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Big Dog



With its sights on robotic pack mules to help warfighter in operations, DARPA initiated a program that yielded BigDog. The robot's on-board computer controls locomotion, processes sensors, and handles communications with the user. BigDog's control system keeps it balanced, manages locomotion on a wide variety of terrain, and does navigation. Sensors for locomotion include joint position, joint force, ground contact, ground load, a gyroscope, LIDAR, and a stereo vision system. Other sensors focus on the internal state of BigDog, monitoring the hydraulic pressure, oil temperature, engine functions, battery charge, and others. In demonstrations, BigDog ran at 10 km/h, climbed slopes up to 35 degrees, walked across rubble, climbed muddy hiking trails, walked in snow and water, and carried up to 150kg loads.

Development of the original BigDog robot was funded by DARPA. Work to add a manipulator and do dynamic manipulation was funded by the [Army Research Laboratory's RCTA](#) program.

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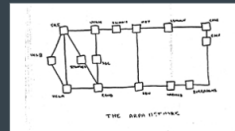
DARPA's Stealth Revolution

In the early days of DARPA's work on stealth technology, Have Blue, a prototype of what would become the F-117A, first flew successfully in 1977. The success of the F-117A program marked the beginning of the stealth revolution, which has had enormous benefits for national security.



Navigation in the Palm of Your Hand

Early GPS receivers were bulky, heavy devices. In 1983, DARPA set out to miniaturize them, leading to a much broader adoption of GPS capability.



Paving the Way to the Modern Internet

ARPA research played a central role in launching the Information Revolution. The agency developed and furthered much of the conceptual basis for the ARPANET—prototypical communications network launched nearly half a century ago—and invented the digital protocols that gave birth to the Internet.

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