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(57) Abstract :

The present invention relates to a system for rehabilitation therapy of patients. The system integrates depth sensors, infrared cameras, and motion-tracking sensors to capture patient movements, which are processed using machine learning models for accuracy evaluation and real-time feedback. A mobile application facilitates remote monitoring by healthcare professionals, enabling personalized therapy plans with adaptive difficulty levels. The system provides visual, audio, and haptic feedback, improving patient engagement and adherence to therapy. Connectivity is established via Wi-Fi, Bluetooth, or LoRa, allowing secure cloud-based data storage and synchronization. Designed for home-based use, TheraCanvas benefits Parkinson's disease patients, post-surgery rehabilitation, and general motor skill improvement. The system supports wearable integrations and ensures low-latency real-time gesture recognition, making it a cost-effective, non-invasive alternative to traditional rehabilitation methods.

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