

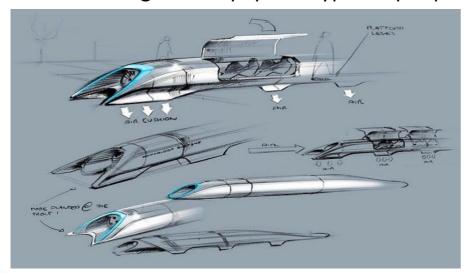






WHAT IS HYPERLOOP?

Hyperloop is the 5th mode of transportation, a high-speed train that travels in a near-vacuum tube. The reduced air resistance allows the capsule inside the tube to reach speeds of more than 1000 km/h. Elon Musk, founder of SpaceX, proposed the idea of Hyperloop to the world in 2013 through whitepaper - Hyperloop Alpha.



White Paper – Hyperloop Alpha



Hyperloop Pod



WHY HYPERLOOP ?

With demand expected to grow rapidly...



Increase in port volume by 2020 from 2012



Increase in passenger miles in 30 years



Increase in freight tonnage by 2035 from 2012

...What is the solution?



Bigger Airports? More Rail Lines?

More Cargo Ships? Bigger Ports?

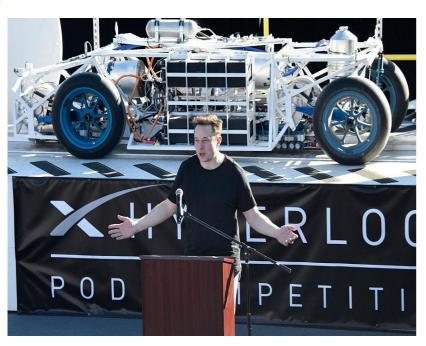
More Trucks?

Wider Highways?





SPACEX HYPERLOOP POD COMPETITION



SpaceX organizes the Hyperloop Pod Competition in order to accelerate the development of functional prototypes and encourage student innovation.

Few selected teams build a subscale prototype transport vehicle to demonstrate technical feasibility of the various aspects of the Hyperloop concept.

In this global competition, the final round (testing and evaluation of the actual prototype), takes place at the SpaceX Headquarters in Hawthorne, California, USA. The Fastest Pod wins the Competition!

SpaceX Hyperloop Pod Competition



TEAM OVERVIEW

Avishkar Hyperloop is the student team of IIT Madras, doing indigenous design and development for building the First ever Self Propelled, Completely Autonomous Hyperloop Pod of India and also spearheading country's attempt at SpaceX Hyperloop Pod competition 2019 with a goal to develop the fastest hyperloop pod ever built and win the competition.

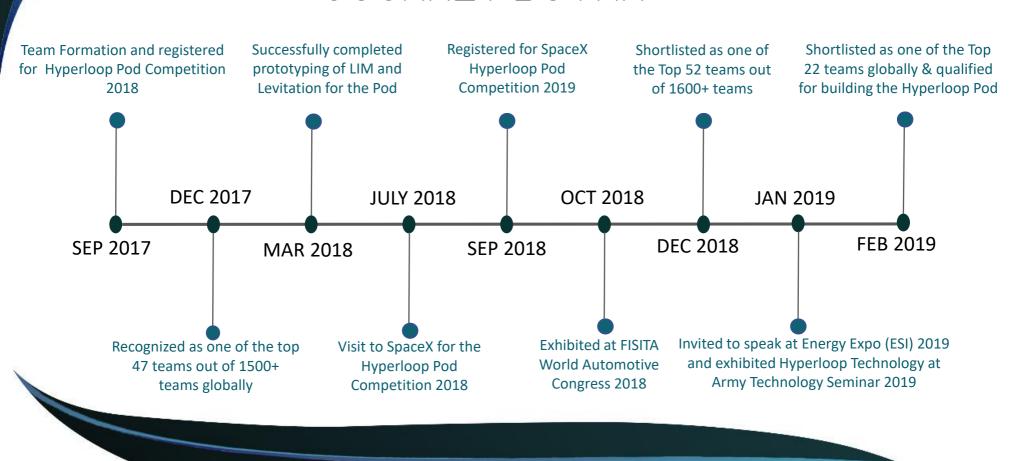
 The team works with a vision to develop technologies for Future Mode of high speed transportation with its applications in various prominent fields including Defence, Logistics and Aerospace Industry.



