

D&E  
EVENT



Hardware



Software



Test & Measurement



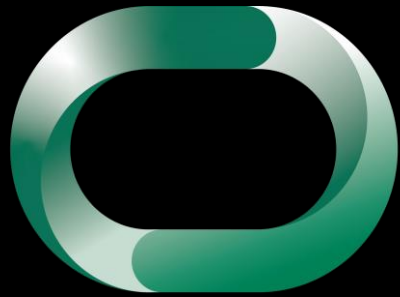
Engineering



Research & Development

Het ontwerpen van  
innovatieve elektronica

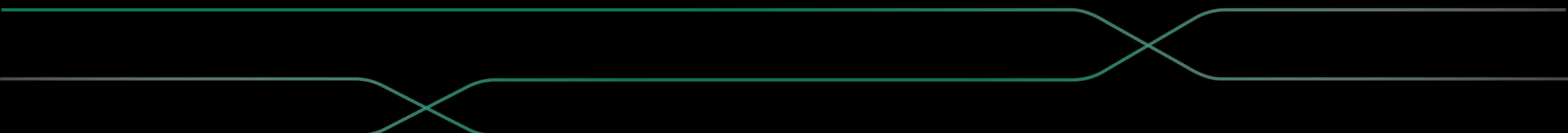
Woensdag 20 maart 2024  
1931 Congrescentrum 's-Hertogenbosch



# DENE EVENT '24

A DELFT HYPERLOOP YEAR: TOO MANY PCB'S, TOO

LITTLE TIME





Cem Celikbas  
*Team Captain*



Guus Backeland  
*Lead Sense & Control*







An aerial photograph of a busy airport tarmac at dusk or dawn. Numerous commercial airplanes are parked at gates, with their tails visible. The tarmac is a mix of grey asphalt and concrete, with various ground service equipment and vehicles scattered around. The lighting is soft, creating long shadows and highlighting the metallic surfaces of the aircraft.

**150%** increase by **2050**



An aerial photograph of a busy airport tarmac at dusk or dawn. Numerous commercial airplanes are parked at gates, with their tails pointing towards the center of the frame. The ground is dark, and the sky is a mix of blue and orange. The text "Why don't we travel less?" is overlaid in white, with "less?" in a larger, bold font.

Why don't we travel  
**less?**





bar & brasserie  
**WATER**

Echedamsedijk

GAZELLE

STURGEON





**We connect**













How can we **connect** the  
world **sustainably**?













