Notice of Intent - Teams planning to build an electronically controlled throttle complying with IC1.11-IC1.16 for entry into a North American competition must notify the Rules Committee of their intent by the date specified in the action deadlines for the competition. **Submit the ETC Notice of Intent as instructed on the event website. For Michigan and Lincoln events submit through fsaeonline.com.**

\*\*Competitions may choose to apply limits to the number of ETC entries that they take and therefore the Notice of Intent may be used to screen which teams are accepted to build an ETC to the appropriate regulations.

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| --- | --- | --- | --- |
| University Name: | Cooper Union | | |
| Car # and Event(s): | 062 (Michigan) | | |
| Team Contact: | Venkat Kuruturi | Email: | [kuruturi.venkat@gmail.com](mailto:kuruturi.venkat@gmail.com) |
| Phone: | 609-222-1510 |
| Faculty Advisor: | George Delagrammatikas | Email: | [georged@cooper.edu](mailto:georged@cooper.edu) |

Include a short paragraph detailing your team’s outline design and showing that you have the capability to design the electronic systems. Your “Notice of Intent” should include the email addresses and phones numbers of the team members who can answer any questions the Committee may have about your proposal.

The Electronic Throttle Control system will be implemented on a custom controller, using an ARM Cortex M7 MCU. The ETC will control a custom electronic throttle body and will use a servo to actuate the throttle. The throttle has a torsional spring to serve as a return spring, and two throttle position sensors will provide feedback to the ETC and the ECU. Two rotary position sensors with different transfer functions will be used at the accelerator pedal to function as accelerator pedal position sensors. The accelerator pedal will also have two return springs and a positive pedal stop. A brake pressure transducer, in addition to one of the throttle pedal position sensors, will provide the input to the Brake System Plausibility device. The BSPD, implemented using opamps and a latch, will detect an implausibility in the system if the brake pressure exceeds 330 psi (equivalent to a deceleration of 1g) and the throttle is held at a value greater than 10% of its travel for more than one second. This will turn off power to the throttle as well as the fuel pump, and can only be reset by power cycling the ETC, which can only be done by toggling the master kill switch. Implausibilities between the APPS and TPS, and mismatch between requested throttle position and actual throttle position will be detected in the MCU, and will trigger the same failure condition as the BSPD, and turn off the power to the throttle body and fuel pump. All sensors will have pull down resistors on the output lines to handle the case of an open circuit, and the MCU will detect short circuit conditions.

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Approved by\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_

**NOTE: THIS FORM AND THE APPROVED COPY OF THE ETC FMEA SUBMISSION MUST BE PRESENTED AT TECHNICAL INSPECTION IF REQUESTED.**