A Hybrid Approach to Computer Aided Drawing Tool for Blind People

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May 17, 2023

Abstract

Many software development methodologies introduced to date place users at the centre of development process. Although the user is an important asset in the software development cycle however the user-centred approach is not sufficient to develop a software product that is structurally robust and reliable. User involvement in the development process does not always guarantee resilience and a more efficient design. To address this a hybrid-based software development paradigm is proposed here where the software development cycle includes a grammar model-based compiler with user-centred approach. The efficacy of the proposed system is tested with the development of an innovative computer-aided drawing technology (SETUP09) for blind and visually impaired people and the results are compared with an existing non-hybrid-based drawing software (IC2D). The results of this study confirm SETUP09 improves user satisfaction and provides abstract and concrete level system flexibility. Provided here are guidelines of the proposed hybrid approach for software development based on a formal approach. This hybrid approach enables the software designer to evaluate the software semantics before user scrutinization. The benefits of the approach include the facilitation of alternate development pathways affording the software designer the flexibility to amend the software without incurring significant technical challenges. In fact, the proposed approach enables the creation of a structural design that is independent from the development pathways. This approach should ease the time constraint in product development and resource constraints.

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