Incorporating virtual reality (VR) and building information modelling (BIM) in architectural planning and design for healthcare facility: a case study for hospital UMS

ABSTRACT

Building information modelling (BIM) and virtual reality (VR) has the potential to facilitate architectural design where the user interface with spatial design is a crucial element. BIM allows the architectural layout to be developed into a 3D model with embedded information whilst VR allows the designer and end user to trial the design in an immersive environment without having to resort to costly physical scaled models as practiced currently. The objective of this research paper is present the modelling workflow developed, summarize the technical challenges faced as well as assessment of the actual use and immersiveness of the VR environment in design by a selected sample of users of varied background. The results show that BIM modelling and VR simulation can be carried out on an average home PC. There are a variety of software used for VR rendering in the market today and they vary in the quality and user interface offered. Certain software offers higher resolution images whilst others works better at the lower end ofthe spectrum. İn termsthe ergonomics and user interface of VR, mostrespondents appear to be less comfortable with its control interface and prefered the conventional keyboard and mouse setup. Visual acuity is also an issue in VR where distant objects do not appear as clear as they would in the real world.