Meet the Hyperloop CE Team

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Team Lead  PCB Lead  Prototype Lead  Test Engineer  Software Engineer

Introduction  Competition Rules  Pod Overview  Peripheral Layout  Printed Circuit Board  Web App  Prototype  Our Sponsors
SpaceX Hyperloop Competition

Concept proposed by Elon Musk
Pod in low-pressure tube from LA to SF

Competition to explore functioning prototypes
2018 Levitation Competition

There-and-back race on outdoor test track
Pod must levitate for entire duration of run
Fastest pod wins!
5 foot minimum pod length

Levitate at Start
Translate forward
Stop at Finish
Translate in reverse
Stop at 75 feet
MagLev Overview
Secondary Braking
Peripheral Layout
Printed Circuit Board
Power Source

Battery

PCB
Global Positioning System

- GPS
- Battery
- PCB
- ESC
Inertial Measurement Unit

GPS  Battery  PCB  ESC  IMU
Battery Management System

- BMS
- GPS
- Battery
- PCB
- ESC
- IMU

Peripheral Layout
Lidar Sensors

- LIDAR
- BMS
- GPS
- Battery
- PCB
- ESC
- IMU
- LIDAR

Peripheral Layout
PCB
PCB

Introduction

Competition Rules

Pod Overview

Peripheral Layout

Printed Circuit Board

Web App

Prototype

Our Sponsors
Sensor Ports
Communication Ports
Power
Wireless Ports
Timing Profile State Machine

**Engine Off State**
- Manually connect Battery
- Manually disconnect Battery

**Engine On State**

- **1, 4, 7 Steady State**
- **Forward State**
- **Slow Down State**
- **Backward State**

**Tilt Servo**
- Forward
- Flat
- Backward

After certain time passed,
- Y - Tilt servo Backward
- N - no change

After passed certain time,
- Y - Tilt servo Forward
- N - no change
GPS based State Machine

**Engine Off State**
- Start Signal from Web App
- Stop Signal from Web App or when pod come back to original position

**Error State**
- Timing Profile
- If unexpected condition found (Webapp, lidar, IMU, etc...)

**Engine On State**
- **1, 4, 7 Steady State**
  - **Tilt Servo Forward**
  - **Tilt Servo Flat**
  - **Tilt Servo Backward**

**Forward State**
- If pod moved 75 feet
  - Y - Tilt Servo Backward
  - N - No Change

**Slow Down state**
- 3, 6

**Backward State**
- 5
- If pod moved 75 feet
  - Y - Tilt Servo Forward
  - N - No Change

**False Alarm**
First Prototype
Final Prototype
Thank You!

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