

BAE Systems Wildcat Autonomous Vehicle

Information

BAE Systems has demonstrated its first fully autonomous ground vehicle; a converted Bowler Wildcat off-roader. In just six months, BAE Systems took a commercially available 4x4 vehicle and equipped it with the ability to drive and think for itself.

The team at BAE Systems converted the stock Bowler Motorsport Wildcat offroader into an autonomous vehicle that can not only follow planned routes at speeds of up to 40 mph, but can also sense and avoid obstacles in its path without human input.

The car is fitted with computer controlled steering servos, an extra braking system and a hotline into the vehicle's engine management system for speed control. In addition, wireless data links, GPS and laser ranging sensors are installed so that the Wildcat could receive instructions, navigate and avoid hitting obstacles. But the real key to the vehicle's success is the multi-level approach to autonomous operation devised by the team and developed by them into a working system.

"The Wildcat's got four levels of autonomy," says Gary Cross, autonomy expert at the BAE Systems. "It works by organising its operation using a top level 'planner' which has the big picture of the mission right down to the 'driver' that takes care of the basic task of controlling the vehicle," he says.

The whole process is initiated from a simple 'point and click' screen linked to the Wildcat by radio from a mobile command centre in the back of a Land Rover. Once given its marching orders, the Wildcat does the rest.

Wildcat facts

- The Wildcat has performed thousands of autonomous miles
- The Wildcat's sensors can observe a volume larger than 120,000 squash courts in one second
- The patented safety system allows the operator to safely monitor, operate and drive the wildcat from the driver's seat, a chase vehicle or a remote ground station
- The Wildcat's software has been demonstrated on over seven different types of vehicle
- The Wildcat senses and records 1GB of data per second
- The Wildcat's software reduces the volume of sensor data by over one million before outputting to the steering, throttle and breaks

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