

# VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Jnana Sangama, Belagavi – 590014



Seminar Report on

## “Hyperloop Technology – Fifth mode of transportation”

*Submitted in the partial fulfillment of the requirements for the award of the Degree of  
Bachelor of Engineering in Computer Science and Engineering*

Submitted by

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Under the support and guidance of

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## DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

(Accredited by NBA, New Delhi)

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**2021-22**

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## Certificate

Certified that the Technical Seminar (18CSS84) entitled “**Hyperloop Technology – Fifth mode of transportation**” was presented by **Deepak Jaiswal** (1VA18CS010), a bonafide student of Sai Vidya Institute of Technology, Bangalore, in partial fulfillment for the award of Bachelor of Engineering in Computer Science and Engineering of Visvesvaraya Technological University, Belagavi during the year 2021-2022. It is certified that all corrections/ suggestions indicated for Internal Assessment have been incorporated in the report. The seminar report has been approved as it satisfies the academic requirements in respect of seminar work prescribed for the said degree.

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## ACKNOWLEDGEMENT

The completion of Technical Seminar brings with and sense of satisfaction, but it is never completed without thanking the persons who are all responsible for its successful completion. First and foremost, I wish to express our deep sincere feelings of gratitude to my Institution, **Sai Vidya Institute of Technology**, for providing me an opportunity to do our education.

I would like to thank the **Management** and **Prof. M R Holla**, Director, Sai Vidya Institute of Technology for providing the facilities.

I extend my deep sense of sincere gratitude to **Dr. H S Ramesh Babu**, Principal, Sai Vidya Institute of Technology, Bengaluru, for having permitted to carry out the Technical Seminar on “**Hyperloop Technology – Fifth mode of transportation**” successfully.

I am thankful to **Prof. A M Padma Reddy**, Additional Director, Professor and Dean (Student affairs), Department of Computer Science and Engineering, Sai Vidya Institute of Technology, for his constant support and motivation.

I express my heartfelt sincere gratitude to **Dr. Shantakumar B Patil**, Professor and HOD, Department of Computer Science and Engineering, Sai Vidya Institute of Technology, Bengaluru, for his valuable suggestions and support.

I express my sincere gratitude to Prof. **Ashwini S S**, Assistant Professor, Project Guide, Department of Computer Science and Engineering, Sai Vidya Institute of Technology, Bengaluru, for her constant support.

I also like to thank technical coordinator **Prof. Kshama S B**, Assistant Professor, Department of Computer Science and Engineering, Sai Vidya Institute of Technology, Bengaluru, for her coordination.

Finally, I would like to thank all the Teaching, Technical faculty and supporting staff members of Department of Computer Science and Engineering, Sai Vidya Institute of Technology, Bengaluru, for their support.

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# ABSTRACT

The conventional modes of transportation of people consists of four unique types and that are rail, road, water, and air. These modes of transport tend to be either relatively slow, expensive or a combination of both. Hyperloop is a new mode of transport that seeks to change this pattern by being both fast and inexpensive for people and goods.

Hyperloop is a proposed mode of passenger and freight transportation that propels a capsule-like vehicle through a near-vacuum tube at more than airline speed. The pods would accelerate to cruising speed gradually using a linear electric motor and glide above their track using passive magnetic levitation or air bearings. Hyperloop consists of a low pressure tube with capsules that are transported at both low and high speeds throughout the length of the tube. The capsules are supported on a cushion of air, featuring pressurized air and aerodynamic lift. Passengers may enter and exit Hyperloop at stations located either at the ends of the tube, or branches along the tube length. It quickly becomes apparent just how dramatically the Hyperloop could change transportation, road congestion and minimize the carbon footprint globally. With the Hyperloop, extremely fast, inexpensive intercity travel would be widely accessible. If both people and goods can move more quickly and comparatively cheaply, rapid growth is a logical outcome.

The Hyperloop concept, pod speed competitions and current project developments have recently attracted much publicity. In this paper the transport technology of the vacuumed tube transport project Hyperloop is assessed through a system analysis of its principal aims, functional design, transport capacity and demand in comparison with existing commercial airlines, high-speed rail, and Maglev lines. First, the potential for high-speed long-distance travel demand for Hyperloop based on existing airline transport volumes between major airports in Germany on the one hand, and the proposed Hyperloop link from Los Angeles to San Francisco in California on the other, is assessed in general terms. Second, the technical feasibility of the proposed Hyperloop concept for vehicle design, capacity, operations, propulsion, guidance, energy supply, traffic control, safety, alignment, and construction is discussed in more detail. Third, possible environmental impacts and uncertain investment, operating and maintenance costs for implementation of a Hyperloop line are described. Finally, the risks for further Hyperloop project development and the need for more transparent research are emphasized.

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