

Vinyl 1931

Vinyl was popular during the 1950s-1980 but was first made in 1930. It had a recent comeback in the public consciousness wherein people claim that vinyl has better sound quality than anything else in the market. Along with providing consumers with a physical object to represent their favorite songs and something that would look nice in the house.

Using the various grooves embedded within the disc, this technology can emulate sound waves with intricate precision. As the record spins, the stylus follows said grooves, vibrating in response to the variations in depth and width. These vibrations are then transmitted through the cartridge, which contains a tiny magnet or coil and is transformed into electrical signals for the record player to convert to sound.

Cassette 1963

Cassette tapes were introduced in 1963 and coexisted alongside vinyl records for several years. The internals of the cassette include two miniature spools, between which a length of magnetic tape is pressed inside. This magnetic tape is a magnetically coated, polyester-type plastic film perfect. Recorded audio is stored as magnetic fields on said tape.

On play back, the tape glides over a magnetic playback head, detecting the changes in the magnetic field and converting them into familiar electrical signals. From there, these signals are then amplified and sent to the speakers of the player.

The creation of the Sony Walkman in 1979 truly revolutionized the way people listened to music on the go. This, coupled with the easy manipulation of playback, including pause, play, fast forward, and rewind functions, caused the eventual decline of vinyl.



Did you know?

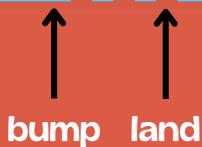
Mixtapes originated from cassette tapes! That's right - music lovers would craft their unique mixtapes by recording their favorite tracks onto blank cassettes. It was a DIY music revolution that paved the way for today's playlists and streaming services.



Compact Disc 1982

CDs use a digital way of storing information through binary 1s and 0s. It is a simple piece of plastic impressed with microscopic bumps arranged as a single, continuous, long spiral track of data. A thin, reflective aluminum layer is sputtered onto the disc, covering the bumps. Then a thin acrylic layer is sprayed over the aluminum to protect it.

As for the CD Player, its role is to decipher this series of bumps and transform it into playable data. Using a constant laser beam, the CD player precisely focuses it on the track of bumps on the disc. The beam reflects off the aluminum layer and hits an optoelectronic device that detects changes in light.



As the bumps reflect light differently than the “lands,” the sensor can detect those changes in reflectivity. Here, bumps are interpreted as 0s, while the lands are read as 1s. Lastly, the electronics in the drive interpret the changes as encoded bits of information.

MiniDisc 1992

MiniDiscs were created as a replacement to the Cassette Tape. These are mostly like CDS but smaller and can store less data in general, 14OMB compared to 600MB. Thanks to the encoding and compression of ATRAC, the two storage forms can store around the same amount of music - 76 minutes.

the portability of both discs was initially a limitation compared to cassette tapes and Walkman cassette players. They required CD players, which were bulkier and less suitable for on-the-go use compared to the compact, lightweight Walkman cassette players. This limitation was partially addressed with the development of portable CD players, but they still weren't as convenient for portable use as cassette players.



Digital Storage 1999

Digital Storage and Flash Memory grew in popularity at the turn of the century. Its solid-state nature and lack of moving parts allow it to withstand the test of time with its enhanced durability. The SD Card powered by NAND flash memory is a popular example of this. Named after the not-and-gate, this type of non-volatile memory storage retains data even when the power is turned off.



In the realm of flash memory, data resides within memory cells containing floating-gate transistors. These transistors store electrons to signify stored data. Storage processes involve manipulating electric charges within these cells. During the writing process, a specific charge level is applied to the selected cell, adjusting the stored information. On the other hand, reading involves precisely measuring the charge level within the cell, and interpreting it as stored data.



Each card hosts a built-in controller chip, seamlessly managing both storage and retrieval. As you connect the card to your device, this chip communicates via the SD card interface, making for smooth and sound integration.

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Cloud Storage 2002

Cloud storage was created to meet the demands of storage of consumers, saving data to an off-site storage system maintained by a third party. Instead of storing information on your computer's hard drive or other local storage device, you save it to a remote database. As long as you're connected to the internet, you can access files from anywhere in the world.

