

U researchers prepare to build autonomous car

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The Daily Utah Chronicle

In previous years, the Defense Advanced Research Projects Agency has challenged teams to build cars that drive themselves through the desert. This time around, DARPA is looking for cars that can pilot themselves through an urban area.

A team of U researchers led by Thomas Henderson, a professor of computer science, has entered the DARPA grand challenge.

"We have to create a vehicle that will navigate its way through a number of GPS points while completing certain requirements along the way," Henderson said.

A few of the things required of the vehicles are merging into traffic, passing, making a U-turn and obeying traffic laws. The vehicles must also stay a certain distance from other cars, avoid collisions and stop at certain points.

A Chrysler minivan complete with the system needed to drive itself was donated by the Center for Autonomous Vehicle Applied Technology and Information, a nonprofit organization set up to promote the creation of autonomous vehicles.

"The system has three main parts: control, which deals with controlling the vehicle; perception, what is

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going on around the vehicle; and cognition, planning how to get from one point to the next," Henderson said.

"The cognition system is responsible for the overall behavior of the vehicle. You can think of it as the brain of the vehicle, where it receives inputs from the perception system, and issues commands to the control system," said Jacob Quist, a graduate student in computer science.

The team will have to

make it through several events before competing in the Urban Challenge final event, to be held Nov. 3.

The team members have to submit information about the site where they want to run their vehicle. If the site is approved, a committee will be sent to watch the vehicle run at its local site. Then if the vehicle qualifies, the team will be made a semifinalist and will participate in one of two national qualifying events in late October. Finally, the qualifiers will participate in the final event.

"We just hope to make it as far as we can," Henderson said. "The real problem for us is none of us have spent a lot of time working with cars; we usually do other

stuff like robots."

The challenge is being sponsored in part by the military, which hopes to have one-third of all military vehicles autonomous by 2015.

"An autonomous car can be used by the military to help find roadside bombs, provide undercover surveillance and could save lives in situations where it is not safe for an operator to be in

a vehicle," said Marques Rasmussen, a junior mechanical engineering major.

"Building an autonomous car has nothing to do with civilian use; it is more for the military," Henderson said. "But any improvement in the field makes it more likely to move into commercial uses."

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Junior Jared Robert downloads some of the software that will help run an autonomous vehicle during the Defense Advance Research Projects Agency competition to be held in November.