PIC-TALK: Creating a Digital Ecosystem that Consists of Open Source Hardware and Software Products for Visually Impaired People

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In this study, developing open-source technology and establishing an ecosystem -PIC-TALK- with the vision of the obliteration of inconveniences in the educational life of visually impaired individuals and contribution to their adaptation to the social life is intended. The project currently consists of four fundamental parts which are: shape display, smart wristband, user interface (application), and website. Primarily, an electronically controlled shape display is developed that can form the desired shape with (8x8) 64 independent pins. Visually impaired individuals are able to perceive the three-dimensionally designed shape by touching the screen. The smart wristband allows interpreting shapes, colors, and mathematical expressions such as function graphs, geometric shapes etc. from a digital environment by wearing a vibrating glove. All designed schematics and software of the electronic cards are open-source. Users will be able to listen to depictions of pictures and use educational and social applications both on mobile platforms and computers. All designed systems are able to work integrated. Furthermore, a website is created for developers to produce content without essentially requiring coding knowledge thus contributing to the development of the platform. This website will establish a community for developers around the world eager to contribute to the development of this platform both as a software and hardware which will solve countless problems that visually impaired individuals face in their daily life's. As a result, an alternative open-source ecosystem is established with this project instead of products on the market. Thus enabling visually impaired individuals to obtain the currently expensive systems at affordable prices.

Awards Won:
Fourth Award of $500