

The Top Inventions of the Past 50 Years

by ALEX HUTCHINSON, Published in the Popular Mechanics, in the December 2005 issue

In the last 50 years of the second millennium many inventions and discoveries were made that changed the way we live our lives. Enjoy these few examples:

1955--TV REMOTE CONTROL

It marks the official end of humanity's struggle for survival and the beginning of its quest for a really relaxing afternoon. The first wireless remote, designed by Zenith's Eugene Polley, is essentially a flashlight. When Zenith discovers that direct sunlight also can change channels on the remote-receptive TVs, the company comes out with a model that uses ultrasound; it lasts into the 1980s, to the chagrin of many a family dog. The industry then switches to infrared



1955--MICROWAVE OVEN

In 1945 Raytheon's Percy Spencer stands in front of a magnetron (the power tube of radar) and feels a candy bar start to melt in his pocket: He is intrigued. When he places popcorn kernels in front of the magnetron, the kernels explode all over the lab. Ten years later Spencer patents a "radar range" that cooks with high-frequency radio waves; that same year, the Tappan Stove Co. introduces the first home microwave model.



1961--CORDLESS TOOLS

Black and Decker releases its first cordless drill, but designers can't coax more than 20 watts from its NiCd batteries. Instead, they strive for efficiency, modifying gear ratios and using better materials. The revolutionary result puts new power in the hands of DIYers and - thanks to a NASA contract - the gloves of astronauts.



1961--INDUSTRIAL ROBOT

The Unimate, the first programmable industrial robot, is installed on a General Motors assembly line in New Jersey. Conceived by George C. Devol Jr. to move and fetch things, the invention gets a lukewarm reception in the United States. Japanese manufacturers love it and, after licensing the design in 1968, go on to dominate the global market for industrial robots.



1962--COMMUNICATIONS SATELLITE

Telstar is launched as the first "active" communications satellite - active as in amplifying and retransmitting incoming signals, rather than passively bouncing them back to Earth. Telstar makes real a 1945 concept by science fiction author Arthur C. Clarke, who envisioned a global communications network based on geosynchronous satellites. Two weeks after Telstar's debut, President Kennedy holds a press conference in Washington, D.C., that is broadcast live across the Atlantic.



1962--LED

Working as a consultant for General Electric, Nick Holonyak develops the light-emitting diode (LED), which provides a simple and inexpensive way for computers to convey information. From their humble beginnings in portable calculators, LEDs spread from the red light that indicates coffee is brewing to the 290-ft.-tall Reuters billboard in Times Square.



1964--MUSIC SYNTHESIZER

Robert Moog develops the first electronic synthesizer to make the leap from machine to musical instrument. Moog's device not only generates better sounds than other synthesizers, it can be controlled by a keyboard rather than by punch cards. The subsequent acceptance of electronic music is a crucial step in developing audio technology for computers, cellphones and stereos.

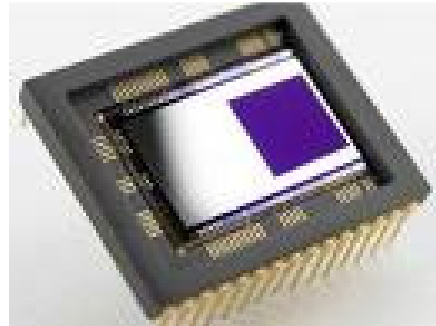
1969--SMOKE DETECTOR

Randolph Smith and Kenneth House patent a battery-powered smoke detector for home use. Later models rely on perhaps the cheapest nuclear technology you can own: a chunk of americium-241. The element's radioactive particles generate a small electric current. If smoke enters the chamber it disrupts the current, triggering an alarm.



1969--CHARGE-COUPLED DEVICE

Bell Labs' George Smith and Willard Boyle invent a charge-coupled device (CCD) that can measure light arriving at a rate of just one photon per minute. Smith and Boyle's apparatus allows extremely faint images to be recorded, which is very useful in astronomy. Today, its most noticeable impact is in digital cameras, which rely on CCD arrays containing millions of pixels.



1970--DIGITAL MUSIC

James Russell, a scientist with the Pacific Northwest National Laboratory, invents the first digital-to-optical recording and playback system, in which sounds are represented by a string of 0s and 1s and a laser reads the binary patterns etched on a photosensitive platter. Russell isn't able to convince the music industry to adopt his invention, but 20 years later, Time Warner and other CD manufacturers pay a \$30 million patent infringement settlement to Russell's former employer, the Optical Recording Co.



1973--MRI

Everyone agrees that magnetic resonance imaging (MRI) is a brilliant invention - but no one agrees on who invented it. The physical effect that MRIs rely on - nuclear magnetic resonance - earns various scientists Nobel Prizes for physics in 1944 and 1952. Many believe that Raymond Damadian establishes the machine's medical merit in 1973, when he first uses magnetic resonance to discern healthy tissue from cancer. Yet, in 2003, the Nobel Prize for medicine goes to Peter Lauterbur and Peter Mansfield for their "seminal discoveries." The topic of who is the worthiest candidate remains hotly debated.



1978--GPS

The first satellite in the modern Navstar **Global Positioning System** (GPS) is launched. (The GPS's precursor, TRANSIT, was developed in the early 1960s to guide nuclear subs.) It is not until the year 2000, though, that President Clinton grants nonmilitary users access to an unscrambled GPS signal. Now, cheap, handheld GPS units can determine a person's location to within 3 yards.



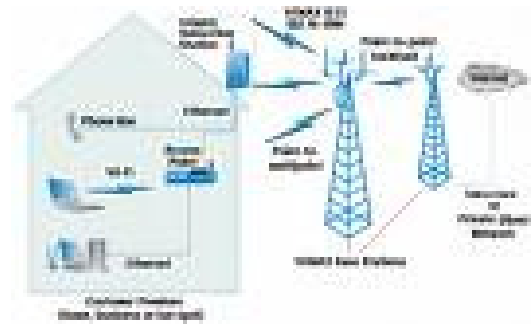
1998--MP3 PLAYER

Depending on who you ask, the MP3 is either the end of civilization (record companies) or the dawn of a new world (everyone else). The Korean company Saehan introduces its MPMan in 1998, long before Apple asks, "Which iPod are you?" When the Diamond Rio hits the shelves a few months later, the Recording Industry Association of America sues - providing massive publicity and a boost to digital technology.



2002-- WiFi (IEEE 802.11)

The geniuses at the Institute of Electrical and Electronics Engineers publish a wireless metropolitan area network standard that functions like Wi-Fi on steroids. An 802.11 antenna can transmit Internet access up to a 30-mile radius at speeds comparable to DSL and cable broadband. When it all shakes out, 802.11 could end up launching developing nations into the digital age by eliminating the need for wired telecommunications infrastructure.



VOCABULARY

remote – diaľkový, vzdialený

struggle – zápasíť, bojovať

survival – prežitie, pozostatok, zvyšok

chagrin – sklamanie, zármutok

leap – skok, skočiť

punch cards – dierny štítok

crucial step – kľúčovým krokom

tissue – tkanivo

discern – rozoznať, rozpoznať

steroids – steroidy

DIYer (Do It Yourself) - kutil

efficiency – efektívnosť, účinnosť

lukewarm – vlažný

launched – započatá

bouncing – kypiaci zdravím, mocný

humble – pokorný, skromný, jednoduchý

triggering – spúšťacím

etched – leptaný

convince – akosi

infringement – porušenie

settlement – urovanie, dohoda, osada