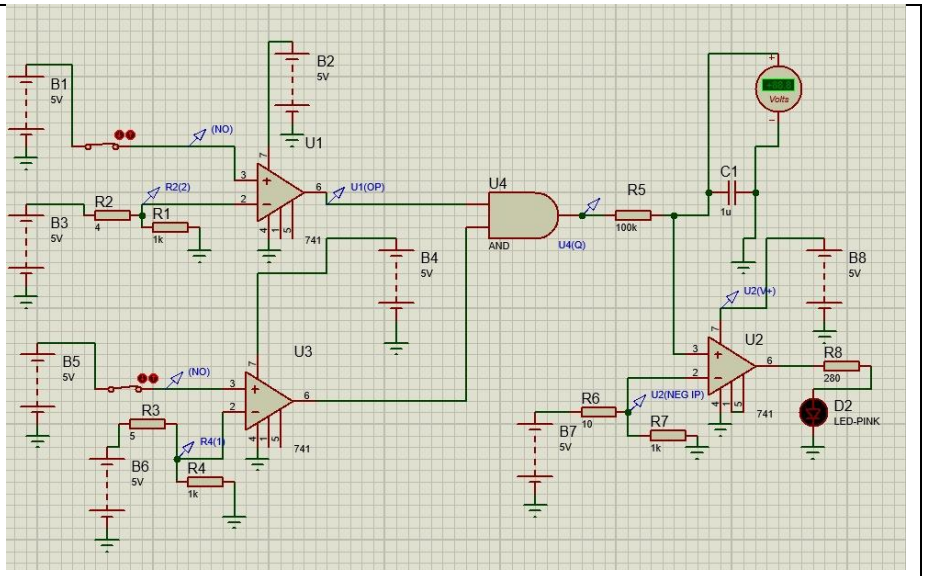
The primary function of BSPD is to ensure that the brake system operates within safe pressure limits. It uses sensors to measure pressure and other relevant parameters, and it can trigger warnings or shutdowns if the pressure exceeds safe thresholds, thereby preventing potential damage or failure.

Design Constraints:

All design constraints for the TSAL circuit were derived from the rules specified in the Formula Bharat competition, ensuring that the circuit complies with the competition's regulations and standards.

Design Procedure:

The BSPD circuit is designed based on the concept of comparing input feeds from pressure and current sensors using comparators, along with logic gate (Specifically AND gate), working together to open the shutdown circuit in case the threshold pressure exceeds 30 bar and the power supplied to the motor exceeds 5 kW, for duration of more than 500 milliseconds. This condition we have achieved by using an integrator configuration, which tracks these parameters over time. If both conditions persist beyond the 500ms threshold, the integrator triggers the Shutdown Circuit. This prevents damage from hard braking or overloading.

	
BSPD(PCB)	BSPD(Schematic)