

POWERPLAY

NORTHWESTERN'S FORMULA RACING TEAM TAKES TO THE TRACK WITH ITS FIRST DRIVABLE ELECTRIC CAR.

Maristella Heo ('26) stood in stunned silence, eyes fixed on the track. After years of late nights fixing electrical glitches, building custom parts, and refining workflows, the Northwestern Formula Racing Team's NFR25 electric car had finally made its debut. It drove. It raced. It worked.

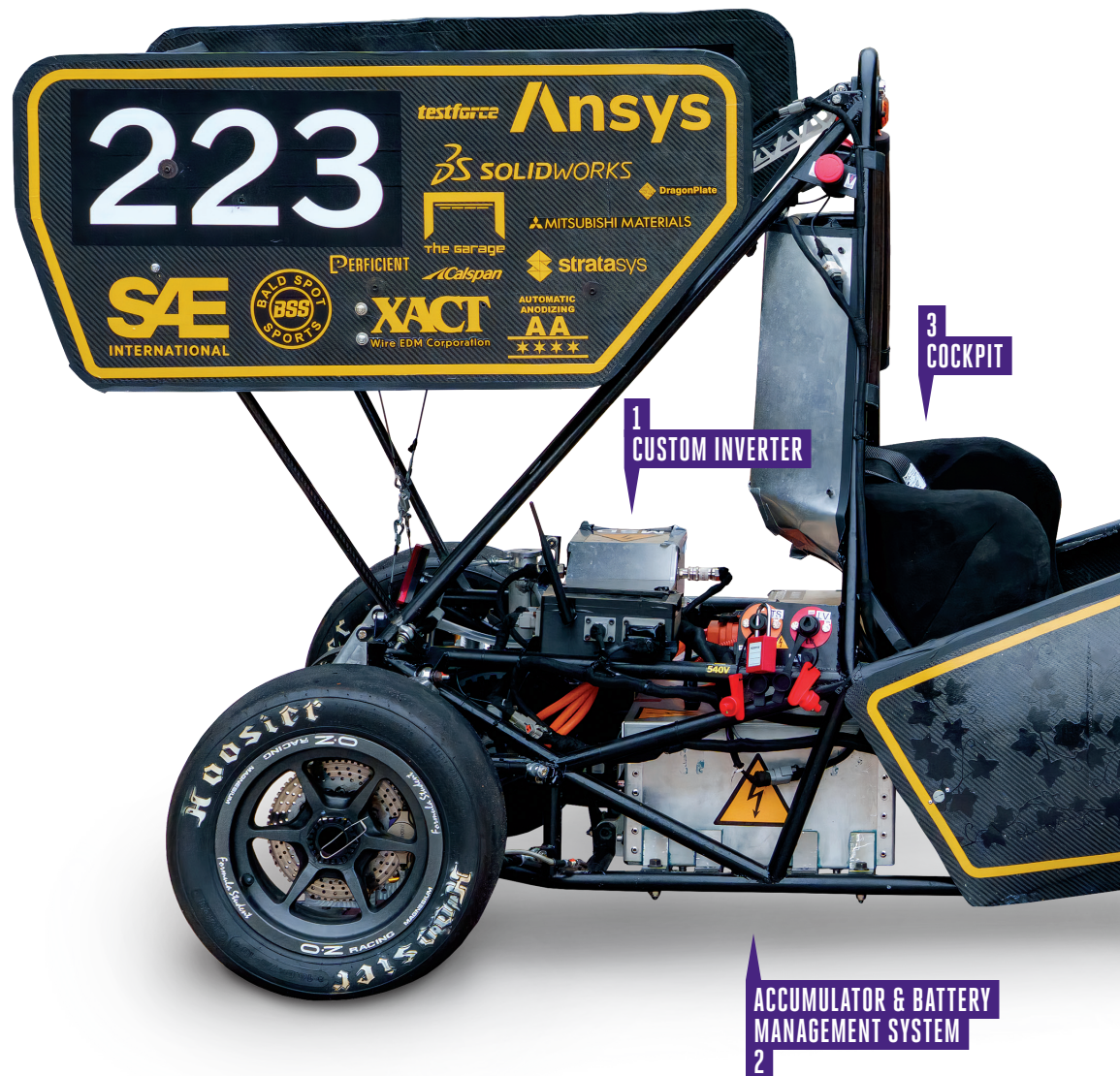
"It was surreal," said Heo, NFR25's project manager. "There are no words for seeing it drive for the first time."

