International Journal of Engineering Sciences
(ISSN 0976 – 6693)
Volume 10 Number 3 October 2017

Research papers

Abstract: Camera-based 3D motion analyzers are widely used to analyze body movements and gait, but they are expensive and require a large dedicated space. This study investigated whether inertial measurement unit (IMU)-based systems can replace such systems by analyzing kinematic measurement parameters. IMUs were attached to the abdomen and thigh and the shank and foot of both legs. The participant completed a 10 m-gait course 10 times and the hips, knees, and ankle joints were observed from the sagittal, frontal, and transverse planes during each gait cycle. The experiments were conducted with both a camera-based system and an IMU-based system. The measured gait analysis data were evaluated for validity and reliability using RMSE. In this regard, the differences between the RMSE values of the two systems determined through kinematic parameters ranged from a minimum of 1.39 to a maximum of 3.86. These results confirm that IMU-based systems can reliably replace camera-based systems for clinical body motion analysis and gait analysis

Abstract: Polycarbonate (PC) is one of the most widely used engineering plastic with growing applications in automotive, electronics and electrical housing due to its high impact strength and clarity. However, poor chemical resistance and process-ability limit its applications. This work produced new generics of PC and polyethylene terephthalate glycol (PETG) blends using twin screw extruder, changes of process-ability was detected by melt flow index (MFI). It was found that the presence of PETG can significantly increase flowability of the blends. Transparency of the pelletized resins was also investigated visually. Mechanical properties, including, tensile properties and Izod impact strength, of the blends were found to be considerably improved by PETG introduction.

ES100306 Analysis of power consumption in macro and micro cellular base stations 120-124

R. Pooja, A. Pragathi, S. Brindha

Abstract: The growth in wireless communication applications and the corresponding progress in the cellular network infrastructure has resulted in a budding concern on the energy consumption of the network. Energy consumed by base stations (BS) is a major part of the total energy consumption in a cellular network. In the current scenario, mobile networks form the ultimate source of communication. But it is also a great need to make this communication a green and effective one. To meet the requirement the power consumption criterion for a cellular base station have considered and analyzed.The proposed work is aimed at identifying a suitable BS infrastructure to meet the requirement in an energy efficient way .Power consumption comparison of Macro and micro BS is carried out by varying the transmission power for different distance coverage using MATLAB simulation. The simulation results confirm that Micro BS infrastructure provides an energy efficient and cost effective solution.