Team Avishkar Hyperloop

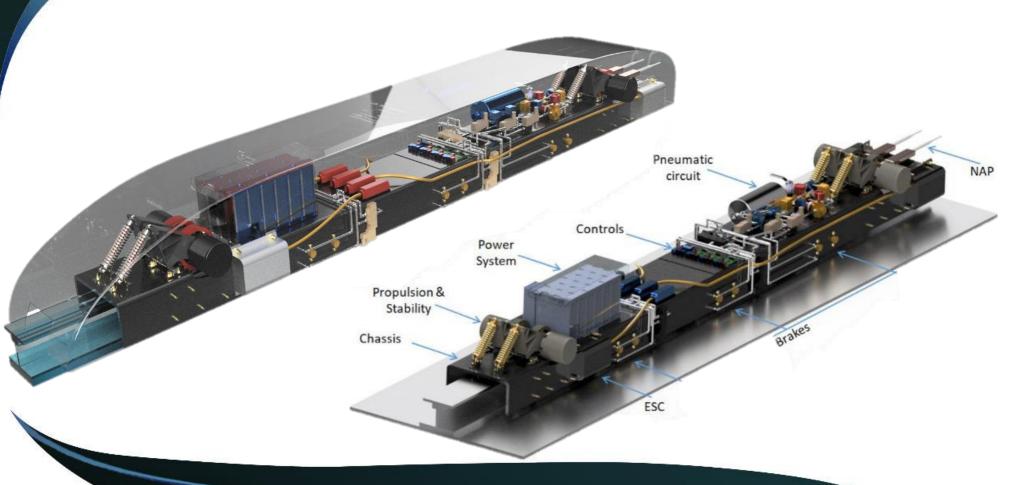


JOURNEY SO FAR





POD DESIGN





RESEARCH PROJECTS

MAGNETIC LEVITATION



Progress:

- Obtained Trends of Lift to Drag ratio with all the Possible parameters .
- 3D Simulations for testing setup and verification with testing

Applications:

- Hyperloop
- Can be used for braking by adjusting the L/D.

LINEAR INDUCTION MOTOR (LIM)



Progress:

- •Time dependent Simulations.
- •Fabrication of first prototype
- Under Testing Phase

Potential Applications Areas:

- Hyperloop
- •Electromagnetic Aircraft Launch System
- •Defence Hypersonic weapon

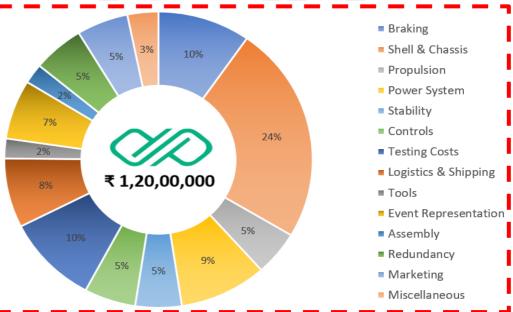
The below teams have been selected to compete in the 2019 Hyperloop Pod Competition.

Avishkar Hyperloop	Indian Insitute of Technology Madras
Badgerloop	University of Wisconsin – Madison
Delft Hyperloop	Delft University of Technology
EPFLoop	EPFL – École Polytechnique Fédérale de Lausanne
HYPED	The University of Edinburgh
Hyperloop at Virginia Tech	Virginia Polytechnic Institute and State University
Hyperloop UPV	Universitat Politècnica de València
Hyperlynx	University of Colorado – Denver
HyperXite	University of California – Irvine
Midwest Hyperloop	Purdue University; University of Cincinnati; University of Illinois Urbana-
	Champaign
MIT Hyperloop	MIT – Massachusetts Institute of Technology
OneLoop	University of California – Davis
Paradigm Hyperloop	Northeastern University
Queen's Hyperloop Design Team	Queen's University
SLOLoop	California Polytechnic State University – San Luis Obispo
Swissloop	ETH Zurich
TUM Hyperloop	Technical University of Munich
UMD Loop	University of Maryland
UNSW Hyperloop	The University of New South Wales
uWinLoop & SCCLoop	University of Windsor; St. Claire's College
Washington Hyperloop	University of Washington



COSTING BREAKDOWN AND TIMELINE

As a niche technology, this competition requires high precision and superior quality of Pod Manufacturing within four months of time. To fulfil our initial vision to represent INDIA on global level, we require significant amount of funds for this project.



