Design of a Range of Toys for Visually Impaired Children of 4-7 Year Age Group

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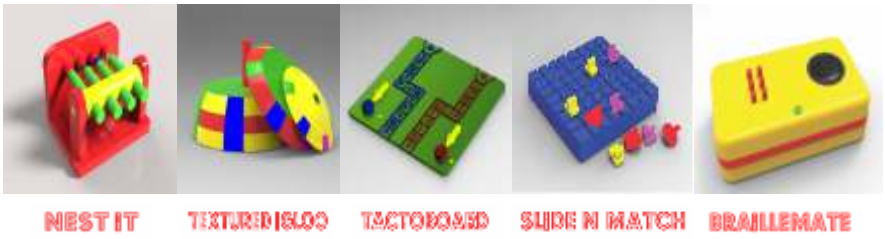
Abstract:

India has the largest blind population in the world. Being visually impaired is a highly devastating condition which has a very high emotional and economic implication on the individual affected. It is proven that if trained from an early age, visually impaired people can lead an independent and successful personal life. Engaging the Visually impaired children (VIC) with activities and play helps them in learning newer skills while preparing them to be independent beings in the society. Toys that help VIC in learning different life skills as well as acquiring formal education through play are extremely important in solving this problem.

This is an attempt to design a range of toys that aid in education and skill development for VIC of 4-7 year age group. Though the term 'visually impaired' has a broad definition, this project targets children whose degree of visual impairment in the better eye is < 6/60 (legally 'blind' in India). The project examines the needs of the children pertaining to their education and recreational activities through various participatory and non-participatory research methods to arrive at 5 creative toy concepts.

Design research was conducted to identify unmet user needs. Based on the key needs identified, a QFD chart was prepared to convert customer voice into technical specifications. The needs were then prioritised based on the ratings obtained from QFD. The Prioritised needs were subsequently used to generate PDS. From the ten concepts five final concepts were shortlisted by comparing them with each other using weighted ranking method. The five final concepts – 'Slide and match', 'Nest it', 'Textured igloo', 'Tactoboard' and 'BrailleMate' implements the needs of VIC identified through design research. 3D models for all the concepts were modelled using UG NX and rendered using Keyshot software. The concepts were detailed and designed ergonomically considering the anthropometric data for 4-7 year old children. Prototypes of the concepts were tested by VIC under the supervision of their teachers. All the concepts were given a positive response. Minor modification suggested by the teachers to 'Nest it' was implemented in the final prototype of 'Nest it' concept.

Concept 1



Rendered final concept

Prototypes