



## More to barcodes than meets the eye



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**BARCODES ARE TRADITIONALLY** used to automate identification and tracking of parts and goods so as to reduce human error and improve productivity in logistics and inventory control.

Currently, most smartphones have cameras that can be used to decode various kinds of barcodes after suitable application software is installed.

With almost everyone equipped with these scanners, barcodes have found exciting new applications, such as mobile advertisements.

Two-dimensional barcodes, such as Quick Response and Data Matrix, are, as one may expect, far superior to their 1D ancestors, and that covers data capacity, response time and robustness.

For example, a typical 2D barcode can store up to thousands of alphanumeric characters.

In mobile advertisement applications, a 2D barcode is often used to store a hyperlink or address of a webpage – which provides additional promotional information of the relevant product or brand. It plays the role of a “hyperlink to the physical world.”

Reading a barcode may result in a mobile browser starting that launches a website or shows a video clip conveying key advertising messages.

Since it is very cost-effective to print and display a barcode, the 2D versions have been used very extensively for mobile ads, and can be found in posters, magazines, newspapers, business cards, banners – almost everywhere.

The 2D barcodes were originally designed for a scanner to interpret and were not intended

to show any visual information. However, in order to read a barcode, a person has to aim the phone camera at it and wait for a second or so for the auto-focus and decoding procedure to be complete.

This decoding process itself creates a new opportunity to advertise a brand logo. To take advantage of it, it is now common to substitute a small central area of a 2D barcode with a logo to promote and/or reinforce a brand.

Despite its popularity, this approach of embedding a logo in a 2D barcode has some issues.

First, the substituted area is limited by the error correction level or the available amount of redundancy of the barcode in use and is often

too small to be detected by the human eye. Sometimes, it is necessary to simplify a logo by removing some of its details in order to fit it into a small area. Consequently, the brand image represented by the “simplified” logo may be non-recognizable, and even distorted, to some extent.

Second, as people become familiar with 2D barcodes, they may lose the curiosity that prompts them to scan any strange-looking barcodes.

Next time, we will look into how to make these 2D barcodes more appealing.

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