Accessible Tactile Graphics

Need

People with visual impairment have limited access to two dimensional/visual graphics

Academic resources are mostly inaccessible and students with visual impairment face greater difficulty in carrying out their education especially in subjects like Science and Mathematics

Special educators and teachers also find it difficult to explain visual concepts to these students in need.

Tactile Graphics

Tactile graphics are images that use raised surfaces so that a person with visual impairment can feel and understand them. These graphics clearly represents a visual image in a spatial context.

It is highly useful for comprehending flow charts, line diagrams, geometrical figures, , route maps, chemical equations and other diagrams

Process

Converting a visual graphic to an appropriate tactile graphic is not simply a matter of taking a visual image and making some kind of tactile photocopy. Instead, the visual graphic first need to be redesigned and modified to remove spatial clutter and complexities.

The image then need to be properly labeled using Braille and standardized symbols to make sense for the reader

Lastly, the image is printed in tactile format using various methods popularly through swell form, thermoform or a Braille embosser

The type and texture quality of tactile graphics produced is different in each of this methods as the process and the sheet used is of different kind

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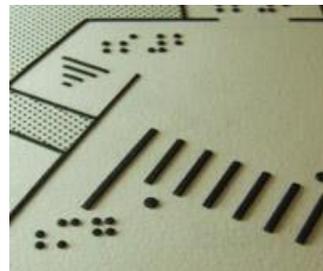
Challenges

Layout modifications and redesigning of diagrams for touch based comprehension. The more complex and detailed the visual image the larger as well as clearer the tactile representation needs to be.

Limited software support tools for Braille labeling of tactile diagrams in Indian languages.

Technologies like swell form and thermoform are expensive and its hard to produce tactile graphics in any significant number.

Emprint Embosser

Swell Form Machine

Our Projects

To identify the most appropriate yet feasible method to produce tactile graphics.

Setting up of a standard textbook creation process for Mathematics and Science for classes IX and X.

Providing support to people with visual impairment and organizations in converting work related documents and curricula to accessible formats including tactile graphics.
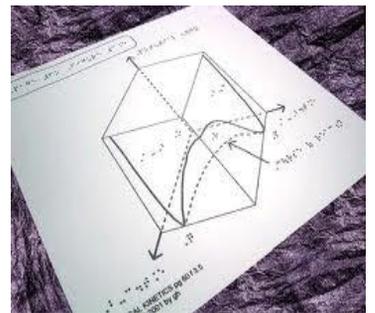
Creation of accessible training manual for various assistive devices explaining their operation and functioning
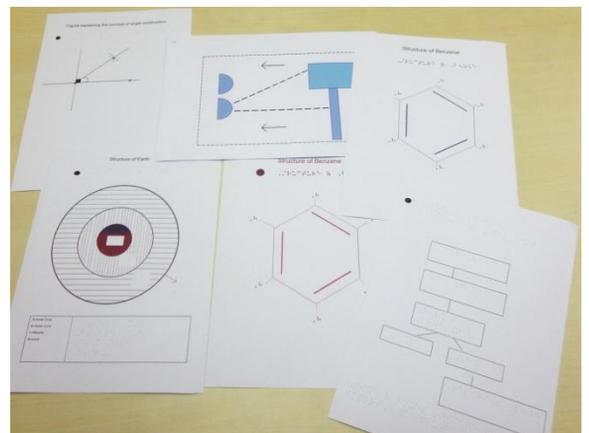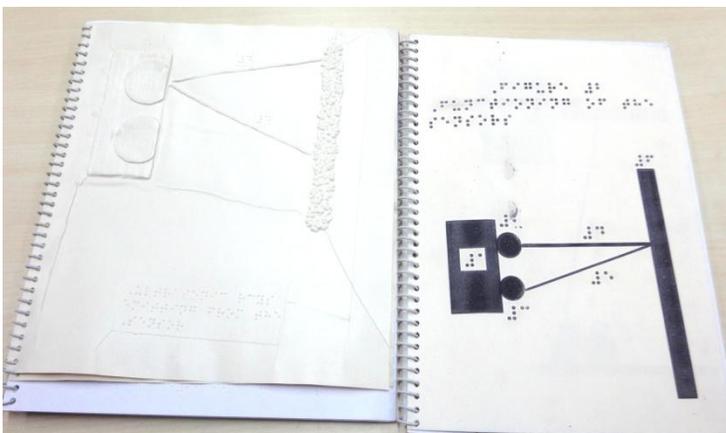

Tactile diagram explaining
a geometry problem

Various examples of tactile figures on thermoform sheets, swell sheets and Braille paper

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