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## **LIFT and Purdue Partner to Bring the Grand Prix to High School Education**

*Pathways to manufacturing careers through vehicle design, build, and racing*

West Lafayette, IN – Lightweight Innovations for Tomorrow (LIFT) and Purdue University (Purdue) today announced the High School evGrandPrix, a program for high school students as part of the Indy500 series of activities to advance Science, Technology, Engineering, Math [STEM] education focused on manufacturing. Students in the program will learn how to engineer, build, test, and even market their vehicle creations highlighting all facets of the manufacturing process. Student teams will race their vehicles at the Indianapolis Motor Speedway (IMS). Two vehicles created by students will be branded to LIFT.

“Developing hands-on educational projects is a key way to encourage more high school students to enter manufacturing careers,” said Larry Brown, executive director, LIFT. “The High School evGrandPrix allows students to design, build, and race their creations, giving them a clear understanding of the whole manufacturing process. The LIFT team is thrilled to see LIFT- branded vehicles racing at the speedway.”

Purdue University partnered with the United States Auto Club (USAC) to develop this electric powered go-kart competition for students. The High School evGrandPrix will give students the opportunity to work in a team to manufacture a go-kart requiring the academic mathematics/science content of engineering design as well as the hands-on machining/electronics needed to move that design to a working go-kart.

“Students today thrive in a fast-paced, technically driven, context-rich environment,” said Emily Stover DeRocco, Workforce and Education Director, LIFT. “The High School evGrandPrix is the perfect program to engage students on their level while teaching principles of engineering, energy efficiency, and marketing. This program will no doubt encourage more students to consider both

STEM educational pathways in college and technical schools as well as manufacturing careers.”

The program will start in Indianapolis and will engage one or two rural schools in order to understand how the program can scale into rural high schools where students with considerable hands-on skills often naturally lean toward a manufacturing career. Because of the partnership with USAC, the program will work towards expanding into neighboring Midwestern states like Michigan, Ohio, Kentucky and Tennessee in subsequent years.

"The transformation of STEM education will require an expansive partnership that includes post-secondary institutions, local school districts, industry, community volunteers and local, state and national government leaders," said James Caruthers, Gerald and Sarah Skidmore Professor at the School of Chemical Engineering, Purdue University. "The LIFT sponsorship of the High School Go-Kart Education Program is an important component of this expanding partnership."

Partners in the project include IvyTech, Vincennes University, Lincoln Tech, Indiana School Districts, United States Auto Club, IndyCar, Indianapolis Motor Speedway, Dallara, Andretti Motorsports, Indiana Department of Education, Conexus, and Employ Indy.

For more information on the High School evGrandPrix program and other LIFT education and workforce development initiatives, please visit [www.lift.technology](http://www.lift.technology) or contact LIFT Workforce & Education Director, Emily DeRocco, at [ederocco@lift.technology](mailto:ederocco@lift.technology).

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## **ABOUT LIFT**

*Lightweight Innovations For Tomorrow (LIFT) is a public-private partnership that will develop and deploy advanced lightweight materials manufacturing technologies and programs to prepare the workforce. The LIFT region includes 5 states: Michigan, Ohio, Indiana, Kentucky and Tennessee.*

*LIFT is operated by the American Lightweight Materials Manufacturing Innovation Institute (ALMMII) and was selected through a competitive process led by the U.S. Department of Defense under the Lightweight and Modern Metals Manufacturing Innovation (LM3I) solicitation issued by the U.S. Navy's Office of Naval Research. LIFT is one of the founding institutes in the National Network for Manufacturing Innovation, a federal initiative to create regional hubs to accelerate the development and adoption of cutting-edge manufacturing technologies.*

## **ABOUT PURDUE UNIVERSITY**

*Purdue University is a vast laboratory for discovery. The university is known not only for science, technology, engineering, and math programs, but also for our imagination, ingenuity, and innovation. It's a place where those who seek an education come to make their ideas real — especially when those transformative discoveries lead to scientific, technological, social, or humanitarian impact.*

