Robot Patient for Nursing Training

In nursing care, there are many tasks needed to moving the patient's body, such as assistance of bathing and dressing. To improve the skills for nurses, the mock patient acted by stationary manikins or healthy people is generally utilized for simulation of patient's performance. However, such mock patients cannot precisely reproduce the real patients. For example, the stationary manikins cannot reproduce the movements of human's joints. For the healthy people, it is difficult to simulate the movements of the patient with decline of muscle strength and paralysis. To develop a robot patient which could accurately reproduce the patients' limb movements and interact with the trainee would be great help for the nurses to improve their nursing skills.

Two types of robot patients were developed for the patient transfer and dressing training respectively. The former one was target on reproducing the patients' body limbs movement and interacting with the trainees during patient transfer (Fig. 1 and 2). The later one was target on reproducing the patients' upper limbs' joint's DOF and rotation range, in addition, measuring the joint's rotation angle for evaluating the trainees' skill performance (see Fig. 3 and Fig.4). In addition, we aim to construct a mechanism which can simulate two types paralysis: spastic and flaccid paralysis (Fig. 5).

Key Words: Robot patient, Education system, Nursing skill, Skill acquisition, Paralysis simulation

Reference

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[2] Ayanori Nagata, et.al. "Mannequin robot to measure movement of patient's arm by nurse during exchange of the patient's wear on bed," Proc. 2014 JSPE Spring Conference, Tokyo, pp. 895–896, 2014.

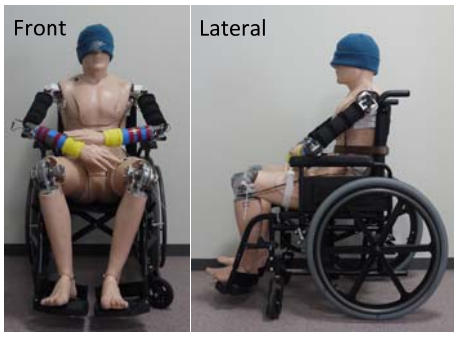

Fig.1. Robot patient for patient transfer training

Fig.2. Using robot patient in patient transfer training

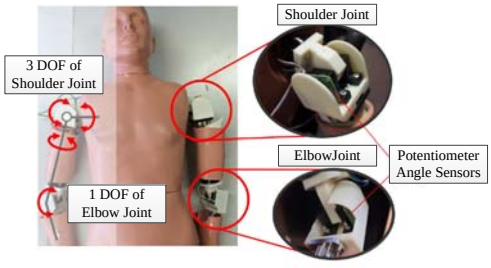

Fig.3. Robot patient for dressing training

Fig.4. Dressing training using robot

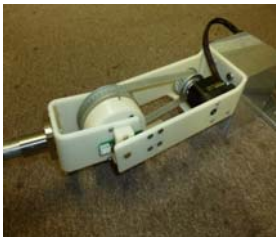

Fig.5 Prototype of robot's elbow