

Novel Immersive Sounds Interactivity using GIS Maps Application

Thursday, 23 March 2023 14:30 (30 minutes)

Among the five central senses we use to perceive the world around us, nothing is more salient than our sense of hearing. Sounds play a very important role in how we understand, behave and interact with the world around us. One can close their eyes, but never their ears. In this research study, we propose design and development of a GIS-based maps application that would allow users to not only navigate, and see pictures of landmark locations in their urban city-environment, but also enable them to hear the immersive spatial sounds of the area. This would add a new interaction paradigm to mobile GIS application design which still has potential to be explored and utilized for better interaction, immersion and usability to the users imparting the final goal of layering additional scopes of realism in GIS map application.

This study will be divided into four phases: initial background research and literature review. Following that, a pilot experiment would be ran with the main motive of understanding what underlining behavior and task-specific factors affect users whilst searching for a landmark tourist destination in city. Once these factors are well understood, user journey maps will be plotted and an application would be developed with service design and human-centered approach. This application would allow users to find selected landmark tourist destinations in the city of Taipei, route and navigate to it, see pictures of the site and most importantly have a feature for listening to the immersive spatial sounds of the place. This adds a novel interaction layer on GIS Maps application with immersive sounds – making the entire process of searching for, and selecting destinations to visit more immersive, enjoyable and authentic.

The final part of the study would focus on evaluating this application's performance, usability and immersion with System Usability Scale (SUS), and Analytic Hierarchy Process (AHP) with input-oriented Data Envelopment Analysis (DEA)

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Session Classification: Data Management & Big Data