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2019 Siemens Award for Excellence in Electrical System & Harness Design

For FSA Formula Electric teams only, **Mentor**, **A Siemens Business**, is sponsoring the "**Siemens Award for Excellence in Electrical System & Harness Design**" with 4.000 EUR of awards to recognize 3 teams who have used the most professional electrical system design, harness design & fabrication practices, and documents their electrical system thoroughly for team members and for judges.

We're looking for well-developed, well-architected, reliably and cleanly fabricated and installed electrical system & wiring-harness designs including use of schematics, checking, electrical simulation, and component selection from a formal parts library. Engineering innovation to improve the performance or endurance of your race car will be recognized, such as electrical system weight reduction or using sensors creatively to feedback on-track parameters to the "Digital Twin' virtual model of your car - that then feed-forward to the improved physical car.

Design aspects

- Use of a professional electrical & harness design package (rather than Excel/Visio type SW)
- Look of the schematics and harness drawings: cleanliness and completeness
- Use of part numbers via automatic library interrogation
- Use of well-designed electrical schematics
- Use of harness drawings
- Creation of BoM report for one or more wire harness
- Creation of professional looking wiring documentation (such as using Capital's Publisher module, that works with VeSys databases.)
- Application of DRCs (design rule checks)
- Application of electrical analysis/simulation, such as for wire and fuse sizing (such as Capital's Analysis module, that works with VeSys databases.)
- Linked Schematics<->Harness<->3D CAD (such as using VeSys with Siemens NX or other 3D-CAD packages)
- Use of generated layout printout for actual harness construction bench layout (such as Capital's FormBoard module that works with VeSys databases.)
- Clean-looking, automotive-grade fabrication of harness, such as well-thought-out and routed wire bundles through sensible/reliable routings in the car chassis. Using grommets and tapes appropriately for vibration and cut prevention, no loose, untidy wires.
- Strategy for power & ground design and/or signal management (example: EMI separation)
- Types of components used, and component selection criteria (example: military/automotive grade versus consumer level connectors).

- Strategy to minimize the number of different component part numbers used (to minimize spare parts inventory
- Innovation to modify/augment the car's performance and/or endurance, especially relating to weight reduction and innovative use of sensors.
- Integration of the 3D CAD chassis design with harness layout to achieve correct 3D routed wiring length design virtually. Much more professional than string (!) and if you change the 'Digital Twin" of the chassis, the wire lengths can be updated
- Use of Siemens' Mentor **VeSys** (with optional modules from the enterprise version **Capital)** for schematics and harness design and **NX** CAD software for chassis design, and their integrated use - is highly encouraged and earns some extra points, but is not required.

Prizes

- 2.500 EUR – 1st place
- 1.500 EUR – 2nd place
- 500 EUR – 3rd place

Eligibility

Only Formula Electric teams are eligible. A Siemens expert will come to selected teams pits, or during Design Static judging, to ask questions and inspect the harness build quality. Top-tier teams from FSA Static Design judging ranking are automatically included in judging if selected in time. For extra credit and initiative, teams are encouraged to email an application up to 6 pages long, with appendices allowed, to explain why your electrical system is well designed and fabricated - to leigh.anderson@siemens.comm with subject "FSA Siemen Electrical Award, <University-Name>". You may also attach your FSA Design Report.

Winners will be announced at the Awards Ceremony on Wednesday evening.