Real-time Arabic Text-Reading for Visually Impaired People

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**ABSTRACT**

Visually Impaired (VI) people suffer from many difficulties when accessing printed text using existing technologies. These problems may include text alignment, focus, accuracy, software processing speed, mobility and efficiency. In fact, the problems become more complicated when accessing text documents in various situations. Current technologies such as flatbed scanners and OCR programs (such as Abbyy Text Grabber and Prizmo) need to scan an entire page before it processes text. This is not feasible to help VI people to read the text in real-time. Recently, VI people prefer mobile devices because of their handiness and accessibility, but they have problems with focusing the mobile camera on the printed text. In this paper, a real-time Arabic text-reading system for VI People is proposed. The system is based on using a wearable device for hand finger. It is designed as a wearable ring attached with a tiny webcam device. The ring is worn by the VI person in his hand finger. The attached camera captures the printed Arabic text and passes it to the Arabic OCR system. Finally, the recognized characters are translated to speech using the Text-To-Speech (TTS) technology. Experimental results demonstrate the feasibility of the proposed system.

**Keywords**

Visually impaired; Wearable Devices; Wearable Assistive Device, Real-time Text-Reading, TTS, OCR.