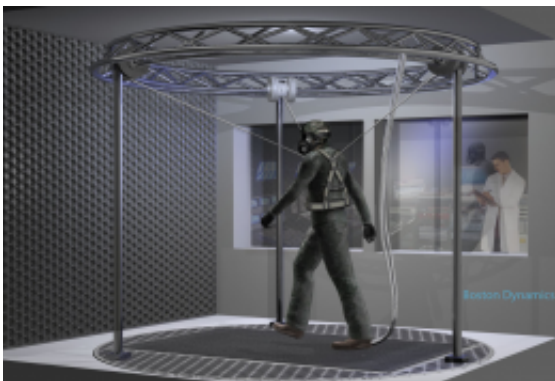


PETMAN robot to closely simulate soldiers (w/ Video)

April 27 2010, by Lin Edwards



(PhysOrg.com) -- A freely walking biped robot the size and shape of a human being is being developed to realistically simulate a soldier wearing protective clothing.

The [robot](#), PETMAN (from Protection Ensemble Test Mannequin), is being developed by Boston Dynamics for the US Army for testing chemical protection clothing. The anthropomorphic robot will be able to balance itself while walking, crawling, doing calisthenics, and generally moving freely like a human while being exposed to chemical warfare agents.

At its current stage the robot resembles a box on legs, but in its final

form it will closely resemble a person, having “the shape and size of a standard human,” according to VP of Engineering at Boston Dynamics, Robert Playter. When completed, PETMAN will be the first anthropomorphic robot to move dynamically like a real person, Playter said. The army also wanted the robot to simulate physiological responses inside the suit, such as sweating, temperature and humidity control, and even breathing, to even more realistically simulate a soldier wearing a protective suit.

The prototype robot walks heel-to-toe just like a human, and remains balanced even when pushed. In tests it has achieved a fast walking speed of 4.4 mph walking on a moving [conveyor belt](#). PETMAN’s walking algorithm and the mechanical design are based on a previous Boston Dynamics [robot known as Big Dog](#), which is designed for carrying supplies over almost any terrain.

Like its predecessor, the PETMAN robot has a hydraulic actuation system and articulated legs with shock-absorbing elements. The robot is under the control of an on-board computer and an array of sensors and internal monitoring systems.

The 13-month developmental period will be followed by 17 months of building, installation, and validation. Delivery of the completed and tested robot is expected some time in 2011. Boston Dynamics is a small company that spun off MIT in 1992. It specializes in robotics, with many of its projects being for military applications. Measurement Technology Northwest, Midwest Research Institute (MRI), Smith Carter CUH2A (SCC) and HHI Corporation are all partners in the PETMAN project.

More information: PETMAN page:
www.bostondynamics.com/robot_petman.html

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