



Stair Climbing Robot for Military and Security Applications

Technology No. z08062

IP Status: Issued US Patent; **Application #:** 12/463,067

Stair Climbing Robot with Innovative Wheel Design Fast, Portable Stair Climbing Robot

Wheeled and tracked vehicles, while cheaper than bipedal or jumping robots, often have problems with slippage. The Loper robotic platform has solved this problem with an innovative wheel design for mobile robots consisting of three lobes connected by to a central hub that essentially act as cogs for the purpose of stair climbing. The design enables fast stair climbing at a reduced platform weight. The operation is capable of achieving speeds of up to 8km/hr on flat surfaces and stair climbing speed of 4.3 body lengths/second. The chassis design provides a light, flexible and rugged platform that is ideal for agile operation. The platform can be outfitted with image sensors, infrared sensors, or chemical detectors. Loper is also capable of sustained motion for extended periods of operation and is more portable than the Packbot®.

Robot Applications Include Military and Security Robots

This technology has applications as military robots or security robots in urban environments where stair climbing and agile operation is an essential part of the mission. The robot is not only a stair climbing robot but operates in terrain where wheeled robots would operate.

FEATURES AND BENEFITS OF STAIR CLIMBING ROBOT:

- High stair climbing speed: Capable of achieving speeds of up to 8km/hr and a climbing speed of 4.3 body lengths/second
- Lightweight and rugged design for increased portability
- Platform can be outfitted with an array of sensor capabilities
- More portable than the Packbot®
- Capable of sustained motion for extended periods of operation

<https://license.umn.edu/product/stair-climbing-robot-for-military-and-security-applications>