Novel electronic musical instrument for persons with cerebral palsy to play and enjoy together

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ABSTRACT

We have developed a novel musical instrument with storing pre-programmed music score in PC, named Cyber Musical Instrument with Score, "Cymis". Using Cymis, persons with neural or motor impairments such as cerebral palsy can play the piece easily. This instrument consists of monitor display, PC, MIDI sound source, speaker and interfaces, such as touch panel, switch and expiratory pressure sensing device. The field experiment commenced in 2008, and at present, ten facilities including National Hospital participate in the experiment. Assessment scales are constructed with 5 levels from 0 (almost no disability) to 4 (almost immobile) , corresponding to the performing devices such as single input device to complex touch panel input method. Assessment was recorded during 27 months from Jan. 2009 to March 2011 in a facility. Results obtained from 44 clients (average age: 54.6) were as follows; no change of level was 24 (55%), dropped 1 level (improved functionally) was 19 (43%), up 1 level (decline functionally) was 1 (2 %). In conclusion, this paper presents the technology that is designed to be attractive to clients, that permits them to do an enjoyable activity that may not otherwise be possible for them, and that has shown some evidence to therapeutic effect.
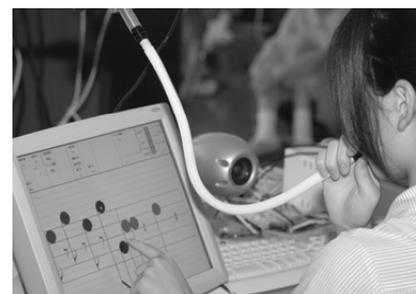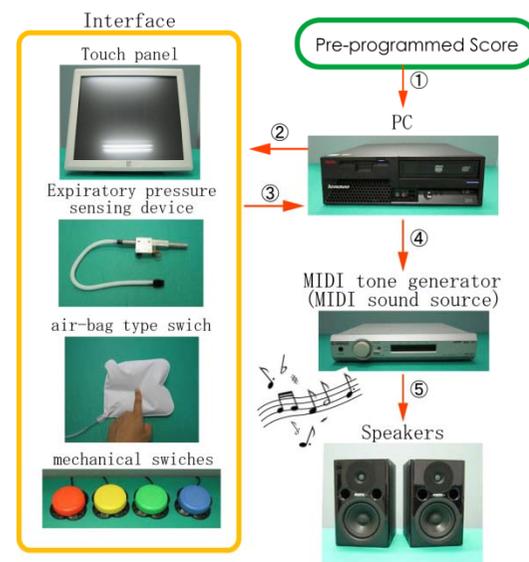
Figure 1. *System structure of Cymis.*