

Write on



A reliable classic has been given an exciting new facelift. **Tanya Weaver** tracks the redesign process



Braille

Perkins School for the Blind

Product Development Technologies

Develop a new, stylish, small, light and portable mechanical Braille writer for the US and international markets that is based on the proven functionality and mechanics of the original Perkins Braille.

Product

Client

Designers

Brief

In 1951 Perkins School for the Blind in Watertown, Massachusetts, introduced the Perkins Braille. This invention revolutionised communication for the blind and visually impaired by making it much easier for them to write Braille. The machine resembles a typewriter and by simultaneously pressing different combinations of the six keys, users can create any of the characters in the braille code. Since its launch 58 years ago more than 330,000 have been sold in over 170 countries.

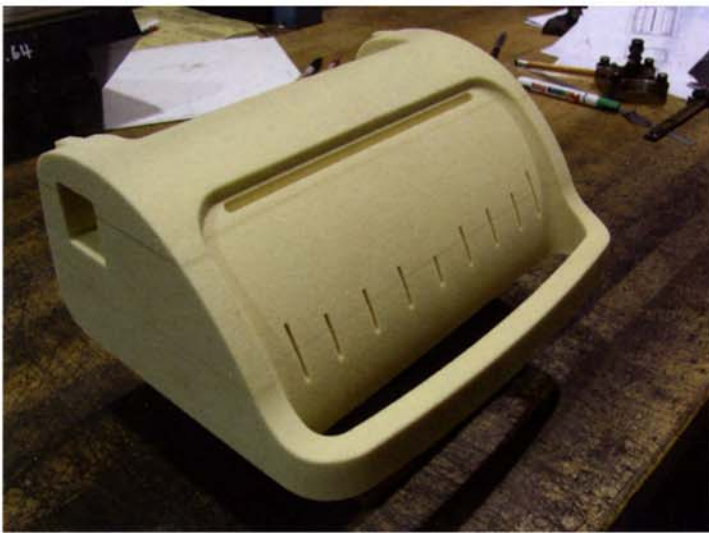
Perkins have recently been working on redesigning this classic and the Next Generation braille was launched during October 2008 at the annual meeting of the American Printing House for the Blind (APH), a Kentucky-based organisation that provides products to the blind community and who significantly helped to fund this project. The new Braille not only maintains the basic functions and durability of the original but also offers new features and functions such as an integrated erase button, paper tray, reading margin and an integrated handle for carrying easily to work and school.

In order to bring this new braille to market Perkins engaged the services of Product Development Technologies (PDT), a global product development firm. According to Sona Patadia and Lisa Yanz, the two industrial

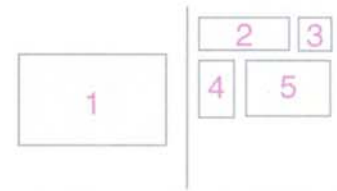
designers from PDT's Chicago office who were involved in the project, the brief was for the new product to be based on the proven functionality and mechanics of the original but to have a stylish new look with ergonomically sound features and functions. "Additionally, Perkins wanted to achieve a significant production cost saving through the integration of new materials and manufacturing processes," they add.

PDT was involved in every aspect of the Next Generation Braille product design and development process. "We conducted three rounds of user research, designed the unit from a usability and aesthetic point of view, engineered some of the newer components, reengineered parts that needed to be modified and wrapped all of these elements up into a functioning unit in the end. We also assisted in the vendor search and tooling process," explain Patadia and Yanz.

The design process began with exhaustive user research with children, adults and teachers from widely varied geographic regions including Boston, Indianapolis and Mexico City as well as remote research in South Africa and India. "We had to understand how the current unit was being used, what people were asking for and the overall culture surrounding



briefcase



Seeing is believing | 1. The classic braille writer versus the Next Generation **2.** A mock-up of the chosen concept **3.** Two rounds of prototyping took place **4.** The Next Generation in use **5.** Validation research with users.



mechanical braille writing,” say Patadia and Yanz. Simultaneously, the PDT mechanical engineering team were undertaking a mechanical assessment to better understand the current mechanisms and the machine itself. The results of this analysis helped in reducing the overall machine size and number of parts as well as considerations for new materials.

The team then conducted a number of internal brainstorming sessions. The initial ideas and sketches were narrowed down into a few selected concepts that were then realised more fully using SolidWorks and Rhino. “This was so much more than just a styling programme,” explain Patadia and Yanz. “Our overall goal was not to completely reinvent this product but to update the existing braille writer from a size, cost, use and ergonomic standpoint.”

When the design direction was solidified PDT took a mock-up to both Boston and Chennai in India where design and engineering elements were tested with users. “We tested various key heights, key forces and ergonomic studies and presented the new elements (such as the carriage head) to understand what would be understood, acceptable and comfortable to the user,” comment Patadia and Yanz. By observing the participants’ behaviour with the design mock-up and having discussions with them about their

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and if they believed in the changes. To get that kind of feedback on something we are working on is invaluable.”

There was much buzz surrounding this modern take on a reliable classic and the Next Generation didn’t fail to impress when it was launched in three contemporary colours - blue, midnight and raspberry. “At a first glance many people commented on all of the new features including the erase feature and how they had “just been waiting” for that addition. The front carrying handle was also seen as a large improvement,” comment Patadia and Yanz.

In recognition of its significant involvement APH has exclusive distribution rights within the US for the first six months of the product launch. From Spring 2009, the product will be available from resellers throughout the US and around the world. |

impressions and opinions the team were able to refine the design. An Alpha prototype was then created and another round of research followed. A few important tweaks were made after this research study resulting in the final Beta prototype.

Although it was a challenging project it was also very rewarding. “This was a great programme for a number of different reasons,” say Patadia and Yanz. “Through the research, we were able to meet so many wonderful people and really begin to understand the folks that use the braille writer and hear their stories. Some people we met had been using the Classic Perkins braille for over 40 years making the attachment to the product unbelievable so it was really exciting to try new concepts with them to see if they can adapt to the differences