Assistant Device For The Visually Impaired

Andreas Toscano Mielenhausen
ASSISTANT DEVICE FOR THE VISUALLY IMPAIRED

ABSTRACT

A system and a method are disclosed to electronically assist a visually impaired user. The system includes an augmented reality computing platform hardware, text to speech APIs, a camera and a bot-like assistant. The system is configured to understand user’s voice request, determine device orientation, determine the user’s direction of focus, and identify context of the request. Based on context of the request, the system retrieves information and sends voice feedback to assist the visually impaired person. The system may use a machine learning approach to assist the users. The assistant device for the visually impaired provides assistance with only voice input from the user and enables them to live more independently.

BACKGROUND

Currently there are apps for the visually impaired that try to solve their problems. The available apps require some sort of input from the visually impaired (like opening an app, or taking a picture) or from volunteers (which requires the volunteer to be online at the time of need). Each app has a specific functionality which makes it complicated for a visually impaired person to get what he or she needs.

DESCRIPTION

A system and a method are disclosed that electronically assists a visually impaired user. The system includes an augmented reality computing platform hardware, text to speech APIs, a camera and a bot-like assistant, as illustrated in FIG. 1. The method of information retrieval to assist the user may include the steps of understanding requests, determining direction of focus, identifying context, and providing voice feedback to the user. When the user makes a voice request, the bot is configured to understand the request in a conversational way. Orientation of
the device with reference to the surroundings is determined using an augmented reality computing platform. The camera collects orientation information from the direction the person’s gaze may be oriented. The system may identify context possibly assisted by a machine learning solution using shapes from the augmented reality computing platform. The system then sends voice feedback to assist the visually impaired person based on the context.

FIG. 1: Assistant device for the visually impaired

The system may allow the visually impaired to get the information that they may require without opening an app, take a picture or get close enough to touch an object (especially something that may hurt them).

The visually challenged person may simply hold a assistance enabled device in front of them and ask questions like "which fruit is this?", "What is the color of this shirt?", "When does this product expire?", etc., to help them with normal activities. This may be also executed using various modes. The person may say "Navigation mode" and the device automatically starts to
look for possible obstacles on the way, like a coffee table or a wet floor.

The assistant device for the visually impaired removes the burden from the visually impaired by providing assistance with only voice input from the user. The disclosed system may help visually impaired people to navigate the world around them, shop, make distinctions, avoid danger, etc. and live more independently.