Securing America's Future by Developing STEM-based, Bottom-up Learning Through the Use of Autonomous Vehicle Systems Design

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Abstract:

The engineering base within the United States is shrinking and being displaced with companies ever-increasing use of 401B Visa's. The average engineer in "mission control" was in their 20's and yet today most students graduate with little or no hands-on experience. Would you want the average 23-year-old to have that responsibility today?

To complement the current top-down university learning culture we need to include a bottom-up method. One way to fill this need is through involvement in a multidisciplinary team structure tasked with autonomous systems design. Members develop teamwork, engineering and scientific skills through the functional application of knowledge.

Participating in a performance competition involving undergraduate engineering teams nationally and internationally is used to mature engineering skills beyond the average graduate. In autonomous robotics many see the future, and the importance of the fact that research is accessible to undergraduates in a sophisticated team effort is not lost on young students who are motivated toward technology and science.

The problem of carrying out research on autonomous robotics at an undergraduate institution is a sophisticated, yet critical one in systems engineering. For the national security and independence of the United States we need more engineers and scientist. We need to insure the pipeline of potential engineers and scientists is filled as early as possible. Consider squadrons of A.U.V.'s at the nano-level used to weed crops, to pick produce and remove insects, to mine coal and diamonds or A.U.V's navigating a craft to another galaxy. We need to start now.