MAR - APR

- Procurement of Components
- Testing LIM and Levitation
- Full Scale Hyperloop Pod Design -Preliminary

MAY - JUN

- Functional Testing of Hyperloop Pod
- · Final Assembly of Pod
- Pod Unveil Event

JUL - AUG

- Hyperloop Pod Competition 2019
- Integrated testing of LIM and Levitation
- Pilot Scaled Design of Pod

SEPT - OCT

- Collaborations with Industries for Pilot Scale Pod
- Pod Redesign with LIM and Levitation
- Procurement of Materials

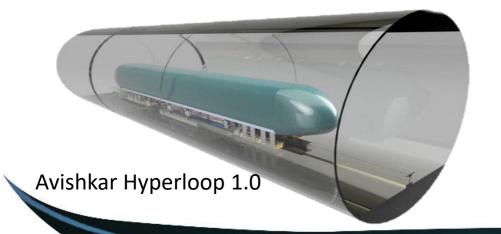
NOV - DEC

- Infrastructure for Sub Scale Pod
- Subsystem level testing of each component
- Design Submission to SpaceX



OUR ACHIEVEMENTS

- One of the Top 22 teams out of 1600+ teams participating globally and the only ASIAN team to enter the finals of SpaceX Hyperloop Pod Competition 2019.
- In the Hyperloop Pod Competition 2018, our design had been shortlisted by SpaceX as among the top 47 designs out of 1200+ designs globally.
- Only Indian team present at SpaceX Hyperloop Pod Competition 2018.
- Invited to exhibit at FISITA World Automotive Congress 2018.
- Invited as a Speaker at International Conference on Energy Storage (ESI) 2019.
- Invited to exhibit Hyperloop technology for Defence purpose at Army Technology Seminar 2019.





HOW IT WORKS?



> Hyperloop pressure pod uses magnetic levitation to float on the track in a low-pressure tube

Motors (linear induction) propel the pressurized pod with air bearings at a

required speed

Motors, magnets will help decelerate when required

Developers across the world working to achieve supersonic speed of more than 1,200kmph

Status of IIT-M pod: Design ready; fabrication for prototype under way

Project specs

> Selfpropelled and autonomous, with DC motor

> Powered by batteries similar to lithium ion Pod Length | 267cm

Width | 36cm

IIT-Madras's Hyperloop pod only Indian to race against the best at SpaceX

Team Avishkar's pod can reduce travel time between major destinations like Mumbai and Chennai from about two hours to less than an hour

Max

speed

480kmph



Prajanma Das Edex Live













The students worked on the Indigenous design and development of the project at Centre for Innovation (CEO, IIT Made (Pic: Facebook)



Mahesh Panchagnula • Following Dean at Indian Institute of Technology, Madras

#iitmadras's **Team Avishkar Hyperloop** pod only Indian to race against the best at SpaceX

https://lnkd.in/fiwuD7z

To support the team to achieve this feat: https://lnkd.in/fdf-NMG



IIT-Madras's Hyperloop pod only Indian to race against the best at SpaceX edexlive.com

IIT Madras team only Indian finalist in SpaceX Hyperloop Pod contest

A 30-member team of IIT Madras students, Team Avishkar Hyperloop, has cleared the final design round of SpaceX Hyperloop Pod Competition 2019, becoming one of the top 22 teams selected from across the world. The team is also the only Indian finalist. The students will represent India at the finals at SpaceX Headquarters in Los Angeles in July 2019.

swipe left for more at Avishkar Hyperioop / Today



Team selected from over 1,600 teams worldwide Tap to know more about the team



DR. BOBY GEORGE
Prof. in Electrical Dept. IITM
Faculty Head, CFI – IITM

ADVISORY BOARD

DR. S R CHAKRAVARTHY
Prof. in Aerospace Dept. IITM
Co-ordinator - NCCRD

DR. T M Muruganandam
Prof. in Aerospace Dept. IITM
NCCRD

MR. RAVI SANTHANAM Ex- MD & CEO Hindustan Motors

TEAM REPRESENTATIVES

PRANIT MEHTA

Marketing & Sponsorship

pranit@avishkarhyperloop.com

+91-9444377789

ADITYA RANADE

Media & PR

aditya@avishkarhyperloop.com

+91-9870314935

GET IN TOUCH WITH US

CONTRIBUTE TO INDIAN HYPERLOOP



www.avishkarhyperloop.com

avishkarhyperloop@smail.iitm.ac.in





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