Chapter 10
Reading Assistance for Visually Impaired People Using TTL Serial Camera With Voice

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ABSTRACT

Internet of things is where all the things are connected to the internet and communicate with each other. There are many applications of the IoT in various fields such as healthcare, agriculture, industries, and logistics, and even for empowering people with disabilities. There are many previous work for the blind people using IoT in finding the obstacles many navigation applications have been developed. In this chapter, a system is proposed to assist blind people in reading books. This method is based on capturing the text book pages as an image and processing them into text with speech as an output.

INTRODUCTION

The recent technologies have transformed the lifestyle of each person with increased comfort and extended the lifetime of each person. IOT is an emerging technology in which each thing is connected through an internet and makes communication in an automated environment. This can also apply for the providing services for the handicapped people. The challenges of the

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blind people are in finding the obstacle in front of them, reading the books because not all the books are available in a braille method. The difficulty in braille method is printed the braille book and the maintenance of the braille book as all the holes printed in the braille book tend to fade away soon due to constant usage and storing method of the braille book. To avoid this system is proposed in which the text is captured as an image in a JPEG format. The captured image is then transmitted to the smart phone through WIFI. The image is then converted into the text using OCR app in a Smartphone. Text is converted into audio for visually impaired people; the converted text is stored in cloud for future use.

The paper is organized as follows:

The second part consisted of the previous work in assistance to the visually impaired people. The third part consists of design of reading assistance for the visually impaired people using TTL series cameras with the voice as an output. The design components are explained in a fourth part follows by conclusion as the fifth part.

BACKGROUND

A service named Pharos is provided for the blind people to provide services such as to identify their current location, to find a correct route to their destination, to track their movement in the current location and send a message to other people about a meeting. These services are assisted by a GP and a gsm combined mobile phone that sends an SMS to a server. Then the admin at the server will provide the services by giving a recorded voice call or the request seeks by blind people are sent to a call center. From call center the information is provided as voice call to blind people (Marsh, May, & Saarelainen, 2000). To aid the elderly and handicapped people in their walking activities and to avoid from falling down a cane robot is designed that use a force sensor to determine the intention on their walking, a tilt angle sensor to control and to prevent from falling and it has three Omni wheel (Wakita, Huang, Di, Sekiyama, & Fukuda, 2013). A force blinker 2 a navigation tool for visually impaired people that uses a repulsive magnet to stop the false object detection to create by noise that increases the recognition of object in front of the blind people [Ando, T etal, 2012].Open source software named Nanodesktop is used to aid the visually impaired people for handling the