Furthermore, cloud storage offers robust data backup and recovery features, helping users safeguard their data against loss due to hardware failure, theft, or other disasters. By storing data redundantly across multiple servers and data centers, cloud storage providers ensure data integrity and availability. This redundancy also contributes to improved reliability and uptime compared to local storage solutions.

Popular streaming services utilizing cloud technology like Spotify, YouTube Music, and more, provide instant access to vast catalogs of tracks, right at your fingertips.

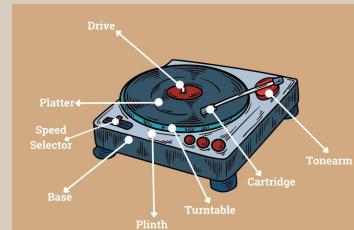




Takt TP-36

1970's

The crucial parts of the record player that make it work are the tonearm and the cartridge. The tonearm is the component responsible for holding the cartridge and stylus (needle) and guiding it along the grooves of the record. The tonearm's design and materials impact its ability to minimize vibrations and resonance, contributing to overall sound quality. The cartridge is the assembly that houses the stylus and the magnet or coil responsible for converting the mechanical movement of the stylus into an electrical signal. Tonearm and cartridge work together to accurately track the grooves of a vinyl record, convert the mechanical movement of the stylus into an electrical signal, and ultimately produce high-fidelity audio playback.





Walkman WM-F36

1987

The Walkman was the first portable music player that allowed users to listen to their favorite music anywhere, anytime, without being tethered to a home stereo system or radio. Its compact size, lightweight design, and the ability to use headphones made it incredibly popular and quickly became an iconic device of the 1980s. The Walkman played a significant role in popularizing cassette tapes and contributing to the decline of vinyl records as the dominant music format for portable listening.





Aiwa XP-R210 2000

CD players typically spin the CD at 200 to 500 revolutions per minute (RPM), ensuring smooth and continuous reading of the data. Additionally, The CD player contains a laser assembly, which emits a focused beam of light onto the surface of the compact disc. This laser beam serves as the reading mechanism to retrieve the digital data stored on the disc.



Sony netMD MZ-N1 2001

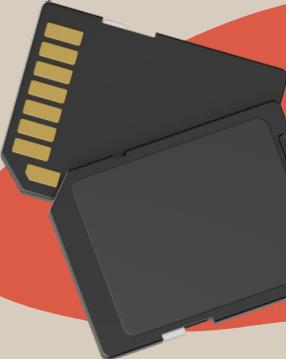
The Sony netMD and minidisc players had tried to emulate the portability of the walkman while still storing a comparable amount of music storage in the smaller disc. this was done through a data compression method of Adaptive Transform Acoustic Coding (ATRAC). This compression method helped MiniDisc players achieve a balance between portability and storage capacity





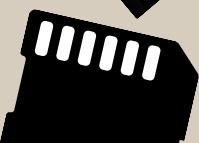
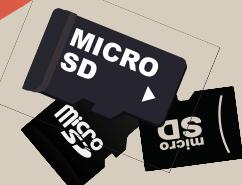
iPod 2001

MP3 players and iPods essentially provided a best-of-both-worlds scenario for CDs and Walkmen. Using flash technology, these music players were able to store significantly more data compared to CDs and Walkmen, they also proved to be small and portable along with still having all of the track manipulation capabilities of CD players in the past.



iPod Nano 2005

Additionally, the iPod could store more hours of music data due to its efficient codecs. Codecs stand for compression-decompression algorithms and are formulas that shrink the size of large files into very small and manageable files.





Streaming 2000's +

The introduction of cloud storage welcomed streaming services around the world. These offer large catalogs of music that are accessible through a variety of means – free, freemium, and subscription-based. Physical sales and digital downloads shifted to digital payments of subscriptions.



Creating and sharing playlists, and listening together has become exponentially easier and faster. Some platforms, such as Spotify and Youtube, allow offline saves/downloads. Automatically generated personalized playlists can also be generated by various algorithms.



Finally, emerging artists and musicians can find easier opportunities to advertise and spread their music through online means. Talent and creativity can be recognized and celebrated on a global scale, regardless of the artist's background or industry connections.