

Ray WX4RAY QR codes in relation to ham radio.

Morse code:

In 1832 An artist was delayed in getting the information that his wife had passed away. Inspired by this event, he set out to create a way to send messages faster over electrical lines. This artists name? Samuel Morse. Alfred Vail contributed to the design and implementation of Morse code, but Samuel Morse maintained all the patents.

What Morse and Vail figured out was the frequency of American letters in words of the time. The most frequent letters were assigned the shortest time to dial. For example, E, being the most common letter in use in the American language, was assigned just a single dot. I being the second most used letter, was assigned 2 dots, and T being the 3rd most used letter was assigned a single dash.

The international Morse code would be further defined to include letters from other languages in 1851 and by 1866, transatlantic cables would enable near instant communications from America to Europe. Marconi's wireless technology enabled ship to shore communications with morse code by the 1894. This is not going to be a debate of who is the father of radio. It was Marconi's wireless that enabled the ship to shore morse code.

In my research, I have found that the emergency code "SOS" started in the early 20th century, does NOT stand for Save Our Ship. It does not stand for anything as it is not an acronym for anything. Through trial and error, and testing by a lot, it was an easily recognizable string of characters that is just 3 dots, 3 dashes, and 3 dots.

What actually is a dot and a dash and what is the space in between? In international morse code a dot is represented by a single unit. A dash is represented by 3 continuous units. The space between the dots and dashes in a single word is 3 units. The space between words? That equals 7 single units.

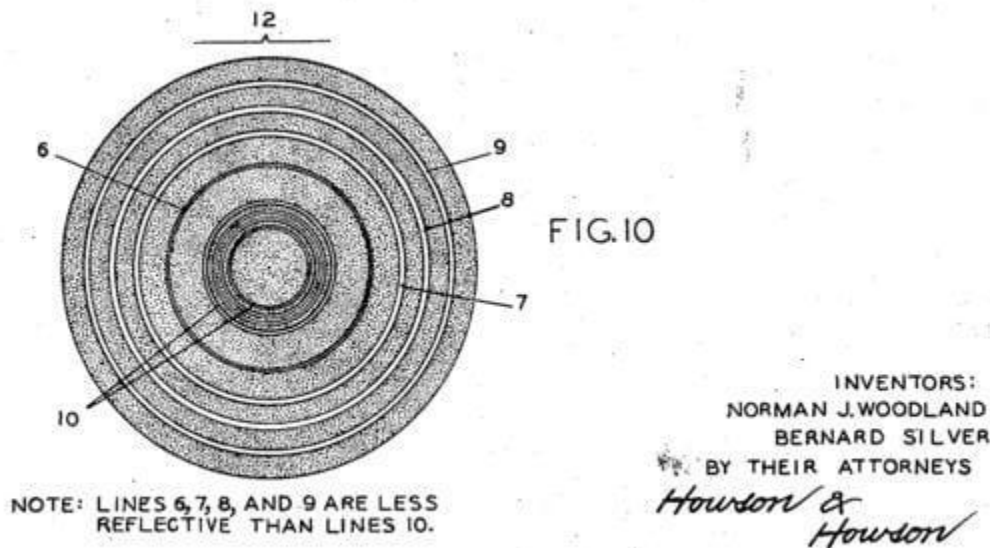
Bar code:

History of Barcodes

The history of barcodes is a fascinating trip through technology, creativity, and the global economy, with the UPC (Universal Product Code) barcode marking a watershed moment fifty years ago in retail and elsewhere. The history of barcodes is intertwined

with the evolution of the GS1 (previously the Uniform Code Council, or UCC), which was instrumental in the standardization and global acceptance of barcoding and product identification systems.

The Origination of Barcodes



The barcode was conceived by Norman Joseph Woodland and Bernard Silver, and patented in the United States in 1952. The innovation was based on Morse code, which was expanded to include thin and thick bars. However, it took more than 20 years for this technology to become economically viable.

Evolution

It was not until the 1960s that major progress was achieved in barcode creation and application. The National Association of Food Chains (NAFC) started looking into ways to speed up the checkout process in 1966, which led to the installation of the first scanning device in a Kroger store in Cincinnati in 1967. This system used bulls-eye style barcodes, which marked the beginning of effective barcode use in retail.

