

Audiotactile Feedback Design for Touch Screens

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Abstract. The use of touch sensitive displays and touch surfaces is just emerging and they are more and more replacing physical buttons. If a physical button is pressed, audio and tactile feedback confirms the successful operation. The loss of audiotactile feedback in touch sensitive interfaces might create higher input error rates and user dissatisfaction. Therefore the design and evaluation of suitable signals is necessary. In literature different researchers discuss implementation and evaluation of audio and tactile feedback for mobile applications using small vibration actuators, e.g. [1,..., 12]. However in ticket machines or automated teller machines the size of the actuator is not a limiting factor. Thus arbitrary vibratory stimuli can be generated. In this study, the tactile feedback is generated using an electro-dynamic exciter which allows amplitudes comparable to physical buttons. Real buttons normally produce multimodal feedback. Therefore multimodal interaction is an important issue for the touch screens. In this study, psychophysical experiments were conducted to investigate the design and interaction issues of auditory and tactile stimuli for touch sensitive displays and the combined influence of auditory and tactile information (i.e. vibration) on the system quality.

Keywords: Touch screens, multimodal interaction, auditory, haptic, evaluation, error rate.