Students design driverless motorcycle for competition

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A research group from Texas A&M has joined with a group from the University of California at Berkeley to create an unmanned robotic vehicle that will compete in the Defense Advanced Research Projects Agency's (DARPA) Grand Challenge race on Oct. 8.

The race will take place in a 175-mile stretch of desert between Los Angeles and Las Vegas, and the first team to complete the course within 10 hours will win a $2 million prize.

The DARPA Grand Challenge was created because of a congressional mandate that urged the Department of Defense to produce autonomous vehicles in order to reduce or eliminate the need to endanger humans in combat scenarios, according to a press release from DARPA.

The teams competing in the challenge were allowed to choose any vehicle base they wanted. The Texas A&M-Berkeley Blue team chose a Yamaha motorcycle base for its speed, maneuverability and cost, said Dezhen Song, assistant professor of computer science at A&M and leader of the A&M side of the Blue team.

"There are several benefits to the (motorcycle) base. It's very small, and it has good off-road capabilities," Song said. "A large vehicle would have problems in a forest, but a motorcycle would have no problem."

Since the goal of the event is military innovation, Song said that the motorcycle design would also be beneficial for financial and production reasons.
"If it succeeds, it will be a cheaper platform for mass production," Song said. "There are more advantages for a military project."

Song said the A&M part of the Blue team is primarily responsible for the sensor and software design, which is vital to a machine that will function without the aid of a human pilot.

The collaboration of the two prestigious universities on this project gives the Blue team an edge, Song said.

"A&M is pretty much responsible for the sensor and software development," Song said. "Most of the mechanics is at UC Berkeley. We have the combined strengths of (A&M) and Berkeley."

Song said future applications for this type of autonomous technology are promising, and there are several different industries interested in the inventions being made.

"The (technology) has a huge future," Song said. "Of course DARPA has a military motivation, but we are talking to a variety of different industries that are interested in a variety of our different design components."