ROSE-HULMAN INSTITUTE OF TECHNOLOGY

2019-2020
Ford, MathWorks, NXP
High School
Autonomous Vehicle Challenge

Competition Announcement and Request for Participants.

We are looking for 24 high school teams to participate in the High School Autonomous Challenge. A competition sponsored by Ford Motor Company, The MathWorks, and NXP to attract students to STEM fields and introduce students to the technologies that will be used to develop the advanced vehicles of the future. **Competition Date: Friday 13 March 2020.**

What You Get

- An NXP KL25Z Microcontroller with Motor Driver Board
- Industry Standard MathWorks MATLAB and Simulink software
- NXP Cup Race Car Chassis/Kit
- Oval Practice Track
- Mounting Hardware
- A laptop with all software installed and ready to run.
- Rose-Hulman Technical Support.
- Student exposure to Ford, MathWorks, and NXP engineering tools and processes.
- Team meetings with industry representatives to discuss your team's design at competition.

What You Must Do:

- Assemble a team with a minimum of 5 high school students. Each team must contain at least one female or minority student. (Schools that have an all-female/all-minority team can receive support for more than one team.)
- Assemble the vehicle kit mechanically.
- Learn how to program the NXP KL25Z with MathWorks Simulink to implement autonomous vehicle algorithms similar to those used by Ford Motor Company.
- **Attend and compete in the Autonomous Vehicle Challenge to be held on 13 March 2020 at Rose-Hulman Institute of Technology.**
- Participate in surveys to measure the impact of this program on student interest in STEM fields.
- (Optional) Participate as a joint author in a paper documenting the impact of this program.

The MathWorks

Ford

NXP

ROSE-HULMAN INSTITUTE OF TECHNOLOGY

The Competition

This competition is an extension of the NXP Cup / Intelligent Car Racing competition – an International university level competition where teams of undergraduate and graduate students program a microcontroller to follow a track autonomously. We are adapting this competition to high school level students to attract those students to STEM fields. These students will use tools developed by MathWorks and NXP to implement the same engineering processes adopted by Ford Motor Company to design advanced technology vehicles.

Information about the competition held at Rose-Hulman can be found below:

- A short highlight reel video on YouTube.
- The story posted after the event to the RHIT website.
- Dropbox with a collection of images from the event.
- The official RHIT AVC webpage.
- Tech support website for the competition.
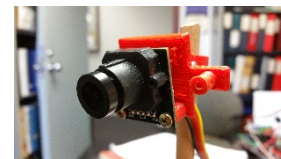
Competition Date: **Friday 13 March 2020** at Rose-Hulman Institute of Technology

Contact Information:
> **Marc E. Herniter**
> Professor of Electrical and Computer Engineering
> Rose-Hulman Institute of Technology
> Phone: 812-249-0159
> Email: Marc.Herniter@ieee.org