



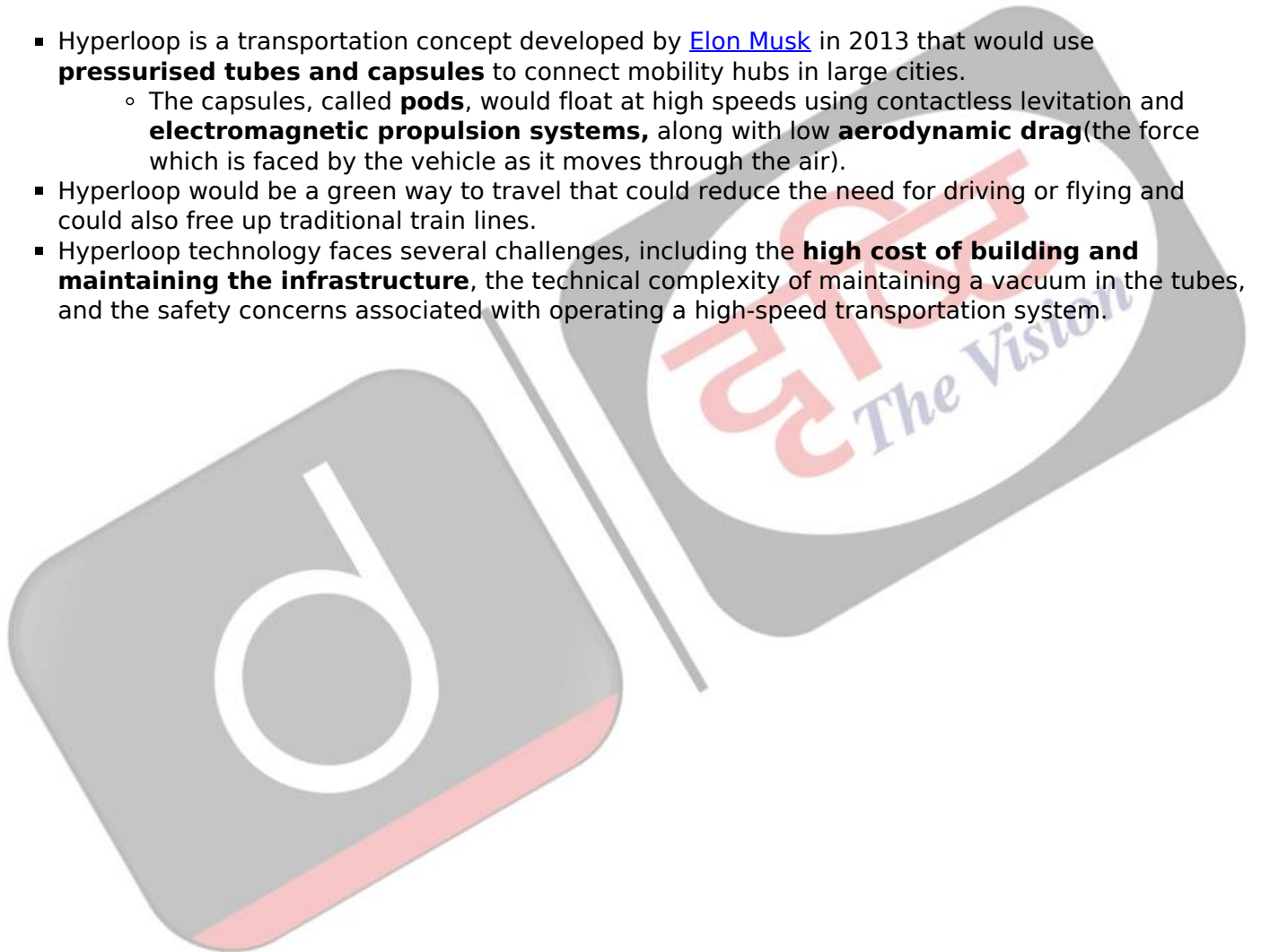
## Hyperloop Technology

[Source: IE](#)

Recently, **hyperloop technology** was highlighted for its energy efficiency and sustainability.