*Founded in 1869 in West Lafayette, Indiana, the university proudly serves its state as well as the nation and the world. Academically, Purdue's role as a major research institution is supported by top-ranking disciplines in pharmacy, business, engineering, and agriculture. More than 39,000 students are enrolled here. All 50 states and 130 countries are represented. Add about 950 student organizations and Big Ten Boilermaker athletics, and you get a college atmosphere that's without rival.*



# High School evGrandPrix

## Engaging Students in STEM Education for Manufacturing

An Education & Workforce Development Initiative for LIFT...Lightweight Innovations for Tomorrow



### THE PROBLEM

Effective pathways for students into manufacturing-focused STEM careers are critical to the future vitality of the U.S. manufacturing industry. Without early experiences in advanced manufacturing or with new technologies, many students will not choose to go into high-demand manufacturing careers as engineers or other skilled high-tech workers. These career pathways also need to engage both students who will pursue a university degree as well as students who will move into the manufacturing industry with an Associate's Degree, from an apprenticeship, or other technical training programs. The current career technical education and career awareness/training systems are not well aligned to provide students with enough early opportunities to learn and become excited about manufacturing careers. Increased opportunities for students to learn about their potential in high-tech manufacturing fields is essential for future workforce success.

### THE SOLUTION

The Purdue University High School evGrandPrix (HSevGrandPrix) project will leverage the excitement of designing, building, testing, and racing electric powered go-karts at the Indianapolis 500 to create an engaging high school STEM-for-Manufacturing education program. The program will generate a path into post-secondary study and training and encourage the next generation of engineers and manufacturing technicians. The HSevGrandPrix will give students the opportunity to work in a team to manufacture a go-kart requiring the academic mathematics/science content of engineering design as well as the hands-on machining/electronics needed to move that design to a working go-kart. The HSevGrandPrix program will promote the success of all young people engaged in the process, not only those pursuing a university degree.

### PROJECT LEAD

Purdue University

### PARTNERS

- IvyTech
- Vincennes University
- Lincoln Tech
- Indiana School Districts
- United States Auto Club
- IndyCar
- Indianapolis Motor
- Speedway
- Dallara
- Andretti Motorsports
- Indiana Department of Education
- Conexus
- Employ Indy

### ALIGNMENT TO LIFT WORKFORCE & EDUCATION GOALS

This project aligns to several of LIFT's eleven strategic focus areas for workforce development and education. Specifically, the HSevGrandPrix project will have a direct impact on three of LIFT's strategic focus areas:



Ensure students gain STEM foundational skills



Attract more young people to manufacturing careers



Teach the teachers

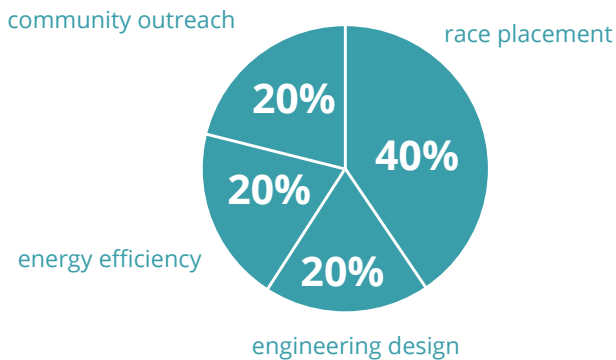
## GEOGRAPHIC FOOTPRINT

The HSevGrandPrix program will start in Indiana with an Indianapolis focus in Year 1 and an expansion across the state in Year 2. Although Year 1 will have an Indianapolis focus, it will also engage one or two rural schools in order to understand how the program can scale into rural high schools where students with considerable hands-on skills often naturally lean toward a manufacturing career. Because of the partnership with USAC, the program will work towards expanding into neighboring Midwestern states like Michigan, Ohio, Kentucky and Tennessee in Years 2 & 3.

