SMART E-STICK FOR VISUALLY IMPAIRED WITH OBSTACLES AND WATER DETECTION

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ABSTRACT

Visual impairment can be termed as a disability that distresses the structure and functions of the visual system. Many people considered blindness as an inability to see at all or at best to perceive light from darkness. In the context of visual impairment, most people with visual impairment has difficulty to find their way autonomously in an unfamiliar area. Visually impaired people usually use the standard white cane or walking cane to assist them walking but it is not adequate enough to ensure their safety when navigating. The purpose of this study is to improve the traditional white cane by integrating it with ultrasonic sensor to detect obstacles in front them, water sensor for detection the presence of water puddle, GPS Module for the location of white cane and Blynk Application to display the details of location. Waterfall model was adopted to develop Smart e-Stick (SeS). SeS evaluation has been conducted to measure the effectiveness of ultrasonic sensor and water sensor through functionality testing and the usefulness, ease of use and user satisfaction via Technology Acceptance Model (TAM). A total of ten respondents with age above twenty years old are involved in the process. From the findings, it is learned that Smart e-Stick (SeS) provide the solution for the visually impaired to increase the protection and safety towards the people while navigating outdoor or unfamiliar area. For the future works of SeS, the system will be enhanced by making the detection range wider so that it will allow SeS to detect obstacles in every different angle.

Keywords: Smart e-Stick (SeS), visually impaired, obstacles, water detection.