A SURVEY ON HUMAN COMPUTER INTERACTION TECHNOLOGY FOR DISABLED PERSONS

FENG WANG AND XIANGSHI REN*

School of Information
Kochi University of Technology
185 Miyanokuchi Tosayamada-cho Kami-shi, Kochi 782-8502, Japan
*Corresponding author: ren.xiangshi@kochi-tech.ac.jp

ABSTRACT. *To protect the human rights of the world's estimated 650 million disabled people in the information society, many techniques for improving the living quality were studied in the past few decades. In this paper, we make a survey on scientific literature dealing with the Human Computer Interaction (HCI) techniques for disabled persons. We investigate the relational fundamental models which can reveal the common ground of HCI technology and analyze the literature for solving the interaction difficulties of the persons with motor and visual disabilities respectively. A number of drawbacks and suggestions are made for future research on HCI technology for the disabled people.*
Keywords: Survey, Human computer interaction, Disabled persons

1. **Introduction.** As the human society entered the 21st century, people are more and more aware of the fact that the issue of more than 650 million people with disabilities is becoming a worldwide major social issue. The disabled persons are still facing special problems and difficulties due to their physical or mental limitations and the external environment and attitude towards them no matter in developed or in developing countries.

To protect and enhance the rights and opportunities of the disabled persons, on December 13, 2006, the United Nations formally agreed on the convention of the Rights of Persons with Disabilities, the first human rights treaty of the 21st century [31]. In many countries or organizations, i.e., United States [20], European Union [33] and Japan [10], laws had been promulgated to assure the basic living conditions of disabled persons and the accommodation of the special needs of disabled persons in the information society.

Besides the protection of the law, one might expect that the rapid development of information technology and the increasing computerization of society would lead to innovations that would remove many of the roadblocks faced by disabled. Unfortunately, that is not the case. In current products of commercial available, few are specially offered to the disabled. Instead, access to information and high-tech careers by disabled has been hampered by shortsightedness on the part of computer and telecommunications systems designers [9].

In order to help disabled persons fit into the mainstream of society, Human computer interaction (HCI) technology, a discipline concerning with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them [5], is presented in the research of high-tech for disabled persons. However, many unknown issues, i.e., the fundamental design principles of HCI for the disabled, most issues on the limitation of HCI for the disabled and the approaches to effectively evaluate the performance of HCI for the disabled, are still obsessed current study.