BORDEAUX

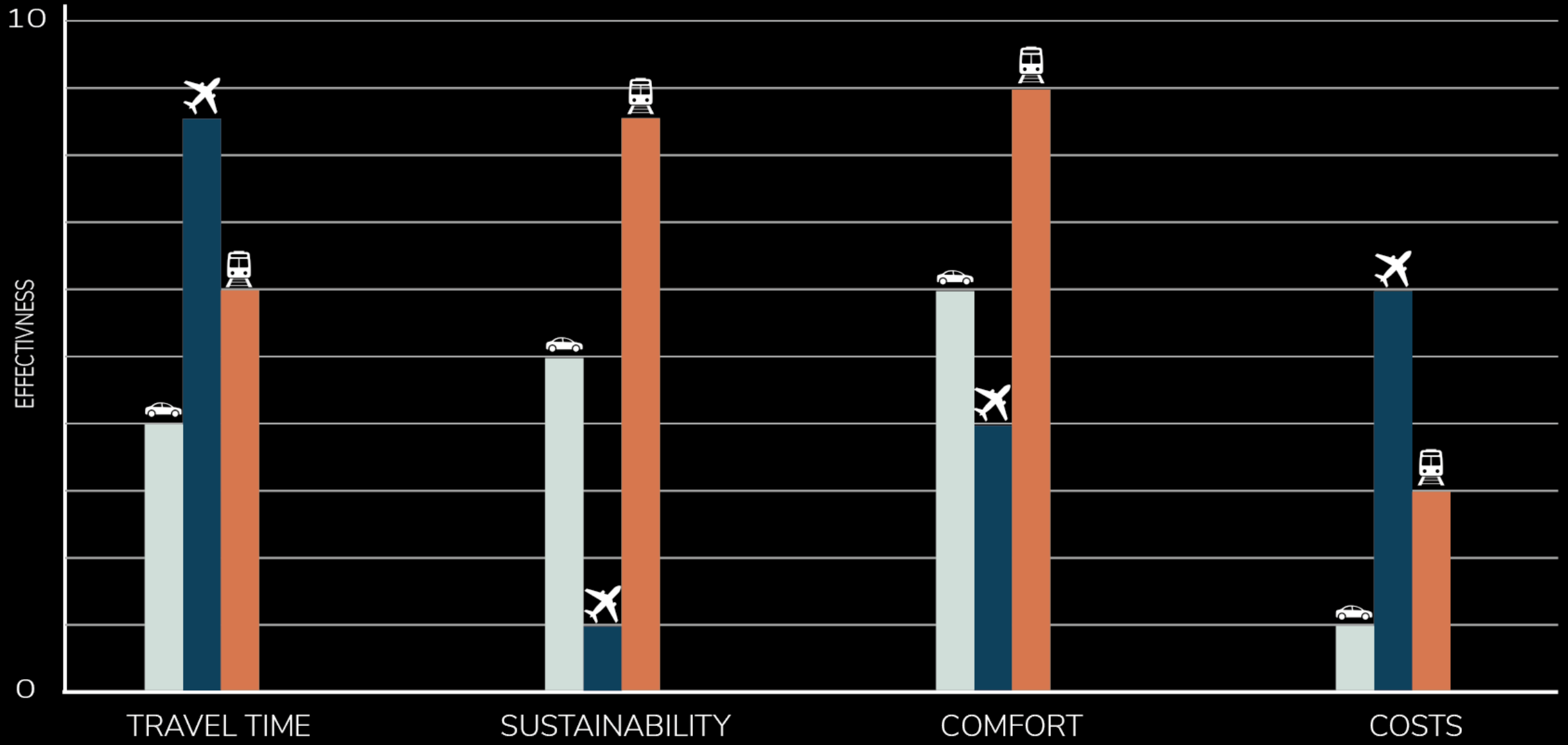
DELFT





Travel Time  
Sustainability  
Comfort  
Costs







Travel Time  
Sustainability  
Comfort  
Costs





Platforms  
1-2

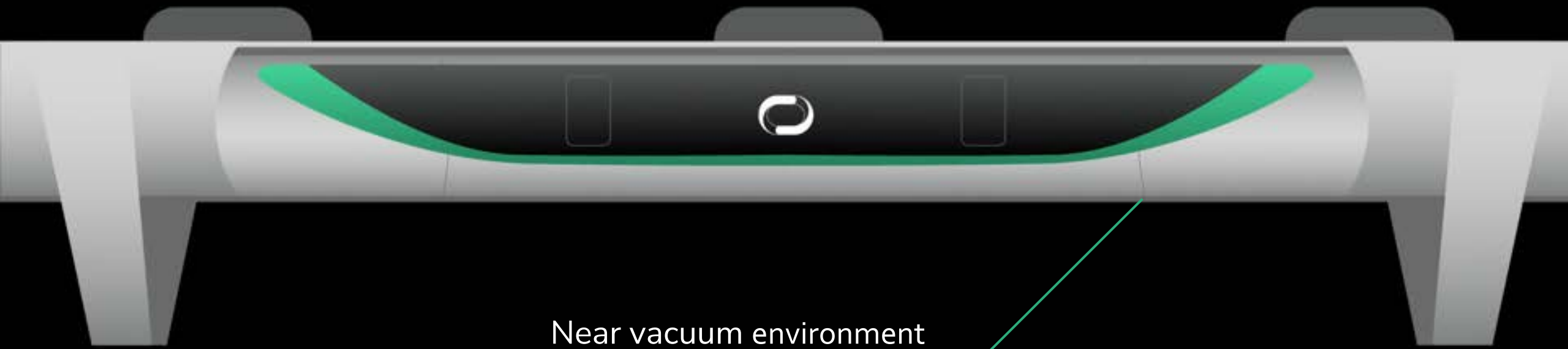
Information





AIR DRAG





Near vacuum environment

# ROLLING RESISTANCE

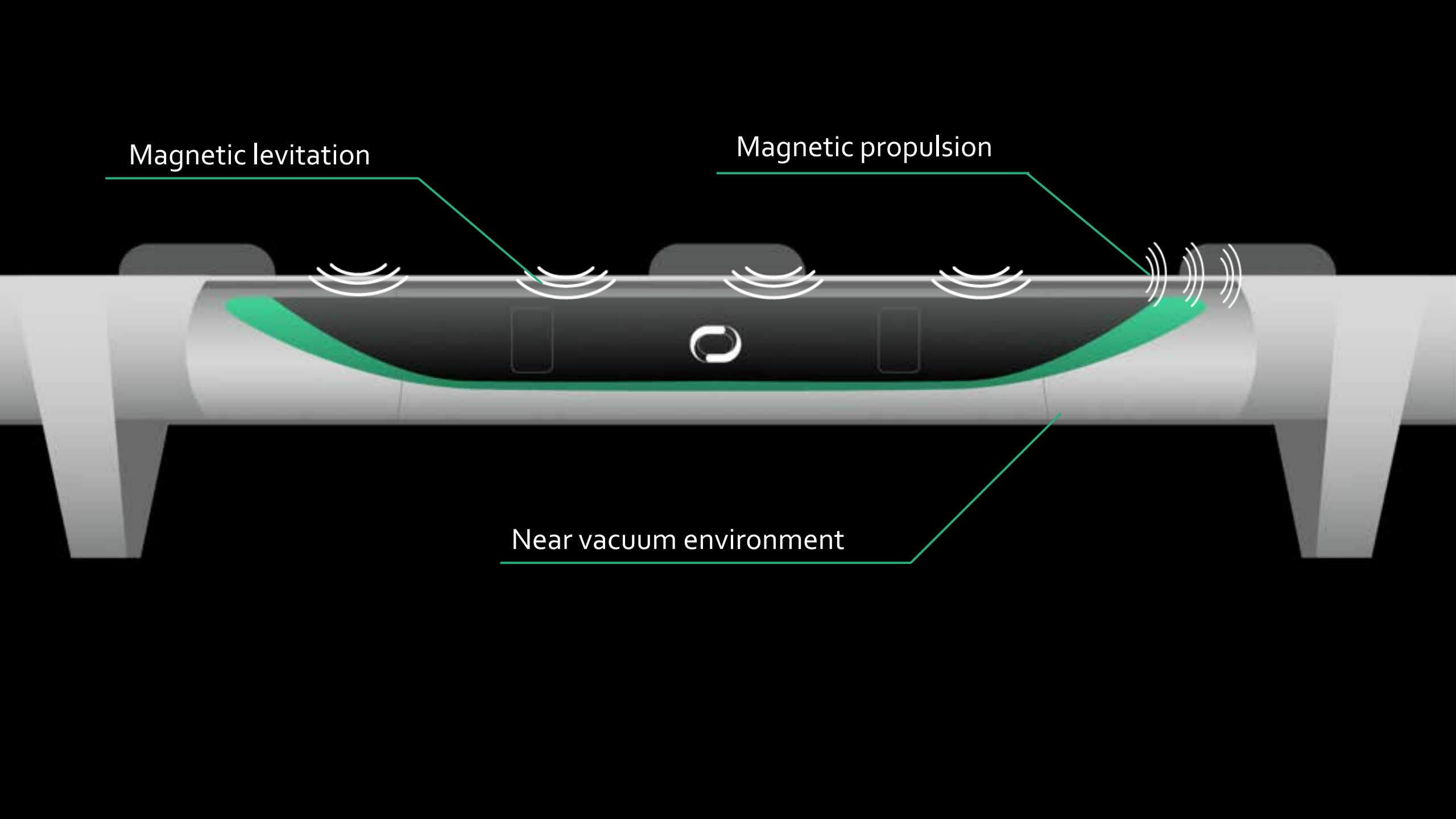




