

Boston Dynamics: Quadruped Rough Terrain Robot Prototype

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BigDog: Courtesy of Boston Dynamics

Boston Dynamics has released a prototype of an all-terrain robot, BigDog. The quadruped robot is equipped with a computer featuring sensors that aid its movements over harsh terrain. The robot is powered by a gasoline engine that drives the hydraulic system.

BigDog is the latest from the engineering geniuses at Boston Dynamics. BigDog is powered by a gasoline engine that drives a hydraulic actuation system. BigDog is approximately 3.28-feet long and 2.30-feet tall and weighs 165-pounds. It is about the size of a small mule or big dog.

BigDog has a computer built-in that controls locomotion. It is equipped with sensors that aid BigDog in adapting to varying conditions. The sensors provide stereo vision, joint force, joint position and ground contact that aids in continuous movement. Most importantly, the robot is equipped with a laser gyroscope that aids in balance under extreme conditions.

BigDog is capable of maintaining its balance while packing a payload of up to 340-pounds over inhospitable terrain. BigDog can maneuver over icy parking lots, snowy hill sides and hill sides with dense foliage. Amazingly, BigDog maintains its balance when obstructed by man made obstacles.

BigDog can climb over a pile of cement blocks, gallop, sprint and jump over impediments. According to Boston Dynamics, BigDog is funded by the Defense Research Project Agency.

Boston Dynamics began as a spin off from the Massachusetts of Technology. Marc Reibert and colleagues from MIT research focused on robots that simulate the maneuvers of animals. In 1992, Boston Dynamics was launched as an engineering company that specializes in robotics and human simulation.

Over the past decade Boston Dynamics has combined forces in a myriad of applications of robotics and human simulation. For entertainment purposes Sony Corporation solicited the expertise of Boston Dynamics. In the area of security and military preparedness, the United States Marine Corp., Army and Navy have collaborated with Boston Dynamics.

Recognizing the need for all terrain robots in the field and in inhospitable environments, Boston Dynamics endeavors include a variety of robots. The RHex is an all terrain robot that can be controlled up to

600 meters by an operator. The RHex's agility is exceptional. The six-legged robots can travel through mud, rocks, water, over railroad tracks and stone quarries and keeps its balance.

Other research and development include human simulations for maintaining security in hostile environments. Some applications might include using robots to maintain the perimeter around buildings and streets where land mines and other incendiary devices are difficult to detect with the human eye.

The application of Boston Dynamics work is infinite and may provide alternative solutions to the physical limits of mankind.

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