Using continuous spatial configuration for bezel issues in a multi-mobile system

ABSTRACT

With the rapid moving technology and innovation, the current digital technology such as smartphones and tabletop system have become vital necessities to accommodate people's daily activities. As a more robust alternative to tabletop system, the multi-mobile system is also benefiting humans' interaction by combining multiple mobile devices to become a shared and larger touch surface display. This paper demonstrates the study on effects of bezels on a multi-mobile system which allows users to perform collaborative drawing task with mobile devices in an ad-hoc manner. Unfortunately, gaps and physical design of the mobile devices between the mobile displays cause inherent design problems to the multi-display structure. Before conducting the experiments, two prototypes have been designed; high-fidelity prototype (without solution) and iterative prototype (with the continuous spatial configuration). Two user studies have been conducted with the prototypes by observing groups of students performing an interactive drawing task and the findings were compared. Results from the first user study show gaps and disjointed objects were observed in the drawing outcomes, while in the second user study, where the Continuous Spatial Configuration was implemented as a solution to this bezel issue, the gaps and spaces between the screens were eliminated by 94.8%. From this study, it is believed that implementing the Continuous Spatial Configuration in the prototype designs can improve the user experience in the context of collaboration beyond the use of expensive tabletops systems.

Keyword: Bezels; Gap; Interaction; Mobile devices; Multi-mobile system; Screen display