Magnetic levitation

Magnetic propulsion

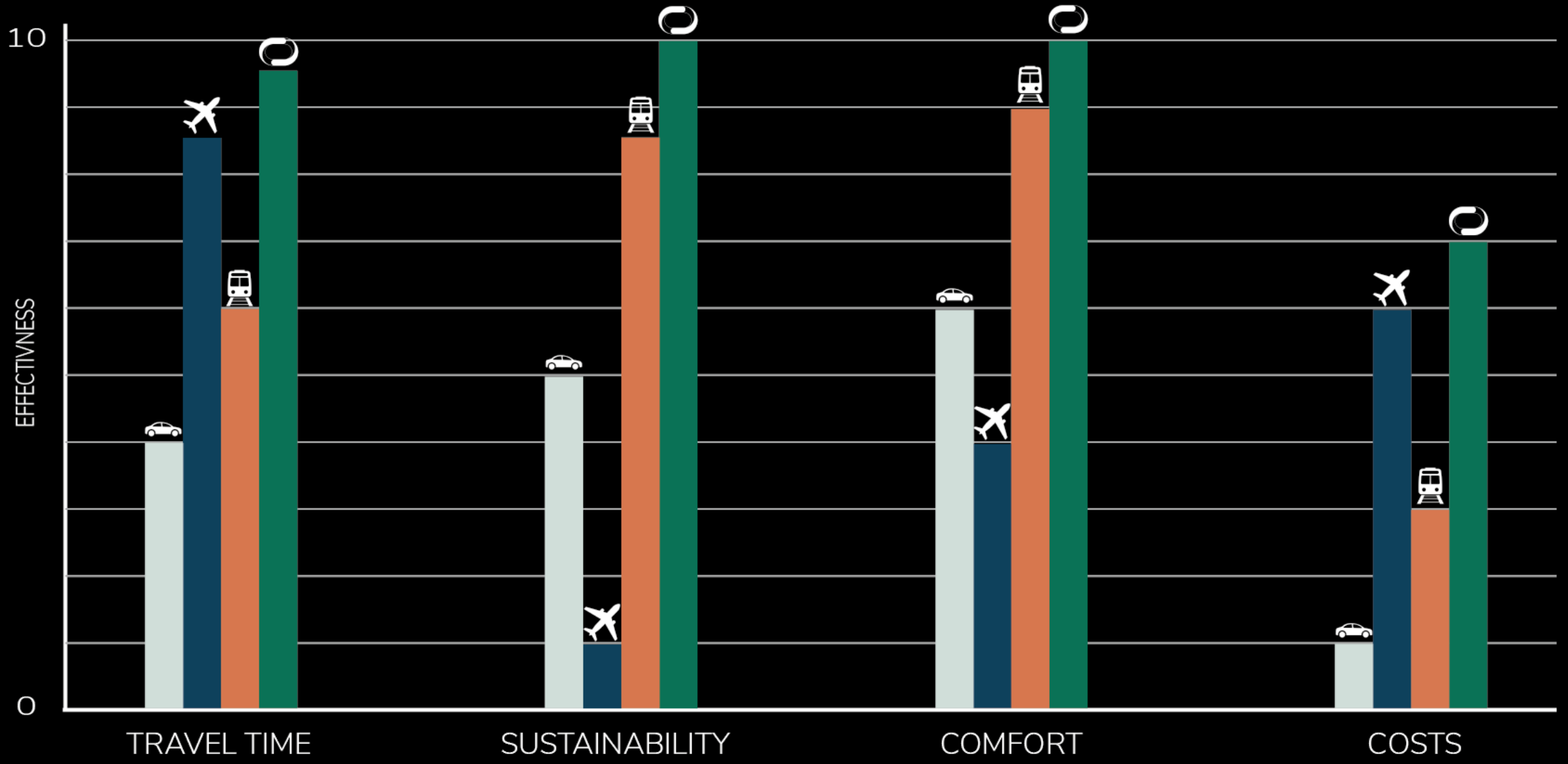
Near vacuum environment

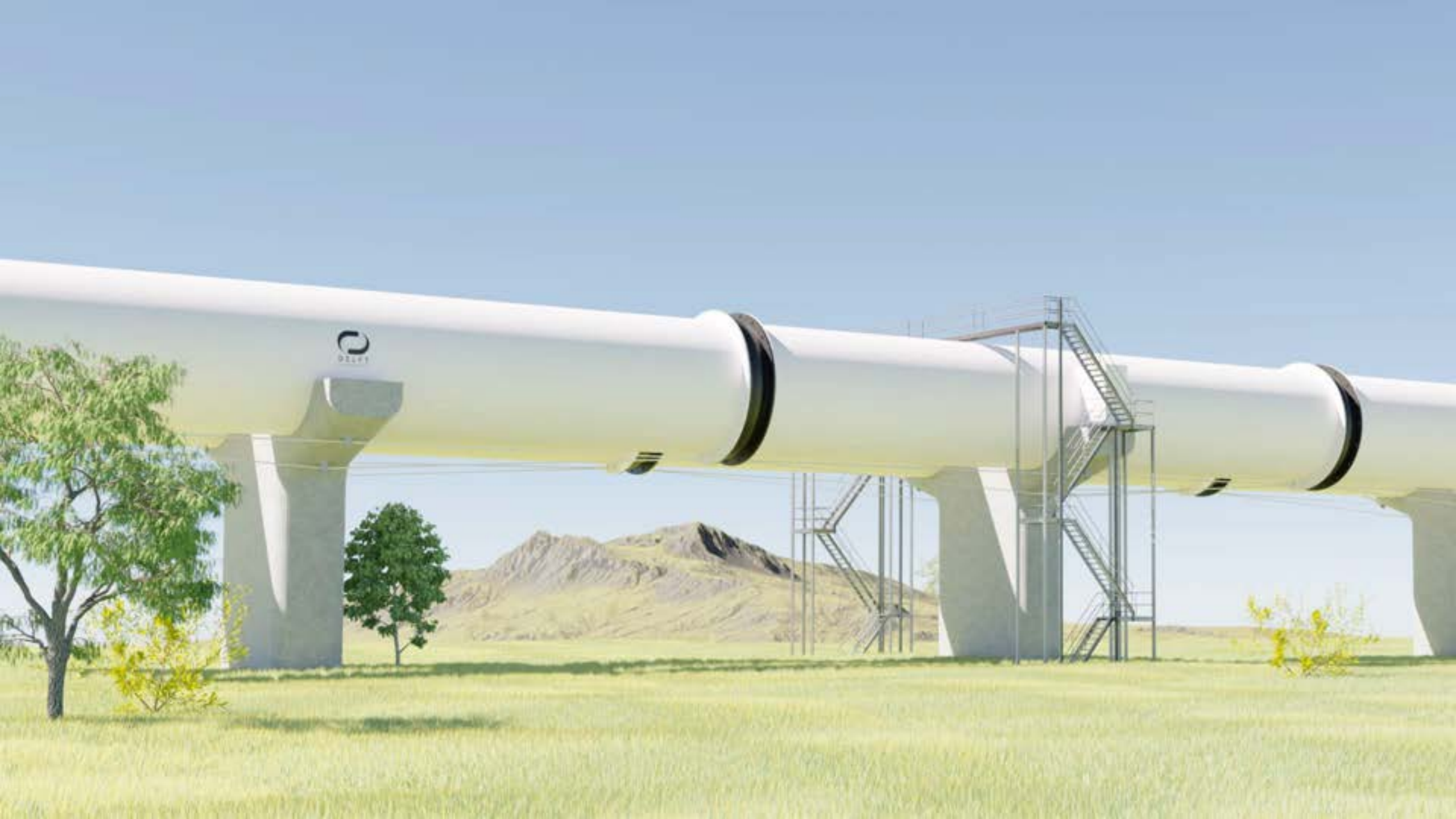




Travel Time  
Sustainability  
Comfort  
Costs

















2017



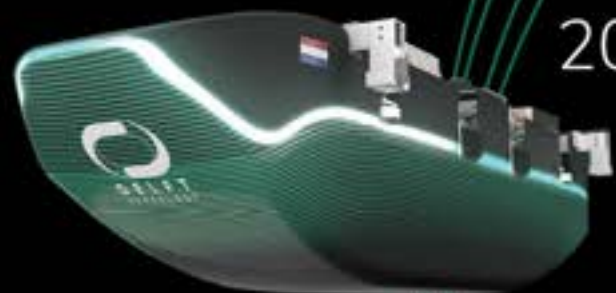
2023



2018



2022



2019



2021



2020









An aerial photograph of a European city, likely Zurich, featuring a river, a large clock tower, and a church with two spires. The scene is captured during the golden hour, with warm lighting and long shadows. The city is built on a hillside, and the river flows through the center. In the background, there are mountains and a large body of water.

