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3D Tactile Map Printing for the Visually Impaired in Boston

Caitlin Dixon, Gregory Nielsen, Claire Reardon, Hiroki Sayama, Daniel Silber, and Stephanie Stahovic

Binghamton University

Corresponding author's Email: creardo1@binghamton.edu

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Abstract: The Massachusetts Bay Transportation Authority (MBTA) is in charge of public transportation within the Boston transit area. Visually impaired individuals can find independent travel difficult as the impaired individual's spatial awareness of lines and different routes are limited. Therefore, the MBTA has requested a tactile map-type product that attempts to solve this issue using 3D printing and our engineering design skills. To develop the map, Mathematica networks of the railway connections were created and then embedded into AutoCAD parts. Features include Braille labels, raised subway stop nodes, landmark indicators, and more. Due to printing size constraints, the map is designed in two separate pieces in order to maintain legibility and quality. These two pieces have a slide-lock that allows them to stay together. The resulting map will allow visually impaired users to feel the layout of the subway and make independent travel easier.

Keywords: 3D Printing, Tactile Map, Visually Impaired, MBTA