

Virginia Tech Sets the Pace for Autonomous Cars in the SAE AutoDrive Challenge™

Country: United States (Blacksburg, VA)
Industry: Automotive, Manufacturing
Main Apps Implemented: Accounting, Inventory, Invoicing, Studio, & Warehouse
Company Size: 30
Implementation Type: Odoo SaaS (Online)

It wasn't that long ago that the idea of self-driving vehicles was confined to the realm of science fiction. Movies in popular culture have depicted a number of cars that can safely transport their passengers from point A to point B without human assistance.

This fictional future is slowly becoming a present reality as different companies race to bring this technology to mass markets. Virginia Tech and other institutions are joining this pursuit by competing in the SAE International AutoDrive Challenge to bring autonomous vehicles to our roads.

This competition pits universities against each other over the course of 3 years with one goal in mind: to develop a Level 4 Autonomous Car that can navigate a complex driving course. The first year focuses "on developing a conceptual design and [working] with sensing and computation software." Year two is about "[improving] on their ideas and [making] solid system developments;" everything from changing multiple lanes to dynamically detecting objects. Finally, in the third year, the car will be moving at high speeds while navigating around moving objects and turnabouts. This challenge isn't simply about travelling in a straight line!



To Level 4 Automation and Beyond!

On the contrary, the goal of a Level 4 Autonomous car, with "High Automation," is to make it drivable without needing a human.

The website New Atlas describes that level of autonomy this way: "Hands, off, eyes off, mind off – sometimes... It can drive itself full time under the right circumstances, and if it encounters something it can't handle, it can ask for human assistance..." SAE, which sponsors the AutoDrive Challenge, developed the definitions the auto industry will use when talking about the degree of autonomy in cars. Per SAE, a car can be level 0 with "No Automation" all the way up to level 5 which is "Full Automation".

To this end, a dedicated team from Virginia Tech is busy outfitting a 2017 Chevrolet Bolt with software, sensors, and more. This is the car the team, known as Victor Tango, uses to compete in the AutoDrive Challenge.

In its initial year of participating in the competition, the Victor Tango team is well on its way to achieving success. The past twelve months have been a whirlwind for them. In the first events of the challenge Team Victor Tango, or VT, has placed 3rd in the overall competition and in the top three in both static and dynamic challenges. VT accomplished all of this while teaching its members real-world skills using Odoo and teamwork.



"The process is smooth."
 – Bhavi Bharat Kotha, Graduate Research Assistant and PhD Student at Virginia Tech



According to Bhavi Bharat Kotha, Graduate Research Assistant and PhD Student at Virginia Tech, most engineers focus on just that: engineering. For instance they don't necessarily know how businesses work in the real world nor how "the books" are kept in accounting. As a result, these engineers have to step outside of their engineering comfort zones to learn and figure out how to manage their inventory, make purchases, and deal with sponsors. After all, the AutoDrive Challenge requires copious amounts of materials to create an autonomous car; from nuts and bolts to sensors and computers. That's where Odoo's software comes into play.



Team Victor Tango

Using Odoo

By using Odoo's Inventory Management and Discuss apps, VT members got a taste of how company architecture works. Navigating needs versus wants, communicating with supervisors, and balancing inventory are all part of the Victor Tango experience. Inventory Management helps the team members understand how much money they have, how much money they've spent, and how many donations they receive. As Business Team Lead Andy Cohen puts it, "Odoo has been extremely helpful in actually keeping track of everything we get." Due to the nature of the project, VT has to account for hundreds of thousands of dollars worth of money and equipment. Figuring out where all of those resources go is, as Cohen puts it, "tremendously difficult." So much so that before the team started using Odoo, the person who was keeping track of all of the receipts was "ready to tear her hair out," according to Cohen.



"Odoo has been extremely helpful in actually keeping track of everything we get."
 – Andy Cohen, Business Team Lead



Thankfully, "the process is smooth," says Kotha. Having integrated apps helps streamline the process of product tracking. Everything from whether products came in, whether they were signed for, even where they are located is all managed and made easier using Odoo. The functionality came right out of the box with no customizations required. And because of Odoo's modular nature, VT only used and paid for the apps they needed.

As Team Victor Tango gears up for its second year of the AutoDrive Challenge, they will continue to make improvements not only to their car, but to the team as well. With the scalable ERP Virginia Tech is using, there is nothing they can't Odoo!



About Victor Tango AutoDrive Team



Virginia Tech's Victor Tango AutoDrive Team is one of eight selected to be a part of the GM and SAE International sponsored AutoDrive Challenge. The objective of this competition is to plan, design, and build a fully autonomous ground vehicle in the next three years. The team will be provided a Chevy Bolt Electric in which they will have to convert into an autonomous vehicle. The vehicle will then be put to the test in a rigorous urban driving course.

Find out more at VTAutoDrive.org