EHW

EUROPEAN  
HYPERLOOP  
WEEK



Complete Pod Design  
Award



Full-Scale Awards

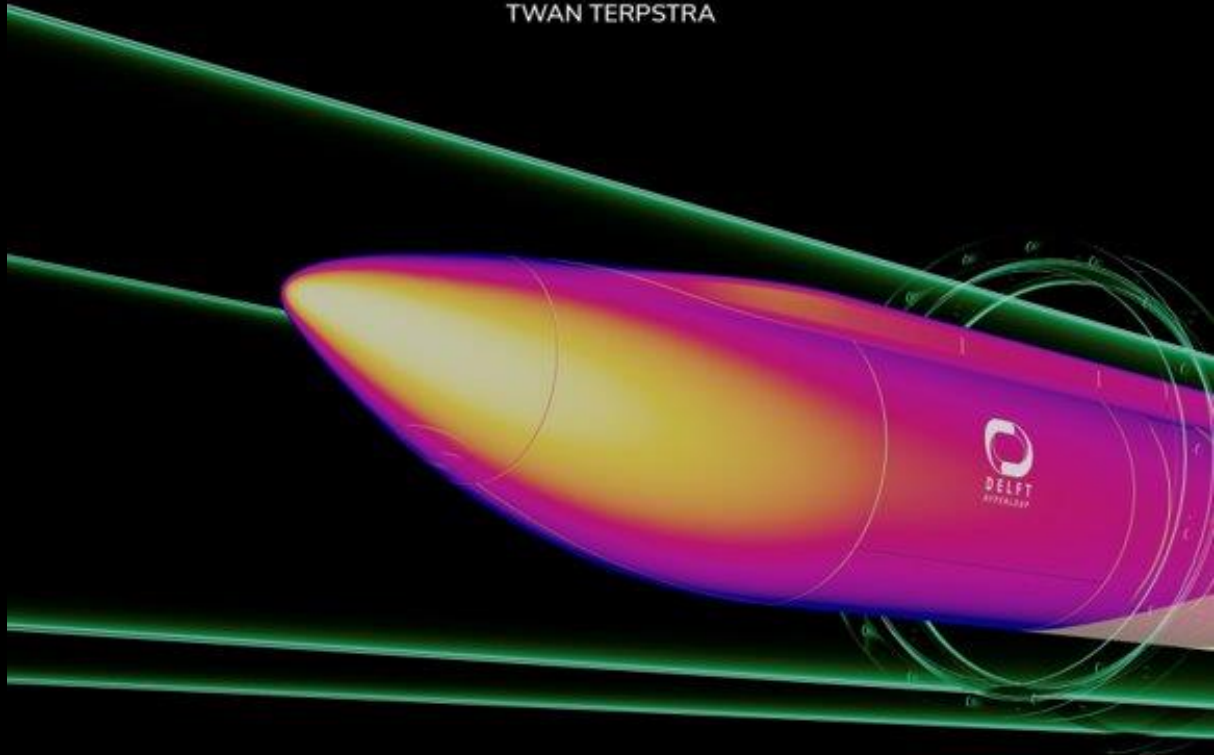


DELFT HYPERLOOP

# CONCEPTUAL FEASIBILITY STUDY OF HYPERLOOP VEHICLE THERMAL MANAGEMENT SYSTEMS

2023 EUROPEAN HYPERLOOP WEEK  
EDINBURGH

LIDWIN DE WIT  
TWAN TERPSTRA



DELFT HYPERLOOP

# THE COMMUNITY ACCEPTANCE OF THE HYPERLOOP INFRASTRUCTURE

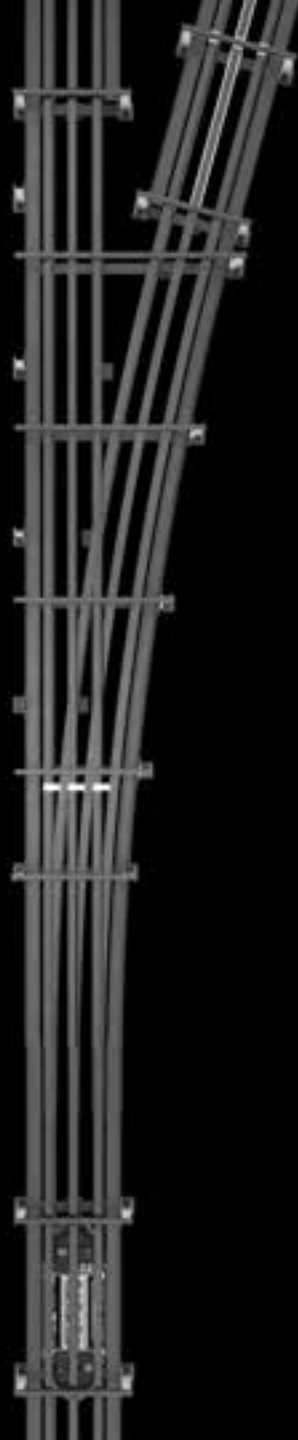
2023 EUROPEAN HYPERLOOP WEEK  
EDINBURGH

