

Pallotta OJ, Turner P. **Portable Gait Laboratory for Improved Gait Analysis**. *Proceedings conference of Engineering and the Physical Sciences in Medicine, EPSM 2001, Sept-Oct:45*

Portable Gait Laboratory for Improved Gait Analysis

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Abstract

Correct prosthetic alignment is crucial. Poorly aligned prosthetics can result in gait changes, which may lead to secondary complications [1]. Current methods of prosthetic evaluation involve examination of the patient's anterior, posterior and lateral gait. This process is problematic. To alleviate these problems the Portable Gait Laboratory (PGL) was designed. It is capable of tracking a patient's movement and filming their gait. This footage can then be utilised for gait analysis.

Ultrasonic sensing is utilised to determine the distance from the patient to the on board cameras and thus providing an input signal to the control system. A PID controller is used to control the motor to move smoothly and appropriately with the patient. The camera footage is transmitted live and viewed on a PC where it can be stored and retrieved for later use.