

251. HUMAN GAIT PARAMETER ESTIMATION USING MEMS SENSOR FOR VARIOUS WALKING SPEEDS

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Osteo-Arthritis (OA) is one of the major problem in old age, the analyses of OA is done using standard OA score given by Oxford Knee Score(OKS) system. In this work an attempt has been made to analyze the GAIT parameters using MEMS based sensor and comparing the results with OA score obtained. The methodology to detect the spatio-temporal gait parameters by using a wearable MEMS (Micro-Electro-Mechanical-System) sensor with accelerometer, gyroscope, and magneto sensor incorporated in it has also been explored. Camera-based analysis and force plate system are expensive and requires calibration. Thus, a MEMS based system promotes wearable, portable, cheaper solution when compared to the existing methodology and requires no calibration. The measurement was taken for controlled subjects on a 10 meter walkway for various speeds-slow, normal and fast gaits. The results obtained are validated by a physician and analyzed with OA score.

Key words: gait, gait parameters, MEMS

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