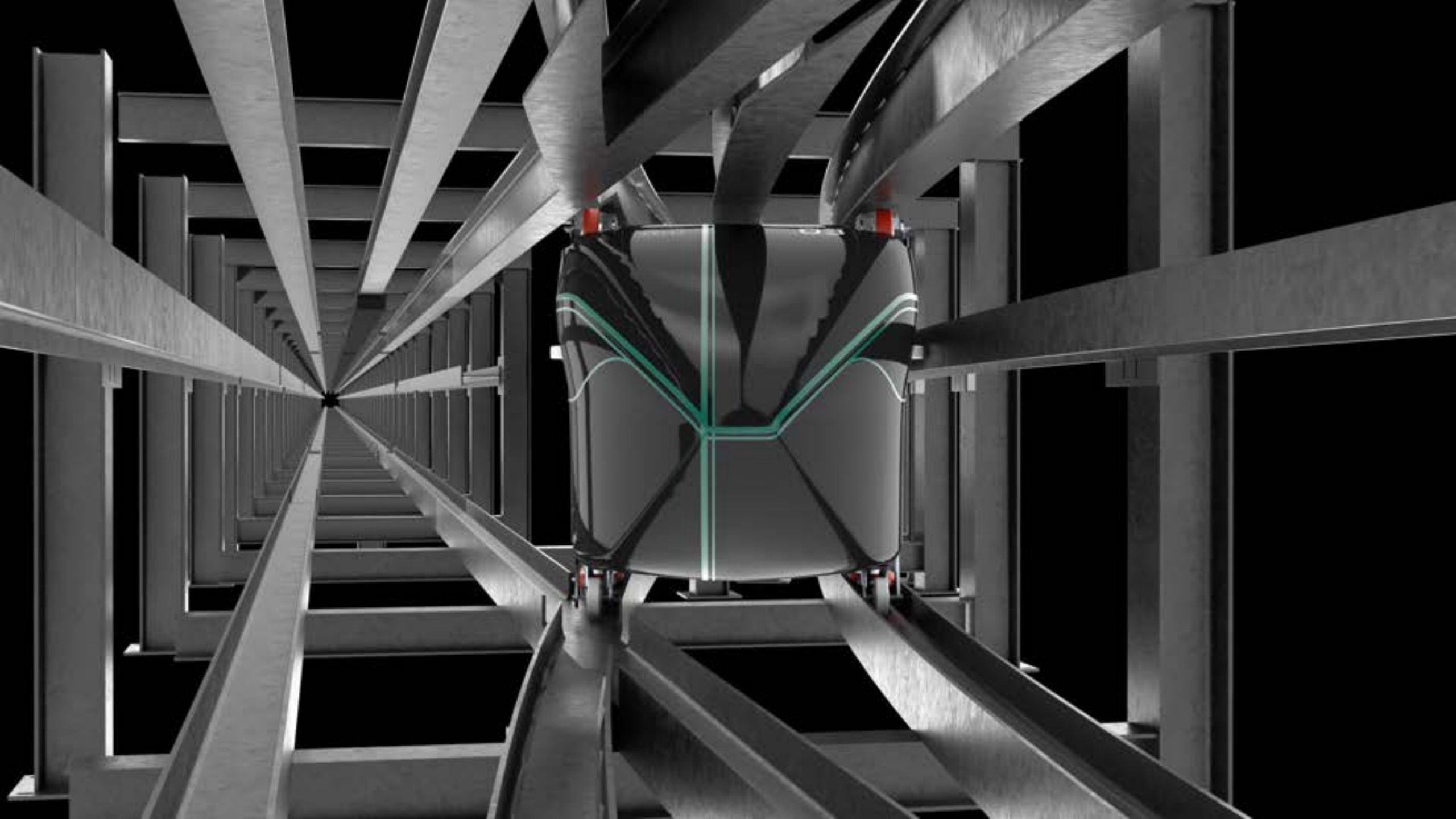
SARAH DUISTER  
LOTTE WESTRIK BROEKSMAS







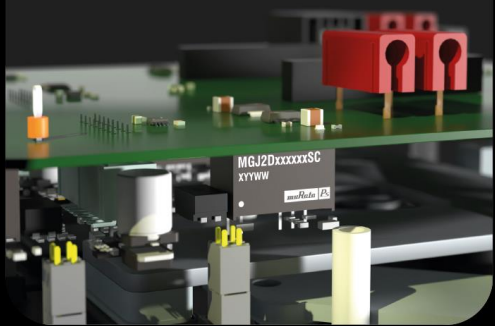




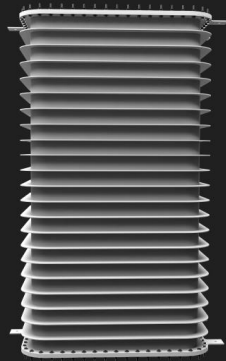


# Motor Drive

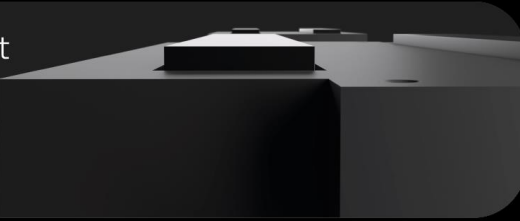
Custom made



# Space grade structure



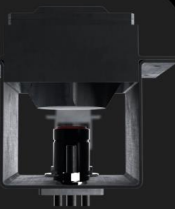
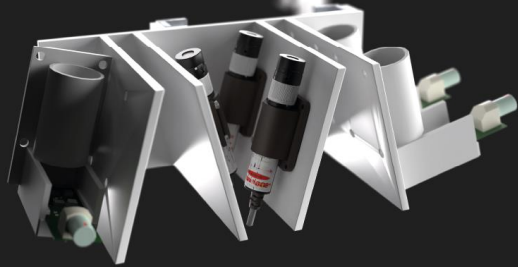
# Zero-current levitation



