Freedom Innovations to Commercialize the World's First Actively-Powered, Complete Lower Extremity Prosthesis

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IRVINE, Calif., April 14, 2011 /PRNewswire/ -- Freedom Innovations, a company that specializes in the development of high technology lower extremity prosthetic devices, today announced a worldwide licensing agreement. The agreement grants the company exclusive rights to commercialize the world's first lower extremity prosthesis with actively powered knee and ankle joints that operate synergistically. Developed at the Vanderbilt University Center for Intelligent Mechatronics in Nashville, Tennessee, this groundbreaking technology will substantially improve an amputee's quality of life.

The convergence of technologies has made it possible for the Vanderbilt system's prosthetic knee and ankle joints to work in unison. This allows above-knee amputees to walk 25% faster, while expending 30–40% less energy compared to other state of the art devices. The increase in efficiency, paired with the system's overall functionality and fall prevention mechanisms, also provides users with increased balance, agility and recovery reflexes to prevent falls. This improved level of safety will reduce the potential for injury and costly hospital admissions.

The Vanderbilt Powered Knee and Ankle System features state of the art microelectronics technology which facilitates intelligent communication between the user and the prosthesis. Sophisticated software with intent recognition capabilities analyzes the user's movement patterns, such as weight shifting or changes in joint angles. These patterns are translated into power-driven actions that help the user ambulate close to biological norms. The analysis occurs within a few hundred milliseconds with smooth synchronization between the action of the user and the prosthesis. All of this occurs within a design envelope that is comparable to human anatomy, which is critical for user acceptance.

In addition to increased safety and metabolic efficiencies, the Vanderbi
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