



Tell me More: Empowering the Visually Impaired with Situation Awareness

Open Bachelor/Master Thesis

Background

According to the World Health Organization, approximately one-sixth of the global population is affected by visual impairment, with an estimated 39 million individuals being completely blind. These individuals often require assistance for daily activities. With the significant advancements in autonomous driving technology, new opportunities for enhancing the independence and freedom of those who are blind or visually impaired have emerged. Technologies such as 3D Sound, Auditory Icons, Earcons, Spearcons, and Speech can now convey crucial road-related information—such as potholes, traffic behavior, and the intentions of other drivers—to mitigate motion sickness and enhance situational awareness. However, they must be carefully design for the respective users.

Research Goal

This thesis aims to implement and evaluate various auditory methods and scenarios using virtual reality in Unity. These techniques will be tested by individuals who are blind or visually impaired during a workshop. The study intends to develop design guidelines based on the findings and related literature

Based on bachelor/master level the scope is adapted.

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