T-L. Lee, H-T. Fan, C-H. Chien, T-S. Ho. The omni-directional wheelchair for the elderly. Gerontechnology 2008; 7(2):148. To move more flexible in narrow spaces, such as in elevators or any small aisle, we designed and implemented a dexterous three-wheeled wheelchair with smooth omni-directional motion for the elderly. It does not only keep the merit of the existing manual and electrically operated wheelchair, but also with a novel omni-directional movement system. Also in larger environments the elderly are able to operate such a device. **Methods** We enabled the dexterous electrically operated wheelchair to achieve free position directly toward migration, and overcame the complicated mode of motion which the existing wheelchair owned[1,2]. We improved the mechanical and electrical system, the way of folding, an automatic charge system and a system to evade bonds[3-5]. **Results and discussion** (i) The omni-directional motion wheelchair had been designed which include solid model mechanical design; (ii) a finished prototype of the wheelchair was moving in omni-directional function (*Figure 1*); (iii) this research not only kept the merit of the existing manual and electrically operated wheelchair, but also innovated a novel omni-directional wheelchair system for elderly.

References

1. Brian C, Matt G, Mike D, Jae L, Robert L, Williams I, Paolo G. Proceedings RoboCup 2001 International Symposium; 2001
2. Kim DS, Lee HC, Kwon WH. Proceedings of IEEE International Conference on Robotics and Automation 2000;3:2033-2038
3. Byun KS, Song JB. Proceedings of IEEE International Conference on Robotics and Automation 2003;1: 503-508
4. Liu Y, Wu X, Zhu JJ, Lew J. Proceedings of the 2003 Conference on American Control 2003;4:3423-3428
5. Chen P, Mitsutake S, Isoda T, Shi T. Proceedings of IEEE International Conference on Robotics and Automation 2002;18:251–256

Keywords: wheelchair, electrically operated wheelchair, omni-directional movement
Address: Nan Kai Institute of Technology, Taiwan; E: alee88@nkc.edu.tw

Figure 1 A finished prototype of the wheelchair is moving in omni-directional function