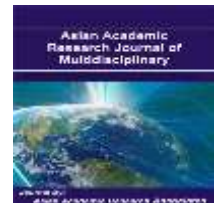




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FUZZY INFERENCE BASED SCOLIOTIC LOW BACK PAIN TREATMENT PREDICTION AND EVOLUTION MONITORING SYSTEM

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Abstract

There is an increasing rate of low back pain pathologies among the young adults due to the IT oriented workstyle and hours of incorrect sitting position. Our main objective is to create a fuzzy inference system connected to a zebris mobility device to suggest a correct treatment: spinal cord surgery or medical recovery exercises. This maximizes the treatments effect and minimizes the necessary sick leave time. The secondary objective is to create a Microsoft Kinect based system that can be installed in the patient's home to monitor the evolution during the recovery treatment. All the collected data is stored on a dedicated server in HL7 compatible format. The testing of the first system was conducted on 260 patients: lot 1:107 surgery patients and lot 2: 163 medical recovery patients measured 5 times at 6 month interval. For the first lot the error is under 2% and for the second lot the error is under 1%. The Microsoft Kinect was introduced at the last evaluation session and the measured values are identical to the zebris devices for the thoracic tracking Young adults are willing to follow through a rehabilitation process if IT gadgets are used and if they are positively motivated.