# HELIOS III

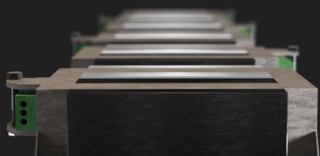


# 1 mm precision

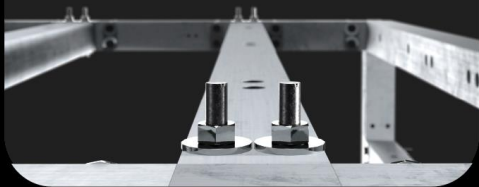


8 Braking calipers

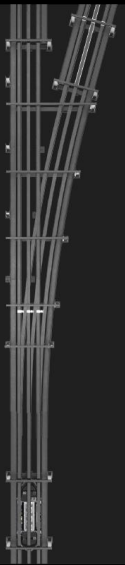
# 93% efficiency



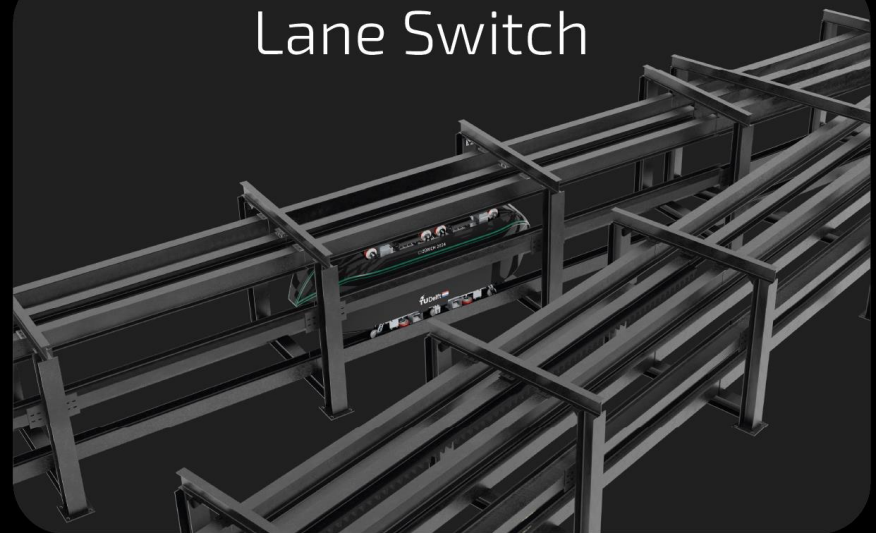
# Modular body



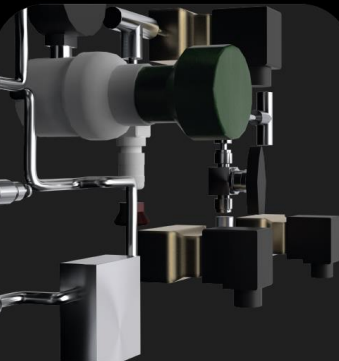
40m track



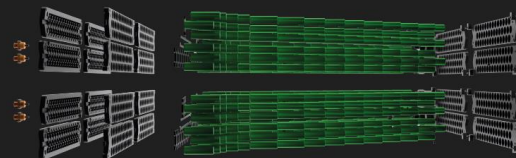
# Lane Switch



# Protective guidance



Pneumatic system



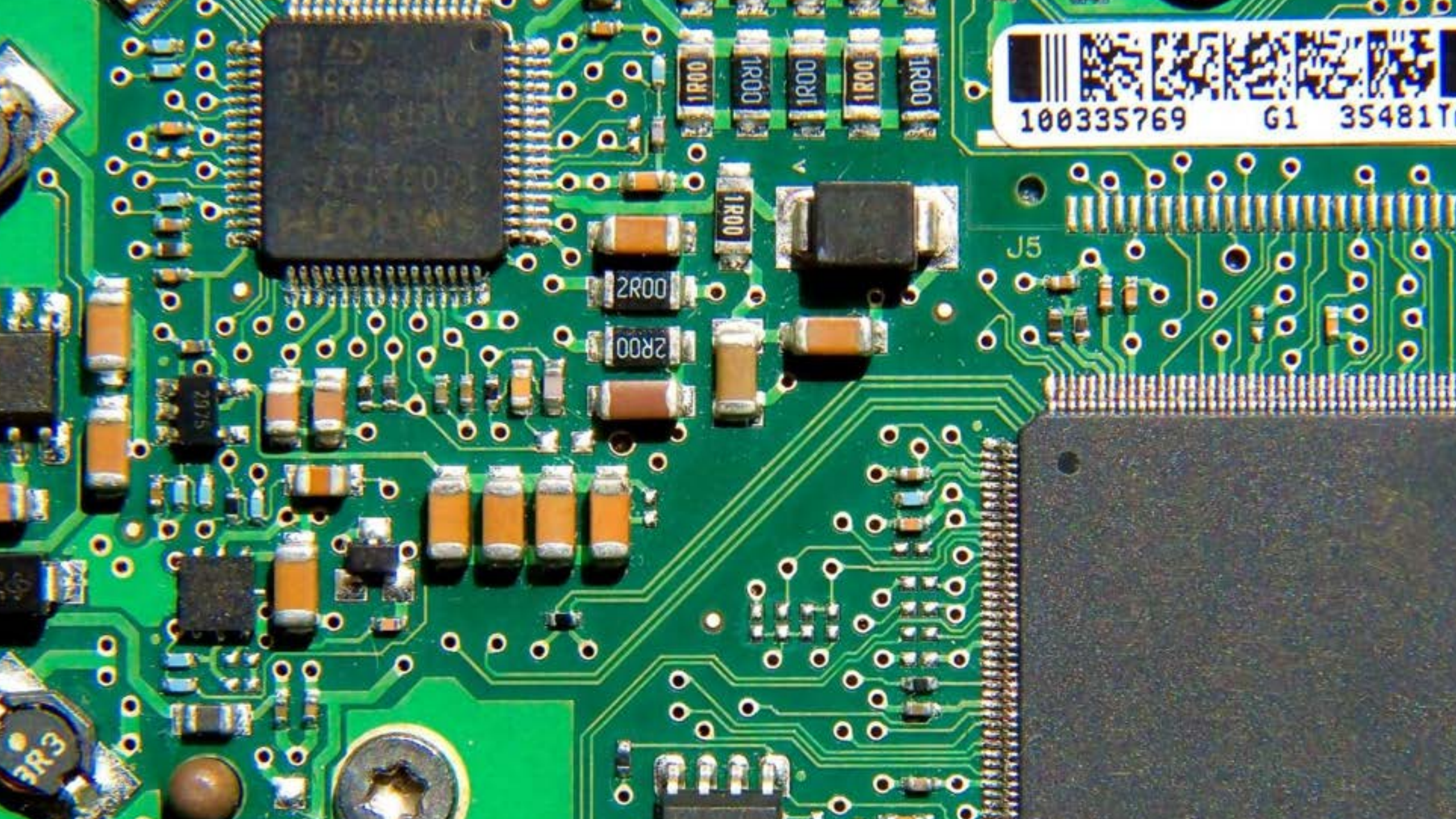
