

It's Faster, Safer, Cheaper... Could It Be Hyperloop?

There is a new mass transportation system looming on the horizon that promises travel at high speeds with a smaller environmental impact than current systems have to offer. The concept was first conceived and demonstrated at London's Crystal Palace in 1864 as a pneumatic railway which used air pressure to push a wagon uphill and a vacuum to drag it back down. A more modern, but smaller version can still be seen in a bank drive-thru with pneumatic tubes that transport monetary transactions.

While similar to high-speed rail, Elon Musk has discussed how hyperloop transports could be safer, faster, more affordable, weather-proof, self-powering and less-disruptive to those living along the travel route when compared to the other system. In addition to one of Musk's companies pursuing the technology, other companies investing in the technology include Virgin Hyperloop One, HTT, TransPod and Arrivo.

But how does it work? Powered by an electric motor with solar being one possible energy source, high speeds approaching 600 mph are achieved by reducing friction. One way to do this is by sending the passenger "pods" through tunnels that contain a near-vacuum atmosphere once the air has been mostly sucked out. By having this environment, the amount of wind resistance or aerodynamic drag is quite small.

A second way that friction is reduced is by having the pod hover off the rail. One technology to provide this situation is being pursued through magnetic levitation, which is currently being used in bullet trains. An alternate method of friction reduction is through the use of air-bearing skis set atop the pod. Both of these technologies cause the pod to move above the track.

Many companies see hyperloop as having a huge potential. But there are numerous obstacles that must be worked through before it is ever a reality. Initial technology verification involving more long distance trials and continued funding along with government acceptance all need to happen before a verdict can be reached on this new type of transportation. For now, keep this technology on your radar.

<https://www.zdnet.com/article/what-is-hyperloop-everything-you-need-to-know-about-the-future-of-transport/> . ZDNet. April 16, 2019

<https://www.groundworkscompanies.com/about/articles/how-the-hyperloop-works/> . Groundworks. April 9, 2021.