- Hyperloop is a transportation concept developed by [Elon Musk](#) in 2013 that would use **pressurised tubes and capsules** to connect mobility hubs in large cities.
  - The capsules, called **Pods**, would float at high speeds using contactless levitation and **electromagnetic propulsion systems**, along with low **aerodynamic drag** (the force which is faced by the vehicle as it moves through the air).
- Hyperloop would be a green way to travel that could reduce the need for driving or flying and could also free up traditional train lines.
- Hyperloop technology faces several challenges, including the **high cost of building and maintaining the infrastructure**, the technical complexity of maintaining a vacuum in the tubes, and the safety concerns associated with operating a high-speed transportation system.

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# MAGNETIC TRAIN IN VACUUM CAN MOVE AT SPEED OF SOUND

The hyperloop train in its current version was conceptualized by billionaire inventor Elon Musk, who publicized it in 2012, open-sourced it and encouraged others to take the ideas and develop them. Hyperloop One, now called Virgin Hyperloop One, which has entered into an agreement with Maharashtra, is a private company founded in 2014 with the aim of placing hyperloop trains around the world by 2021



In December 2017, Hyperloop One's pod reached a top speed of over 385 kmph on its test track in the Nevada desert, north of Las Vegas. The targeted speed is 1,223 kmph

## THE POD

Hyperloop One's first-generation pod combines a carbon fiber shell around a custom-built levitating chassis

**Aeroshell** Made of carbon fibre panels. The material is much lighter and stronger than steel



**Levitating chassis** Is made of aluminium and houses the propulsion system and magnets for levitation and guidance. Its design is similar to a Formula 1 car. It is built like a shell to be lightweight but strong

## HOW SPEEDS COMPARE

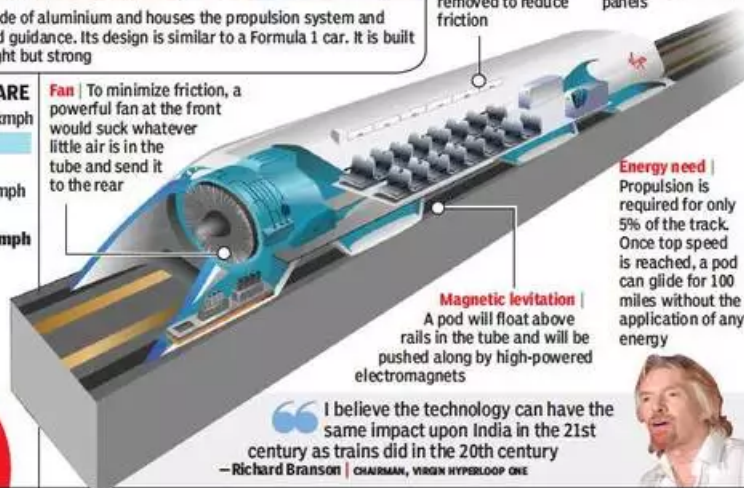
Concorde*	2,180 kmph
Speed of sound	1,235 kmph
Hyperloop	1,223 kmph
Aircraft	780 kmph
Bullet train	450 kmph
*No longer in service	

## JOURNEY TIME

Mumbai to Pune |

**20 minutes**

**Fan** | To minimize friction, a powerful fan at the front would suck whatever little air is in the tube and send it to the rear



**Magnetic levitation** | A pod will float above rails in the tube and will be pushed along by high-powered electromagnets

**Energy need** | Propulsion is required for only 5% of the track. Once top speed is reached, a pod can glide for 100 miles without the application of any energy

“ I believe the technology can have the same impact upon India in the 21st century as trains did in the 20th century  
 — Richard Branson | CHAIRMAN, VIRGIN HYPERLOOP ONE



## Dimensions

Length | **8.7 m** (28.5 ft)  
 Width | **2.7 m** (8.9 ft)  
 Height | **2.4 m** (7.9 ft)

## SCALE

Hyperloop tube



Metro tunnel



**Pod** | A pod or several pods will carry passengers through the tube with most of the air removed to reduce friction

**Tube** | A partial vacuum tube will be supported above ground and supplied with energy by solar panels



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