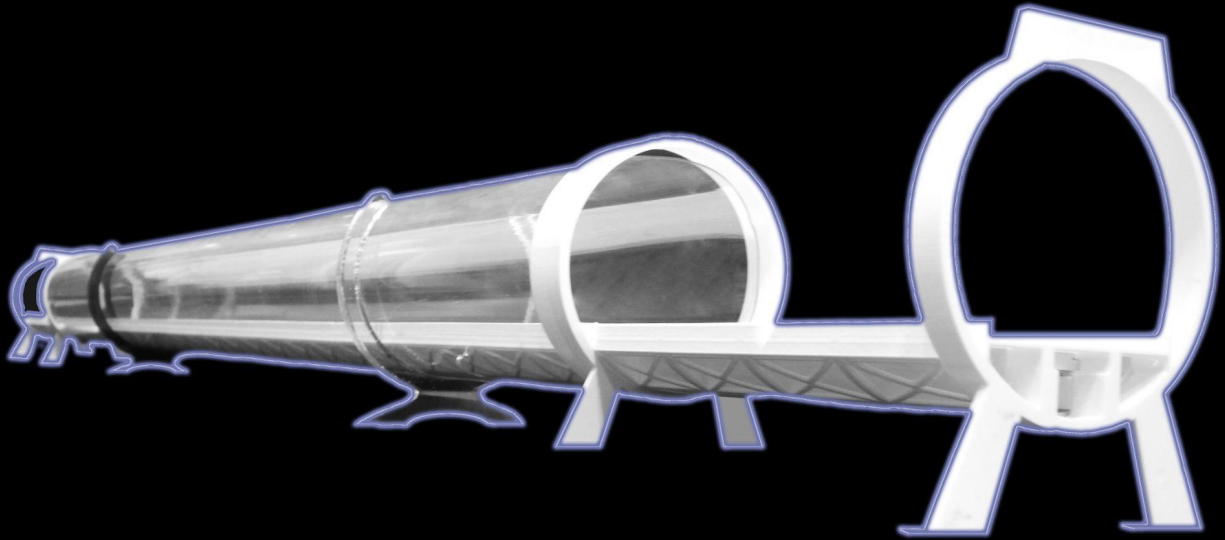


COMPETITION

HYPERLOOP



**Magnetic
Propulsion
Vehicle**

DESIGN

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Introduction

Welcome to this exciting and thought provoking challenge.

The Hyperloop concept has been around for a long time, but gained a huge new world wide audience when Elon Musk recently revitalized it.

Now it's your chance and your time to shine!

Give it some thought.

Come up with a unique and creative concept vehicle and join this fun competition.

Design, build, and submit your vehicle for a chance to win, become incredibly famous, and win some cash.

The Hyperloop competition, a real-life application of a state of the art technology, involves hands-on creativity, science, and some do it yourself initiative with a dash of competitive spirit and student engagement.

The Hyperloop Design Competition introduces both individual students and teams of students to the exciting concept of a future ultra-high-speed ground transportation system using magnetic propulsion.

This competition is entirely for fun, so come on, design, build, test and enjoy the experience.

See you here!

PVNet Academy for [STEM](#)

General Information

WHO MAY COMPETE:

This competition is open to students in grades 8 -12.
Students may compete individually or as a team

Competitors must be able to attend the competition in person.

COMPETITION DATE:

Saturday August 14th

HOW TO REGISTER:

Go to:

PVNet.com/Hyperloop

The registration Fee is \$5 per entry regardless of whether you enter as an individual or as a team and is non refundable.

Pre-testing Your Design:

The track will be available for testing your design 2 times before the competition date (1 week and 2 weeks prior to the competition on Saturdays from 3pm -5pm)

Pretest 1:

Date: July 31st

Time: 3pm-5pm

Pretest 2:

Date: August 7th

Time: 3pm-5pm

Competition Date:

Date: August 14, 2021

Time: 2pm - 6pm

Location:

**PVNet Academy for STEM
550 Deep Valley Drive, Ste. 229
RHE CA 90274**

Contact:

Education@PVNet.com

310-541-7992

Challenge Description

This challenge will have many student run teams participate to design and build a miniature prototype transport vehicle in order to test feasibility for various strategies in implementing the hyperloop concept.

Judging Criteria

The time taken to successfully, autonomously traverse the length of the enclosed tube section will be the only criteria on which teams will be judged, with the 3 shortest times receiving prizes.