The car's appearance at the June 2025 Formula SAE Electric competition at Michigan International Speedway marked a breakthrough. Although the Northwestern team has built electric cars before, NFR25 was the first to pass all technical inspections, compete in every event, and drive on track successfully.

The Formula SAE competition challenges university teams to design and build small, formula-style cars that compete in separate competitions for internal combustion, hybrid, and electric vehicles. Since 2023, Northwestern has raced exclusively in the electric competition with its rigorous safety standards and pre-race inspections.

Competing teams are judged in three static events (presentation, cost, and design) and four dynamic events (acceleration, skidpad, autocross, and endurance). Having placed in the top third in this year's competition, the team is already gearing up for NFR26, aiming to debut hub-mounted motors for a faster, more reliable car optimized for endurance.

ERICA MASINI





The Northwestern Formula Racing Team at the June 2025 Formula SAE Electric competition at Michigan International Speedway.

Pictured left to right:

rear row Drake Vogelpohl, Benji Sobeloff-Gittes, Lance Locker, Evan Bertis-Sample, Arda Noyan Kacar, Cam Estrada, Yassine El Haboussi, Ben Smith, Ryan Boyle, Oliver Dominguez-Holler, Matias Ketema, Aidan Gregoire, Danish Galebotswe, Ryan Chung, Anton Walvoord, Matt Hosemann

middle row Marah Taqatqa, Cheresa Turek, Rahwa Tesfay, Anna Murray, Carol Klingler, Nil Ozcevik, Jason Lin, Nathan Lee, Du Chen, Matt Martinez

front Stella Heo, Charlie Seifert

1

CUSTOM INVERTER

Instead of buying an off-the-shelf part, the team built its own inverter, a system that controls how power flows from the battery to the motor. Because few teams take this route, the Northwestern team gained an edge at competition.

2

ACCUMULATOR & BATTERY MANAGEMENT SYSTEM

Fully developed by the team, the accumulator and battery management system is compact, clean, and efficient—a major upgrade from previous years and a standout with judges. The system monitors and manages the interactions among the battery, inverter, and overall power system to make sure everything runs safely and smoothly.

3

COCKPIT

Memory foam seat, leather-lined headrest, and zero clutter proved a winning combination. One judge called it the most comfortable cockpit he sat in all day.

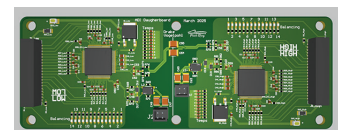
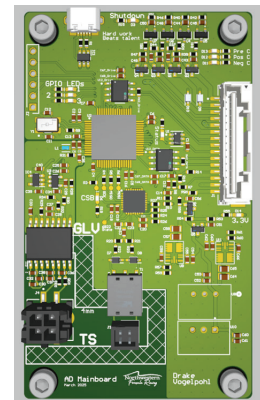
4

AERODYNAMICS PACKAGE

The nearly wrinkle-free carbon-fiber finish on the nose cone was a study in attention to detail, with clean edges that cut down on drag.



4
AERODYNAMICS PACKAGE



CIRCUIT BOARDS

The battery management system is composed of a main circuit board that controls and communicates with several daughterboards, which perform the sensing and balancing.



Read more about Northwestern's Formula SAE team—and see NFR25 in action.