A Mechatronics Approach to Develop STEM Accessibility Tools for Visually Impaired Students

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Abstract

This paper is focusing on how to develop a suitable educational platform for visually impaired students to access STEM (Science, Technology, Engineering and Mathematics) learning materials without depending any printed materials. It is a challenge for the visually impaired students to learn STEM subjects because visual information. The first part of this paper will be an overview about the visually impaired students and also their challenges in STEM learning. The next part will be an overview on the invention of learning kits, devices and technology to help the visually impaired students to access knowledge and information as well as for STEM learning. Finally, we proposed with our concept of tactile display device that can be used for STEM teaching and learning for visually impaired students based on Mechatronics approach. Currently, we have developed a system that can create and process digital images to be displayed in tactile graphic format and it is supported with a GUI system. In this paper, we have demonstrated our initial concept prototype. In future, the system will be adapted to any platform or devices that can display tactile graphics.

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