

Abstract

This dissertation presents a system that can assist a person with a visual impairment in both navigation and mobility. To date, a reliable solution has not been put forward to replace the legacy devices currently used in mobilizing and navigating on a daily basis for people with a visual impairment.

This report first examines the problem at hand and the motivation behind addressing it, then explores relative current technologies and research in the assistive technologies industry and finally proposes a system design and implementation for the assistance of visually impaired people.

The system proposed in this project includes the use of Google's Project Tango and Cloud Vision APIs as well as the use of a smartphone for haptic relay of information to the user. Implemented, is a home-made stereoscopic camera system that uses a laptop to relay environment information to a user via haptic feedback on a smartphone. A series of experiments are run to evaluate the implemented system and future work for the project is documented.