

At Cooper Hewitt Museum, Visitors to Become Designers With NFC

The museum, located in New York City, is developing an NFC-based solution for its renovated exhibits at Carnegie Mansion that will allow visitors to create their own digital designs.

By Claire Swedberg

Tags: [Innovation](#), [NFC](#)

Jul 22, 2014—An Immersion Room includes wall-sized screens on which projections of wallpaper and other coverings can be displayed at full scale. This, too, is enabled by the stylus. A user can create a wallpaper design on a table and store it in the stylus, and then tap the device at an interactive screen to prompt the design to be projected on the wall. Alternatively, the visitor can choose to project a wall-size version of a wallpaper design that he or she has selected from the exhibits (the museum displays small versions of 500 different wall coverings).

Sistelnetworks' vWand is being used to track inventory in health-care and library settings. For the Cooper Hewitt application, however, the device required some modifications, says Serafin Arroyo, Sistelnetworks' marketing director. The vWand traditionally employs Bluetooth technology to transmit [read](#) data back to a server, but the museum did not want Bluetooth to be used within an environment in which up to 2,000 people may be using the devices simultaneously. It also needed to add [memory](#) in order to store data related to the exhibit tags that are [read](#), and use AAA batteries that would keep the stylus charged longer than rechargeable batteries could allow.



In the Immersion Room, depicted in this rendering, a visitor will be able create a wallpaper design on a table and store that in the stylus, then tap it at an interactive screen to display that design on the wall.

"Sistel did a huge amount of work to redesign the [firmware](#)" that managed the [read](#) data on the stylus, Chan reports. The company worked closely with General Electric, according to Andrew Crow, GE's global director of brand and design. The GE team comprised individuals from the company's software, aviation and appliances divisions.

"We wanted to design an elegant instrument," says Jennifer Bove, GE's director of brand design. The firm created a smaller [form factor](#), intended to fit in the hands of museum patrons, and including four LED lights and a buzzer that causes the stylus to vibrate, thereby indicating that a [read](#) event has been achieved. One LED is dedicated to indicating if the battery is low, while the other three signify that the device is either reading an [NFCtag](#), transmitting information to an [NFC reader](#) in a table or screen, or uploading data to be forwarded to the museum's website for later access. "And because it is going to be used by tens of thousands of people," Crow states, "we needed a robustness to it."

To date, the prototype version of the stylus has been completed and the interactive tables will be tested later this month with the stylus.

The new museum's focus, Baumann explains, is to provide something more than a place in which visitors passively view exhibits to learn about home and interior design and its history. Instead, she says, Cooper Hewitt intends to make designers out of everyone who enters. Part of that planning led the museum to embrace [NFC](#) technology.

Upon arrival, each visitor will pay an entrance fee and receive a ticket and the [NFC](#)-enabled stylus. A bar-coded ID number, printed on the ticket, will be paired with the unique ID transmitted by the [RFID reader](#) built into the stylus. A URL, also printed on the ticket, will enable the user to later open an account and view drawings that he or she created during the visit.



Caroline Baumann, the museum's director (Photo: Erin Baiano)

According to Sebastian Chan, Cooper Hewitt's director of digital and emerging media, [NFC](#) labels made with [NXP Semiconductors'](#) NTAG203 chips are affixed to, or near, objects—such as wallpapers, lighting fixtures, furniture or vases—throughout the museum. The labels are being provided by a combination of vendors, based on the [form factor](#) required for each exhibit. When a visitor taps the [RFID reader](#) side of the stylus near an [NFC](#) label, the [reader](#) interrogates its [tag](#) ID and stores the collected data in that stylus' [memory](#).

The museum will also be equipped with approximately 15 tables, each containing an embedded touchscreen. Some screens measure 55 inches, while others measure 84 inches. All are high-definition.



A prototype of the [NFC](#)-enabled drawing stylus

At any of these tables or screens, users can utilize the device's stylus end on the table and sketch some designs, following patterns if they wish. They can also turn over the stylus and touch its [NFC reader](#) against the table, prompting the device's [reader](#) to communicate with the Sistelnetworks' [reader](#) built into the table. The system will then capture the data stored in the stylus' [memory](#), linking that information with the sketches on the screen. This will enable users to, for example, create a specific wallpaper in their drawing, based on the patterns they selected while viewing the exhibits.

Once finished creating designs, a visitor indicates on the screen that he or she is done, and the design is then uploaded to the museum's server via a [USB](#) connection, so that the guest can later access it via the URL printed on the ticket, or forward it to selected social-media sites. This [USB](#) connection is an alternative to the vWand's traditional Bluetooth connection. In this case, Chan says, the crowded environment of wands would make it difficult to capture Bluetooth data from a single stylus as requested by a user.

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