

EcoCAR

EV CHALLENGE

About the EcoCAR EV Challenge

The EcoCAR EV Challenge is the U.S. Department of Energy's 13th Advanced Vehicle Technology Competition (AVTC) series. EcoCAR is a four-year collegiate automotive engineering competition, providing an unparalleled, hands-on educational experience that transforms the traditional classroom environment into a hub of automotive innovation. The EcoCAR EV Challenge is at the cutting edge of automotive engineering education and challenges university students to engineer a next generation battery electric vehicle

(BEV), specifically the 2023 Cadillac LYRIQ, that utilizes automation and vehicle-to-everything (V2X) connectivity to implement energy efficient and customer pleasing features, while meeting the decarbonization need of the automotive industry.

Connected and Automated Vehicles (CAVs) are revolutionizing the way we think about mobility. These vehicles, equipped with advanced technologies that enable them to communicate with their surroundings and operate autonomously, are paving the way

for a smarter, more efficient future.

The EcoCAR EV Challenge is a unique platform where university students work alongside industry and government partners to develop cutting-edge CAV technologies. These students aren't just learning about the future of transportation—they're building it.



Scan the QR Code to learn more about **AVTC**.

CONNECTED AND AUTOMATED VEHICLES

EcoCAR teams are utilizing industry-grade sensors, compute hardware, and V2X communication technology to develop CAV features such as cooperative adaptive cruise control (C-ACC), lane centering, and automated intersection navigation. These features allow the vehicle to communicate with roadway infrastructure and other cars, creating a connected ecosystem that can reduce vehicle energy consumption.



Teams are supported by a collaborative effort between Argonne and industry sponsors such as General Motors, MathWorks, dSPACE, and NXP. Sponsors provide software platforms such as MATLAB and Simulink, and prototyping hardware like the dSPACE AUTERA to aid teams in the design, build, and virtual validation of their CAV algorithms. Industry SMEs also provide hands-on training and in-depth mentoring to EcoCAR students throughout the development process.

Team vehicles are ultimately tested in a variety of environments to evaluate the performance of these CAV features.

The competition utilizes dynamometer testing at the California Air Resources Board (CARB) headquarters to evaluate the energy consumption of their Adaptive Cruise Control (ACC) feature. CAV features are also evaluated in an on-road setting at GM test tracks. These testing events create an unparalleled learning opportunity for students and are only possible through the incredible partnership of DOE, GM, MathWorks, and all other EcoCAR sponsors.



SPONSORS

HEADLINE



VISIONARY



LEADERSHIP



SUSTAINING



SUPPORTER



CONTRIBUTOR



PARTICIPATING TEAMS:

Embry-Riddle Aeronautical University/ Bethune-Cookman University

Georgia Institute of Technology

Illinois Institute of Technology

McMaster University – CAN

Mississippi State University

Ohio State University/
Wilberforce University

University of Alabama

University of California, Davis

University of California, Riverside

University of Texas, Austin

University of Waterloo – CAN

Virginia Tech

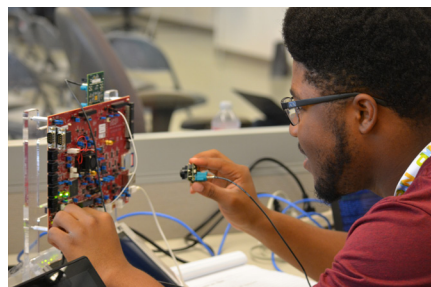
West Virginia University

History:

Established in 1988 by the DOE, Advanced Vehicle Technology Competitions (AVTCs) are a series of multi-year automotive engineering competitions and DOE's flagship workforce development program for future automotive engineers and industry leaders. EcoCAR builds upon the proud 35-year history AVTCs that exemplify the power of government/industry partnerships

in addressing our nation's toughest energy and mobility challenges and providing invaluable practical skills to promising young minds ready to enter the workforce. AVTCs engage students from middle school through higher education, creating a pipeline that both encourages students to pursue careers in science, technology, engineering, and

math (STEM). Since the beginning, more than 110 universities across North America have participated in AVTCs. AVTCs have seeded more than 30,000 graduates into industry, helping to build the diverse workforce needed for the U.S. to be competitive in the global marketplace.



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