

## Examining the Design of a Scaled Audio Tactile Model for Enhancing Interpretation of Visually Impaired Visitors in Heritage Sites

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**Abstract :** With the Rights for Persons with Disabilities Act (RPWD Act) 2016, the Indian government has made it mandatory for all establishments, including Heritage Sites, to be accessible for People with Disabilities. However, recent access audit surveys done under the Accessible India Campaign by Ministry of Culture indicate that there are very few accessibility measures provided in the Heritage sites for people with disabilities. Though there are some measures for the mobility impaired, surveys brought out that there are almost no provisions for people with vision impairment (PwVI) in heritage sites thus depriving them of a reasonable physical & intellectual access that facilitates an enjoyable experience and enriching interpretation of the Heritage Site. There is a growing need to develop multisensory interpretative tools that can help the PwVI in perceiving heritage sites in the absence of vision. The purpose of this research was to examine the usability of an audio-tactile model as a haptic and sound-based strategy for augmenting the perception and experience of PwVI in a heritage site. The first phase of the project was a multi-stage phenomenological experimental study with visually impaired users to investigate the design parameters for developing an audio-tactile model for PwVI. The findings from this phase included user preferences related to the physical design of the model such as the size, scale, materials, details, etc., and the information that it will carry such as braille, audio output, tactile text, etc. This was followed by the second phase in which a working prototype of an audio-tactile model is designed and developed for a heritage site based on the findings from the first phase of the study. A nationally listed heritage site from the author's city was selected for making the model. The model was lastly tested by visually impaired users for final refinements and validation. The prototype developed empowers People with Vision Impairment to navigate independently in heritage sites. Such a model if installed in every heritage site, can serve as a technological guide for the Person with Vision Impairment, giving information of the architecture, details, planning & scale of the buildings, the entrances, location of important features, lifts, staircases, and available, accessible facilities. The model was constructed using 3D modeling and digital printing technology. Though designed for the Indian context, this assistive technology for the blind can be explored for wider applications across the globe. Such an accessible solution can change the otherwise "incomplete" perception of the disabled visitor, in this case, a visually impaired visitor and augment the quality of their experience in heritage sites.

**Keywords :** accessibility, architectural perception, audio tactile model , inclusive heritage, multi-sensory perception, visual impairment, visitor experience

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