

Safeguarding your data

Diving Into The Evolution Of Hard Disks, The Not-Your-Average Storage System

From the crack of dawn, technology stirs us with its reliable alarms, and caresses us with the cooling breeze of our ACs as we drift off to sleep, weaving its wonders into our everyday lives. GT pays homage to this silent saviour that simplifies and enhances our existence with a brand new series, unwrapping A to Z of iconic tech pieces, one letter at a time. Here's presenting the **H** in this series that changed human life as we know and live it.

Aarav Singh, AIS Vas 6, IX D

The tech: Hard Disk Drive

The inventor: Reynold B. Johnson

How was it invented?

The need for faster access to data and larger storage capacity led to the development of

hard drives. As tech advanced, the limitations of existing storage methods, such as punched cards and magnetic tape, became evident. So, in 1956, Reynold B. Johnson and his team developed the first hard drive, IBM 350 Disk File at IBM's San Jose Research Laboratory. The technology behind the first hard drive was influenced by previous magnetic storage inventions. The inventors faced numerous challenges during the development process, including the design of reliable heads, addressing data storage density, and achieving precise positioning of the heads. The invention of the first hard drive laid the foundation for subsequent advancements in storage tech, leading to smaller, faster, and higher-capacity drives that are widely used today.



disks coated with a magnetic material. The disks were then stacked on a rotating spindle and were read and written using an array of magnetic heads. Even though it weighed about a ton and was as big as

two whole refrigerators, the storage capacity of the IBM 350 was a meagre five megabytes.

Why do we use it?

Hard drives are used as primary storage devices due to their large storage capacities, fast data access speeds, and reliability. Hard drives are useful for the portability of important data in a convenient and efficient manner.

How has it helped our lives?

Hard drives provide large-scale storage and quick access, revolutionising various aspects of our daily lives such as personal computing, digital media storage, data backup, and preserving memories. With its innate ability



Fun fact: In 2016, Dutch scientists invented the world's smallest hard drive that is capable of re-writing information atom by atom. In simpler words, it means that all the books ever written could be stored on a hard drive which is the size of a postage stamp!

to preserve data, it has made significant contributions in the fields of research, business, and entertainment. In addition to their storage capacity, what makes them more accessible is their low price and hassle-free installation system.

Wonders of nature

Is It Moth Or Butterfly: The Battle Of Two Lepidopterans

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“Look, a butterfly.” “No, it's a moth.” “But it looks like a butterfly... or a moth... no, no, is it a butterfly...?” *head scratch* No wonder it's a challenge to differentiate between a butterfly and a moth. Belonging to the same order of Lepidoptera, both butterfly and moth have a similar appearance. Despite belonging to the same class and consisting of around 180,000 species organised into 126 families and 46 superfamilies, and accounting

for approximately 10% of living beings, they do have notable differences. Let's see what they are.

Colour and anatomy: Known for their strikingly bright colours, butterflies are adorned with a myriad of intricate patterns and are slender and vibrant. Whereas moths are smaller, thicker, and have dull colours, though there are always exceptions like the saturniidae moths (with bright green, mottled brown, or grey tones) and the madagascan sunset moth (mostly black with iridescent red, blue, and green markings).

Pupae: From laying eggs to becoming a caterpillar, it should be noted that the life cycle of both moths and butterflies is the same. However, a notable difference in their life cycle actually occurs when they pupate. Moth pupae are typically enclosed within a cocoon made of silk, while butterfly pupae, known as chrysalides, on the other

hand, do not have a protective silk casing.

Antennae: The antennae of some moths are short and feathery, which aids in detecting pheromones, while others have filament-like or even thread-like antennae. But, butterflies have a thin long antenna which is almost club-shaped with a bulb-like shape at the end.

Resting position: Butterflies are known for holding their wings vertically when at rest, bringing them above their bodies. Moths, on the other hand, tend to rest with their wings horizontally or in a tent-like fashion, covering their bodies.

Auditory sense: Butterflies do not possess developed auditory senses and rely on visual cues and chemical signals for communication. In contrast, many moth species have well-developed hearing organs such as tympanic membranes or ears, enabling them to detect ultrasonic sounds produced by predators or potential mates.