The Universal Grocery Products Identification Code (UGPIC) was created in 1969 as a result of the industry-wide barcode scanning effort. In 1973 the Uniform Grocery Code Council recommended the use of the UPC barcode symbol, resulting in the first UPC barcode scan on a pack of Wrigley's Juicy Fruit gum in 1974 at a Marsh supermarket in Troy, Ohio.



The Rise of the UPC Symbol

The UPC symbol, created in the early 1970s, quickly became the most well-known barcode in the United States, appearing on nearly every retail goods. The UPC symbol is a barcode representation of the GTIN-12, which contains twelve numeric characters that uniquely identify a company's product. A UPC code is precisely created, with the first six to nine digits reflecting the "Company Prefix" provided by [GS1 \(previously the UCC\)](#), which uniquely identifies the corporation. The following digits represent the product number, which uniquely identifies individual objects, with a "check digit" created using a special mathematical procedure to assure accuracy.

The history of barcodes, notably the creation and adoption of the UPC symbol, tells a story of creativity, teamwork, and globalization. Barcodes transformed the way we monitor, manage, and sell items, providing the groundwork for the digital economy and the smooth flow of commodities and information around the world. The evolution of the first scanned UPC barcode to today's complex worldwide standards demonstrates the dynamic interaction of technology and commerce, influencing the future of retail and supply chain management.

Modern Barcode Technologies

Beyond the UPC, several barcode types have arisen, each suited for a specialized application. These include Code 39, Interleaved 2 of 5 (ITF), Codabar, and current 2D barcodes such as QR codes and DataMatrix. These formats meet a variety of demands,

ranging from simple item identification to complicated data storage and retrieval, demonstrating the adaptability and growth of barcode technology over time.

From the 1950s to 1970s, society needed an efficient way to track items due to the mass production of products and increase of large grocery store chains. IBM revisited this previously patented technology and restructured the bullseye barcodes into the vertical barcode we know today. The UPC barcode successfully tracked products and sped up production and grocery store lines, and by the early 2000s society accepted it as the standard everywhere.

However, as technology flourished through the 2000s to 2010s, the barcode revealed shortcomings. First, they can only hold limited amounts of information. While this was okay for 1970s supermarkets, the limited space presented problems as time went on and the requirement for more information grew. Additionally, the UPC scanning equipment is expensive and not affordable or practical for the everyday person. On top of that, you must scan a UPC bar code from one specific direction to register the info, which slows everything down. Slower grocery store lines inconvenience the ordinary consumer, but slower production lines in industrial factories negatively affect the bottom line, as we'll learn in just a moment.

The invention of the QR code

The Japanese automotive company, Denso Wave, was one of many to wrestle with the standard UPC code system. Due to the limited storage capabilities of barcodes, Denso Wave had to apply as many as 10 bar codes on a single product just to properly track and communicate information. Additionally, because bar codes need to be scanned from one direction, they ran into production backups when their scanners couldn't read the bar codes on the variety of shapes and sizes of automotive parts. The company struggled meeting deadlines simply because bar codes slowed production.

In 1994, a Denso Wave employee named Masahiro Hara conjured up the idea of QR codes while playing the game Go. If you've never played Go before, it consists of a 19×19 grid with black and white stones placed throughout. One glance at a Go board will make you see the connection between QR. Hara realized a grid system could hold much more information in a single code and could also be read from multiple directions, angles, and distances—thus speeding up production times. Hara and his Denso Wave team successfully made his vision a reality and developed the QR Code (Quick Response Code).

In a strategic move, Denso Wave made QR code technology freely available to the public but sold the scanner technology to read them. Hara and Denso Wave foresaw the future of QR codes in other industrial settings, but they didn't anticipate its popularity amongst small businesses and ordinary individuals.

Everything changed when cellphones included cameras, because a camera is the perfect technology for reading QR codes. In 2002, Sharp introduced the first cellphone with a QR scanner and competing cellphone companies followed suit. Eventually, everyone who owned a smartphone possessed a QR scanner in their pocket.

Without the invention of morse code in the 1800's we would not have QR codes today.