Prizes

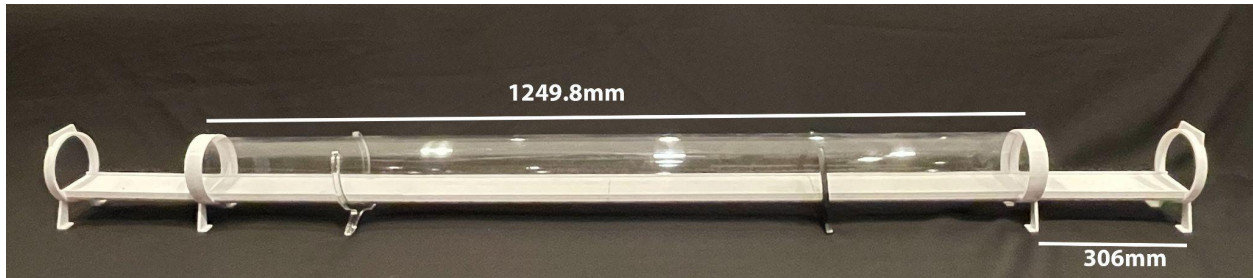
1st place - \$250 along with 1 "Oscillation Overthruster", used by Buckaroo Banzai to travel into the 8th dimension, where such a device is worth billions.

2nd place - \$200 along with 1 "Oscillation Overthruster", used by Buckaroo Banzai to travel into the 8th dimension, where such a device is worth billions.

3rd place - \$150 along with 1 "Oscillation Overthruster", used by Buckaroo Banzai to travel into the 8th dimension, where such a device is worth billions.

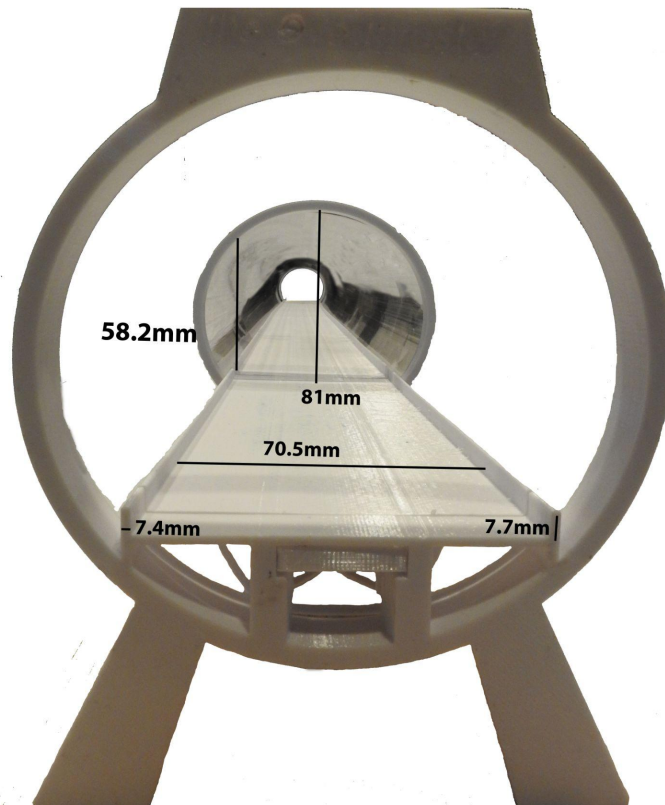
Track Description

This competition will take place on a 1249.8mm track with a starting and ending section of 306mm each.



The track is exactly 70.5mm wide and has a rail on each side that is 1.5mm in width and has a height of 7.7mm.

The height of the tunnel at each rail is 58.2mm and the height of the tunnel at the middle point of the track is 81mm.

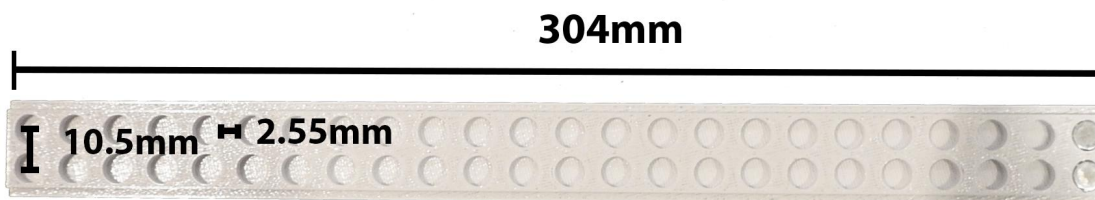


Underneath the track are rows of magnets that alternate in polarity in each row.

The magnets are in 2 columns that run the length of the entire track.

Each magnet has a radius of 3.975mm and a height of 2.92mm.

Magnets are under the “roadway” of the track and not visible.



FULL SPECIFICATIONS:

- Length: 1249.8mm
- Track width: 70.5mm
- Rail width: 1.5mm
- Rail height: 7.7mm
- Tube height at rail: 58.2mm
- Tube height at center: 81mm
- Midpoint distance between magnets in same row: 10.5mm
- Distance between magnets in adjacent rows: 2.55mm
- Magnet radius: 3.975mm
- Magnet height: 2.92mm

Design Requirements

Design constraints:

- No motors of any kind may be used
- Must use the magnets embedded in the pathway floor for propulsion
- No projectiles, hooks or weights, fans, rockets, pumps, compressed air, etc.

Permitted:

- Passive (unpowered) wheels or rollers
- Microcontrollers
- Switches
- Batteries
- Electrical components such as resistors, capacitors, electromagnets, diodes etc