



VISION-INTEGRATED PHYSIOTHERAPY SERVICE ROBOT USING COOPERATING TWO ARMS

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Abstract- This paper presents the mechanical architecture, control system, and other modules of a physiotherapy service robot which can treat degenerative disease and chronic disease of middle-aged and aged people by Chinese massage skill. The main body of the robot includes a massage adjustable bed, two 4-DOF(Degree of Freedom) robot arms and two massage hands that can accomplish various massage manipulations. Physiological signal and massage pressure are detecting in real time in massage process to ensure a scientific and safe therapy. Vision system sends the recognized acupoint position to the master system to track the patient's body, and the acupoint being massaged is displayed in real time by the 3D virtual model. The robot can execute ten massage manipulations, so that the traditional Chinese massage can have a robot instead. The effectiveness for degenerative lumbago in middle-aged and aged is demonstrated by laboratory examination and clinical trial..

Index terms: physiotherapy robot, acupoint recognition, motion control.