OFFICIAL ABSTRACT and CERTIFICATION

A SMART AID FOR THE VISUALLY IMPAIRED TO DETECT APPROACHING OBJECTS WITH VARYING SPEEDS

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Vision is one of the most crucial parts of human physiology. Technology to aid the blind has evolved dramatically since the invention of the basic walking stick. According to the NIH, the number of people with a visual impairment and blindness will double to more than 8 million by 2050. A great many visually impaired people meet with an accident due to other people who are walking, riding or driving in a distracted state. It is imperative to create technologies that can assist people with visual disabilities to avoid collisions. The ability of the blind person to send some audible signal to these distracted people can potentially avoid fatal collisions. Currently, technologies allow a visually impaired user to detect static obstacles in their path. However, the technology doesn't warn them of approaching objects. The project aims to help in addressing this shortcoming in current technology and improve technology centered upon smart walking sticks. Specifically, an updated and improved version of a smart walking stick is developed that can calculate the speed at which a moving object is approaching the person, and based on that, it will play a certain note depending on the speed range the object is moving at.

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1. As a part of this research project, the student directly handled, manipulated, or interacted with (check ALL that apply):

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