Technological Aid for the Visually Impaired

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The purpose of this project was to test if a low-cost student-designed technological invention was capable of aiding the visually impaired in overcoming regular obstacles that can be encountered daily. The tested hypothesis was that the prototype would be proven to be more effective than conventional methods. The initial part of the project was to first create the prototype, then, through adjustments in distance detection and vibration feedback programming, qualitative data was collected. When the device was ready, 4 different 10m walks were set up, with obstacles at the height of the chest, ground obstacles, ground holes, and objects at the height of the forehead, all in order to test the detection and simulate practical use. This obstacle-ridden walk was traveled three times both with and without the prototype. The prototype had its validation tested only by the student who designed it, and the comprised data showed that there was an average efficiency increase of 33,8% in detecting all 4 different types of obstacles. Thus, it was concluded that the prototype is expected to have greater practical efficiency, based on the data collected, in comparison to the conventional methods. This has a large societal impact as the existing locomotion aid methods for the visually impaired are expensive and at times ineffective, not fully preventing an accident especially involving something at the height of the face or forehead.

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