Mathematical Modeling of Enhanced Whale Optimization Based Power Quality Enhancement Using Unified Power Quality Conditioner for Implantable Biomedical Devices

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Implantable biomedical systems that enable the majority of the functions of wireless implantable devices have made significant progress in recent years. Nonetheless, due to limited miniaturization, power distribution limits, and the unavailability of a stable link between implants and external devices, such systems are primarily limited to investigation. Generating electricity from natural sources and human body movement for implantable biomedical devices has emerged as a viable option. Nowadays, energy sources become the emerging use of electricity grid which has formed new challenges for the effectiveness of power quality, efficient energy utilization and voltage stabilization for biomedical applications. Power quality in the implementation of the