# Robotic Assistant for Mobility-Impaired Patients (RAMP)

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**Abstract:** An estimated 10 million mobility-impaired Americans are supported by registered nurses. By 2020, US will have a shortage of 808,000 RNs. This supply-demand gap can be partially addressed by a robotic assistant. The Robotic Assistant for Mobility-Impaired Patients (RAMP) is designed to assist mobility-impaired individuals with simple daily in home tasks such as object relocation, two-way communication, and information gathering of their immediate surroundings. The robot requirements are based on a detailed time and motion analysis of the needs of mobility-impaired individuals by assisting them with relocating assets within one floor of the patient's home, gathering information of the environment for the user, and two-way communications. The results of verification tests on a prototype show that RAMP can move in straight line, diagonally, and stop with the maximum deviation errors of +/- 0.06 m, can lift and carry items weighing < 1.5 kg and receive images with +/-10 secs delay.

*Keywords:* Disable, Mobility Assistant, Robot Assistant, Healthcare Assistants Shortage, Nursing Home, Elderly Care