Prakash Pandey, Development of mono-axial electrogoniometer, M.Tech thesis, School of Biomedical Engineering, Indian Institute of Technology Bombay, 1996.

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*Abstract* – A goniometer is an instrument for measuring joint angle, and it has many clinical applications, such as diagnostic assistance in knee corrective and reconstructive surgery, in the design of the locomotive assistive devices, and in general study of locomotion (gait analysis).

The objective of this project is to design and build a simple, low cost, light weight, non-interfering in walking, and reliable electrogoniometer to record the angular movement of the knee joint in the sagittal plane (flexion-extension). The necessary mechanical assembly required for proper attachment at the knee joint has been redesigned and fabricated incorporating some additional features to an earlier design. The prototype was packaged with appropriate control knobs in a box designed and fabricated for this purpose. Calibration and testing of the unit has been carried out. The flexon waveforms were recorded using a plotter for various activities such as walking, jogging, cycling, and sitting and rising on the chair for normal knee joint. The developed unit was interfaced with a battery operated portable data logger for digitizing and recording the waveforms. The recorded waveform can be subsequently retrieved for display and spectrographic analysis on a PC. Such an analysis was carried out for the captured flexon waveforms.