An Indoor Navigation Support for the Student Halls of Residence using Augmented Reality: A Design Perspective

ABSTRACT

Augmented Reality (AR) technology has become increasingly popular due to its potential use in an indoor environment. AR technology enables virtual information, such as navigation instructions, to be merged into the actual environment via a mobile screen. Using an AR-based Indoor Navigation speeds uptime while also being interactive in searching for a particular building location. Every year when new semester students enroll in the university, some students will have difficulty finding a particular location on the campus. The most searched for building upon arrival at the university is the student halls of residence. While searching for it, students waste time asking others for information or looking for a nearby campus map. Therefore, this project investigates the requirements needed for an AR-based indoor navigation application to be applied within the student halls of residence and identifies technical issues through a small-scale prototype development within a small navigational area. Seventy-one students participated in the feasibility study by responding to a set of questionnaires related to the Student Residence AR indoor navigation application. At the same time, four users with and without previous experience with AR applications evaluated the prototype application. The results identified that the more the students have difficulty searching, the more they require additional time to reach their destination and seek help from others, an excellent reason to implement the Student Residence AR indoor navigation. In addition, the prototype evaluation results discussed issues related to arrow path confusion, distance accuracy, assistive guideline, and software development challenges in AR development that could be beneficial to future developers and researchers.