

### VACUUM TRANSPORTATION SYSTEM IITM Technology Available for Licensing

#### Problem Statement

- Develop a vacuum transportation system that maintains high-speed travel capabilities while reducing manufacturing costs of the tube infrastructure.
- There is a need for a system that can be manufactured seamlessly without the need for advanced machinery, thus reducing production complexity and costs.
- Therefore, the focus on reducing the overall **weight of the vacuum transportation system**, which can lead to decreased material usage and potentially lower transportation costs.

#### Intellectual Property

- IITM IDF Ref. **2200**
- **IN 449733 - Patent Granted**
- **PCT/IN2022/050829**

#### Technology Category/ Market

**Category - Transportation Infrastructure**

**Applications -** Urban Transit Systems, Inter-City Transportation

**Industry - Transportation Infrastructure**

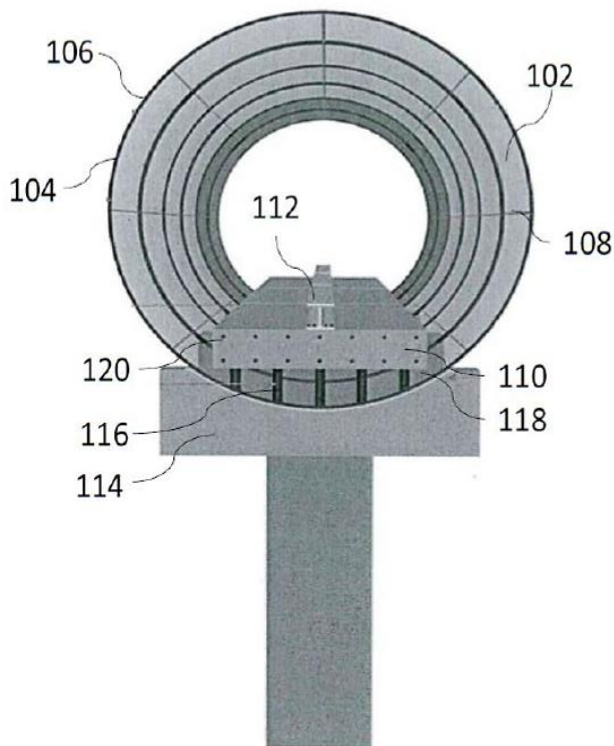
**Market -** Hyperloop technology market size will grow from \$1.5 billion in 2023 to \$2.13 billion in 2024 at a **CAGR of 41.9%**.

#### TRL (Technology Readiness Level)

**TRL- 5: Technology validated in relevant environment**

#### Research Lab

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**FIG. 1. illustrates a perspective front view of a vacuum transportation system.**

#### Technology

- **Tube Structure Optimization:**  
Develop a vacuum transportation system with a reinforced tube structure comprising formers, flanges, and longerons made of materials like stainless steel or carbon fiber composite to withstand various loads including vacuum, wind, and moving object weights.
- **Platform and Track Design:**  
Design a platform supported by pylons and reinforced with concrete and rebars, facilitating the movement of objects inside the tube. Incorporate a track on the platform for efficient object transportation.
- **Vacuum Maintenance System:**  
Implement vacuum pumps connected to the tube to ensure the maintenance of vacuum pressure, crucial for the system's operation and efficiency.

#### CONTACT US

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### Images

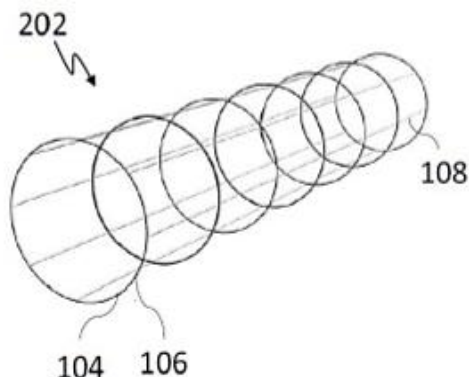


Fig. 2A

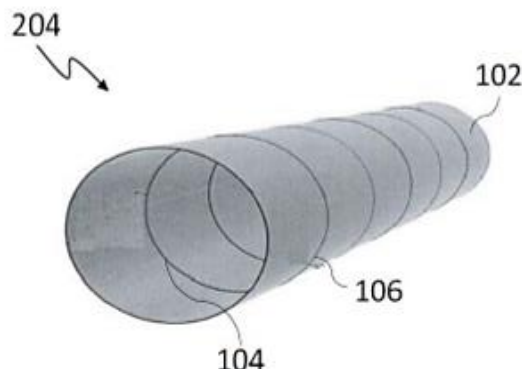


Fig. 2B

**FIG. 2A.** illustrates a perspective side view of a framework of the vacuum transportation system.

**FIG. 2B.** illustrates a perspective side view of a tube of the vacuum transportation system.

### Key Features / Value Proposition

#### 1. Efficient High-Speed Transportation

- Offers a high-speed vacuum transportation solution that significantly reduces travel time between destinations, catering to the demand for rapid and convenient transit options.

#### 2. Environmentally Sustainable Solution

- Addresses concerns about environmental pollution by minimizing greenhouse gas emissions associated with traditional transportation modes, aligning with the growing emphasis on sustainability in transportation infrastructure.

#### 3. Cost-Effective Infrastructure

- Provides a cost-effective vacuum transportation system by optimizing the design and manufacturing process of the tube infrastructure, ensuring affordability without compromising performance.

#### 4. Robust and Reliable Construction

- Utilizes durable materials such as stainless steel, aluminium, and carbon fiber composite, coupled with efficient vacuum maintenance systems, ensuring the reliability and longevity of the transportation infrastructure.

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