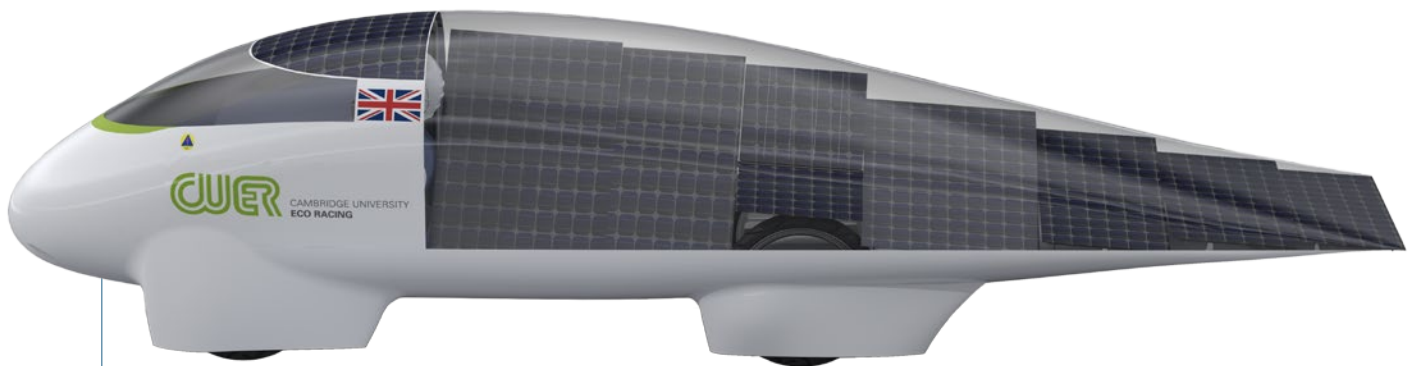


CAMBRIDGE UNIVERSITY ECO RACING

BUILDING A COMPETITIVE ECO RACING TEAM WITH SOLIDWORKS EDUCATION EDITION



Using SOLIDWORKS Education Edition software, CUER has established a competitive solar car racing team that will compete for the top prize at the World Solar Challenge.

Challenge:

Establish and grow a competitive solar car racing team at Cambridge University to compete for the top award at the World Solar Challenge and demonstrate the incredible potential of solar-powered electric vehicles.

Solution:

Implement SOLIDWORKS Education Edition solutions to spur solar car development, facilitate team collaboration and communication, and advance team growth and competitiveness.

Results:

- Established top solar car racing team in U.K.
- Improved team's performance at competitions
- Demonstrated cutting-edge sustainable engineering technologies
- Supported community outreach activities

Developing innovative solar cars that can drive at speeds similar to those of conventional automobiles is critical for sustaining transportation mobility in a low-carbon, fossil-fuel-depleted future. That's why competitions like the World Solar Challenge, a biennial 3,000-kilometer solar car race across the Australian outback, have fueled the establishment of competitive solar racing organizations, including the Cambridge University Eco Racing (CUER) team.

CUER is a group of 60 students at Cambridge University in the United Kingdom who build and race solar-powered vehicles. Since its founding in 2007, CUER has grown to become the top U.K. developer of solar-powered vehicle technologies and a leading contender to win the 2013 World Solar Challenge. While competition drives CUER's research and development efforts, the team's mission is to inspire as well as innovate.

"Our racing cars showcase cutting-edge sustainable engineering and demonstrate the incredible potential of electric vehicle technologies," says Pavel Kohout, a member of the CUER mechanical team. "By designing a car to run on solar power alone, we are driving the step changes in vehicle efficiency and developing the new technologies that will make solar cars not only functional and practical, but also desirable."

Fulfilling CUER's mission and developing competitive solar cars requires an easy-to-use, yet robust, 3D design platform. Even though Cambridge University offers a different CAD package, CUER chose SOLIDWORKS® Education Edition design software for designing, prototyping, and manufacturing components for its cars.

"The 2013 World Solar Challenge will feature the third car that the team has built, and we've used SOLIDWORKS software from the very beginning," Kohout notes. "SOLIDWORKS is easier to use, provides the complete range of capabilities that we need, and enables us to streamline the development process. The software also provides visualization and communication tools for collaboration among the technical teams—mechanical, electrical, aerodynamics, and composites—and for interaction with the business team."

WALK BEFORE YOU RUN

Using SOLIDWORKS Education Edition, CUER developed vehicles that competed in the World Solar Challenge in 2009 and 2011. While those entries finished the race in the middle of the pack, the team learned important lessons, including an assessment of the vehicles developed by more experienced corporate and academic teams.

"Although members of prior teams have moved on, their input and experience remain in the designs they created in SOLIDWORKS," Kohout explains. "For example, the work of previous teams gave us insights into manufacturing the car's aerodynamic composite shell, including how to go about cutting out fairings. The whole project would be impossible without an easy-to-learn CAD system, and SOLIDWORKS has allowed us to build upon the work of past teams to grow, improve, and become more competitive."



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— Pavel Kohout, Mechanical Team Member

AN UP-AND-COMING TEAM

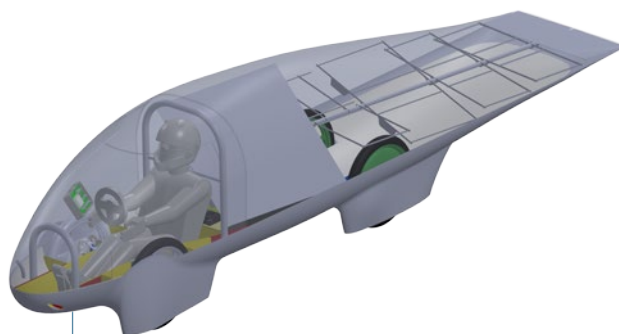
Contributing to the team's growth and heightened expectations are recent rule changes for the 2013 World Solar Challenge. By 2005, the teams reached a consensus that the goal of building a solar vehicle capable of crossing Australia at vehicular speeds had been met and exceeded, resulting in a series of rule changes designed for a fresh objective. The challenge now is to build a new generation of solar cars that can serve as models for practical, sustainable transport.

"With the rule changes in place, we've developed a game-changing concept that has improved our standing dramatically," Kohout stresses. "Through the experience that the team's gained building the previous models, as well as in developing our current prototype, we are on track to bring a world-leading solar vehicle to the 2013 World Solar Challenge."

SHOWING THE WORLD WHAT'S POSSIBLE

SOLIDWORKS Education Edition software also helps CUER fulfill the noncompetitive aspects of its mission, including inspiring young people to pursue careers in design and engineering and persuading the public that solar-powered vehicles are closer to becoming a reality than many think. Using renderings and visuals created in SOLIDWORKS, the team performs community outreach, both nationally and internationally. In addition to making presentations about solar-powered vehicles throughout Cambridgeshire, the team conducted presentations on the Isle of Wight and in Hong Kong.

"Winning the World Solar Challenge would certainly be gratifying, but that's not really what CUER is all about," Kohout says. "We want to innovate and inspire: innovate a whole new means of travel that's more sustainable, and inspire people to continue this work, whether by pursuing careers in engineering or embracing the technology. Those are our real goals, and SOLIDWORKS is helping us achieve them."



In addition to helping CUER develop competitive solar racing cars, SOLIDWORKS Education Edition software allows the team to more effectively communicate the benefits of solar power during community outreach activities.

Focus on Cambridge University Eco Racing

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