## Project Description

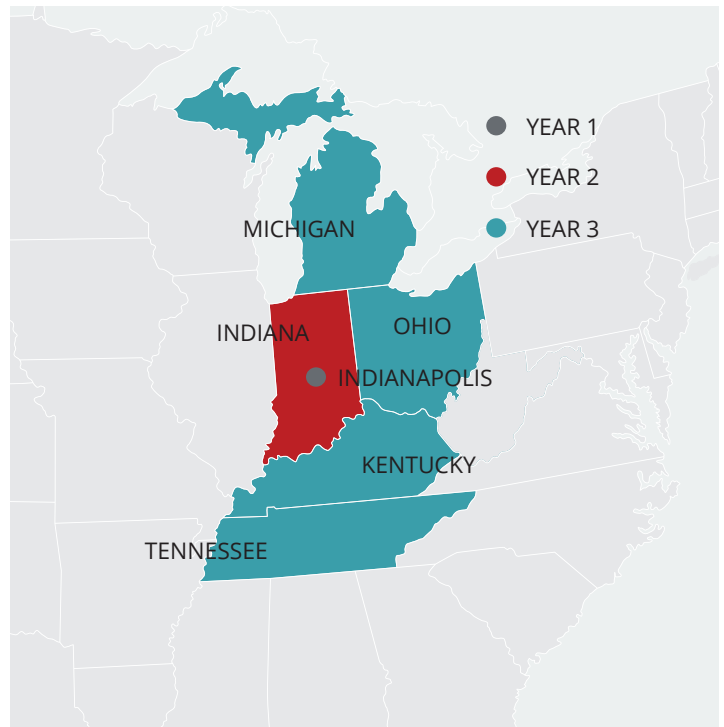
Purdue University has partnered with the United States Auto Club (USAC) to develop an electric powered go-kart competition for high school students at the Indianapolis Motor Speedway (IMS) as part of Indy500 activities. The high school event is modeled after the International Collegiate evGrandPrix which is a combined educational and go-kart racing event held the last five years at IMS. The high school event will use lead acid batteries versus the higher energy (and more costly) lithium-ion batteries that power the collegiate event.

The HSevGrandPrix is not primarily about the go-kart race, but rather the engineering, science, organizational management, and marketing/advertising needed to design, build, test, and race the go-karts. Event scoring is:



The students have to raise a fraction of the go-kart costs themselves, so the project also involves marketing and advertising – skills that engage non-tech-related students in the project. Also, there is a need for project management that involves students interested in a business-focused career path, also essential for manufacturing. The direct relationship of this project to LIFT includes but is not limited to:

- Development and incorporation of a hands-on, inquiry based educational project related to the strength of materials, as one of the exploratory projects that can be deconstructed from the go-kart;
- Development of this hands-on project into fully scaffolded curriculum modules ready for use by high school and community college faculty;
- Sponsorship of two of the initial high school go-karts, which will be appropriately branded to LIFT;
- Attracting more young people to educational pathways to Advanced Manufacturing careers, both technical and engineering, and providing a media-rich environment to recognize academic achievement in STEM fields;
- Acknowledgement of LIFT support for the evGrandPrix at the Indianapolis Motor Speedway; and
- Connections with LIFT member companies to participate in the evGrandPrix teams and events.





## EXPECTED OUTCOMES

The LIFT-Purdue HSevGrandPrix partnership will:



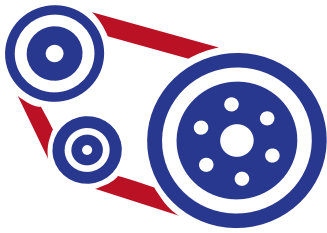
Introduce students to manufacturing in an engaging manner so that more young people will consider manufacturing as a viable career option.



Encourage students to continue education in manufacturing via a BS/BA program, an Associate's Degree in manufacturing or by directly entering into an industry-sponsored apprenticeship or other training program.



Provide hands-on projects that illustrate science/math principles in the classroom and then show how these concepts connect in the construction of electric go-karts.



Show a clear connection between STEM competencies and the skills needed for a productive career in advanced manufacturing.



Show how light weighting is an important component of vehicular design, using the IndyCar technology as the demonstration vehicle.



Provide a high profile venue at the Indy500 that will both celebrate the educational success of our students and excite additional students/schools to enter the HSevGrandPrix educational program and thereby position themselves for future careers in advanced manufacturing.

**PURDUE**  
UNIVERSITY



**lift** LIGHTWEIGHT  
INNOVATIONS