

Monarch and the future of braille education

Background Information

Overview of Monarch: A revolutionary step forward for braille technology

HumanWare, in collaboration with the American Printing House for the Blind (APH), proudly launched *Monarch*—the world’s first multiline braille and tactile graphic display, in the fall of 2024. This groundbreaking device addresses long-standing challenges faced by blind and low-vision students and ushers in



a new era of accessibility, independence, and braille literacy. *Monarch* has been hailed as the “holy grail of braille” by many in the blind community, a much-awaited innovation that combines braille, tactile graphics, and real-time interaction into a single device, providing a richer, more dynamic learning experience.

For years, many efforts have promised to break the barriers of braille technology, but these efforts were often thwarted by technological limitations and funding challenges. *Monarch* overcomes these obstacles, delivering a product that truly meets the needs of today’s learners, offering greater accessibility to a range of subjects, including STEM, spatial concepts, and much more.

The history of braille and its modern evolution

Braille has been transforming lives for over 200 years, thanks to Louis Braille, who adapted a military night code into the tactile system we know today. Traditionally, braille was produced on paper using devices like the Perkins Brailler, which functioned like a typewriter.



While these older tools continue to play an important role in spatial and formatting education, the perception of braille has been challenged in the modern age. Many blind students and parents of children with visual impairments often mistakenly turn to mainstream products with built-in accessibility features like audio, overlooking braille's essential role in literacy and independence.

The introduction of electronic braille displays in the 1980s marked a pivotal moment for accessibility. These devices allowed for dynamic braille access, and now, as we approach the 200th anniversary of Louis Braille's, it's time to celebrate the next evolution: *Monarch*—the first multiline braille and tactile graphic display. *Monarch* redefines how braille is used, combining text, tactile graphics, and real-time interaction into a seamless learning experience, ensuring that braille remains an essential tool for the future.

Why Monarch matters

Traditional braille displays, which are limited to a single line of braille, have made it difficult for students to fully grasp complex concepts like math, science, and spatial diagrams. *Monarch* breaks these barriers by offering multiple lines of braille and the integration of tactile graphics. This innovation makes it possible for students to interact with real-time data and tactile diagrams across a wide range of subjects.

Key features include:

- **Instant Access to Textbooks:** Students with visual impairments often face delays in receiving textbooks. *Monarch* enables instant access to braille-ready files, reducing these delays and giving students timely access to necessary materials.
- **Dynamic tactile graphics:** With an onboard library of tactile graphics, *Monarch* provides more access to visual learning materials than ever before, ensuring that blind students can engage with concepts that require a visual understanding, like maps, charts, and diagrams.
- **Multiline braille:** By expanding the reading area beyond a single line, *Monarch* improves braille reading fluency, allowing for faster reading speeds and improved comprehension. Early feedback from field tests has shown promising improvements in reading fluency and literacy.
- **Spontaneous learning:** The built-in Desmos Graphing Calculator empowers students to explore math problems dynamically. Real-time graph updates allow students to modify equations on the fly and instantly visualize the effects of those changes, deepening their understanding through hands-on experimentation.



A glimpse into the future of braille

The launch of *Monarch* not only highlights HumanWare's commitment to advancing braille technology, but it also sets the stage for the future of braille literacy. The device supports multisensory learning, combining braille, tactile graphics, and real-time interaction. With future updates, including email support, braille terminal functions, and an impromptu drawing application, *Monarch* will continue evolving to meet the demands of modern education.

Innovation in the braille assistive technology industry has been in the making for nearly 50 years, and *Monarch* marks a major milestone in that journey.

As we commemorate the 200th anniversary of braille's invention throughout 2025, we're proud to unveil a device that demonstrates how far braille technology has come and the exciting potential it holds for the future.



Changing the narrative: Braille's vital role in modern education

For too long, outdated narratives have portrayed braille as obsolete or unnecessary, reinforcing misconceptions about its relevance in today's world. These narratives have led some parents of blind children to believe that braille is no longer necessary, as mainstream products now include built-in accessibility features. However, dismissing braille as outdated undermines its essential role in literacy and independence for blind individuals.



With *Monarch*, we aim to change that perception. We want to showcase braille as a modern, cutting-edge tool that continues to evolve and empower blind students with the tools they need to succeed in their education and life. This technology does not only preserve braille's legacy but enhances its relevance and importance in today's world.

About HumanWare and American Printing House (APH)

HumanWare is a global leader in assistive technology for blind and low-vision individuals, with a long-standing commitment to innovation. By partnering with APH, the world's largest non-profit organization focused on creating accessible products for people with visual impairments, *Monarch* brings together two powerhouses in the field of braille technology to create a truly groundbreaking solution. This collaboration allows for the integration of cutting-edge technology with a deep understanding of the needs of the blind community.

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