Extremely safe batteries

# What to control in a Hyperloop?

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100335769 G1 35481T

2975

2R00

2R00

1R00

1R00

1R00

1R00

1R00

1R00

J5

3R3



# The Team

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**Guus Backelandt**  
Lead



**Gonzalo Crespo Roche**  
Embedded Systems



**Tirth Megani**  
Embedded Systems



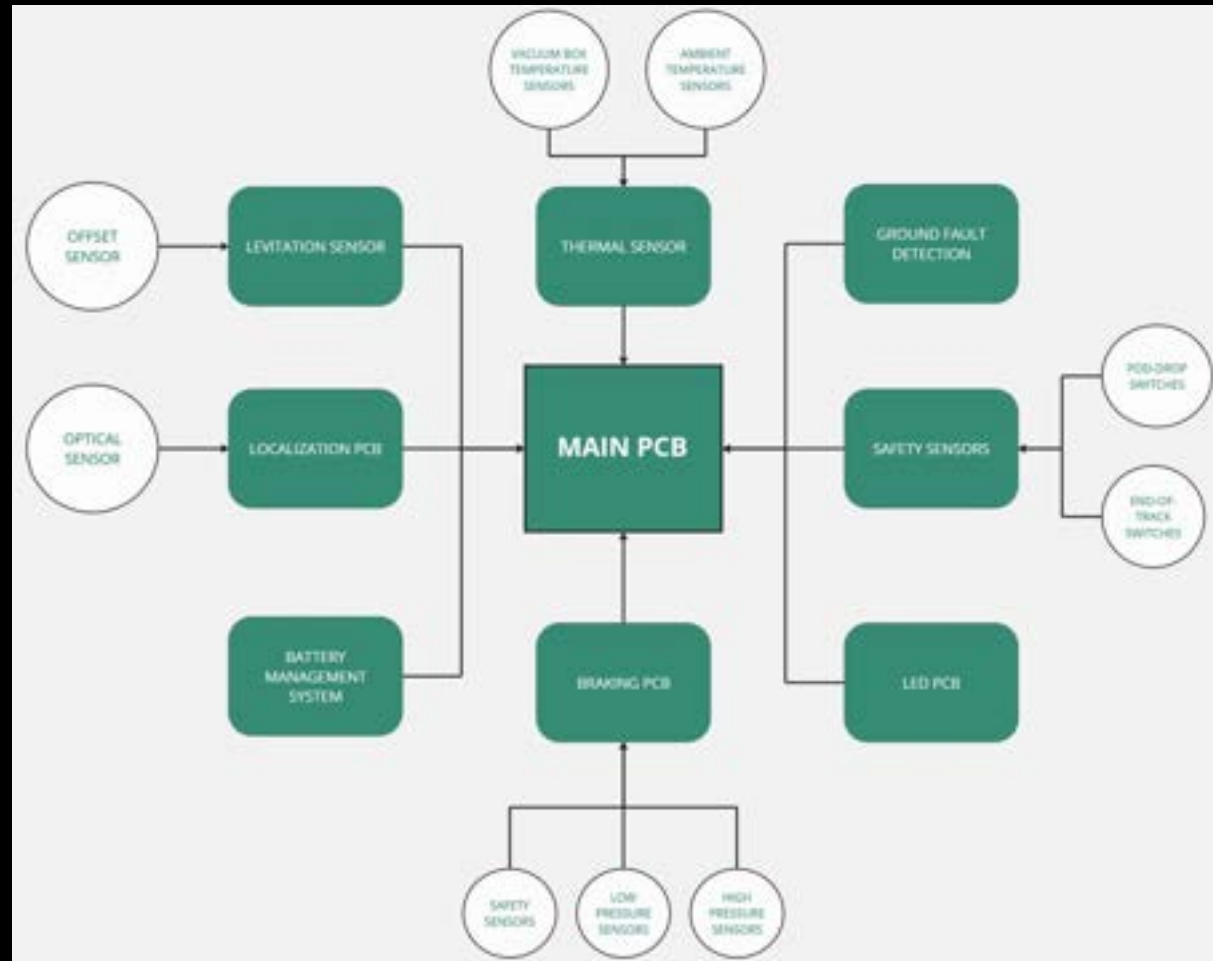
**Francisco Amaro**  
Software



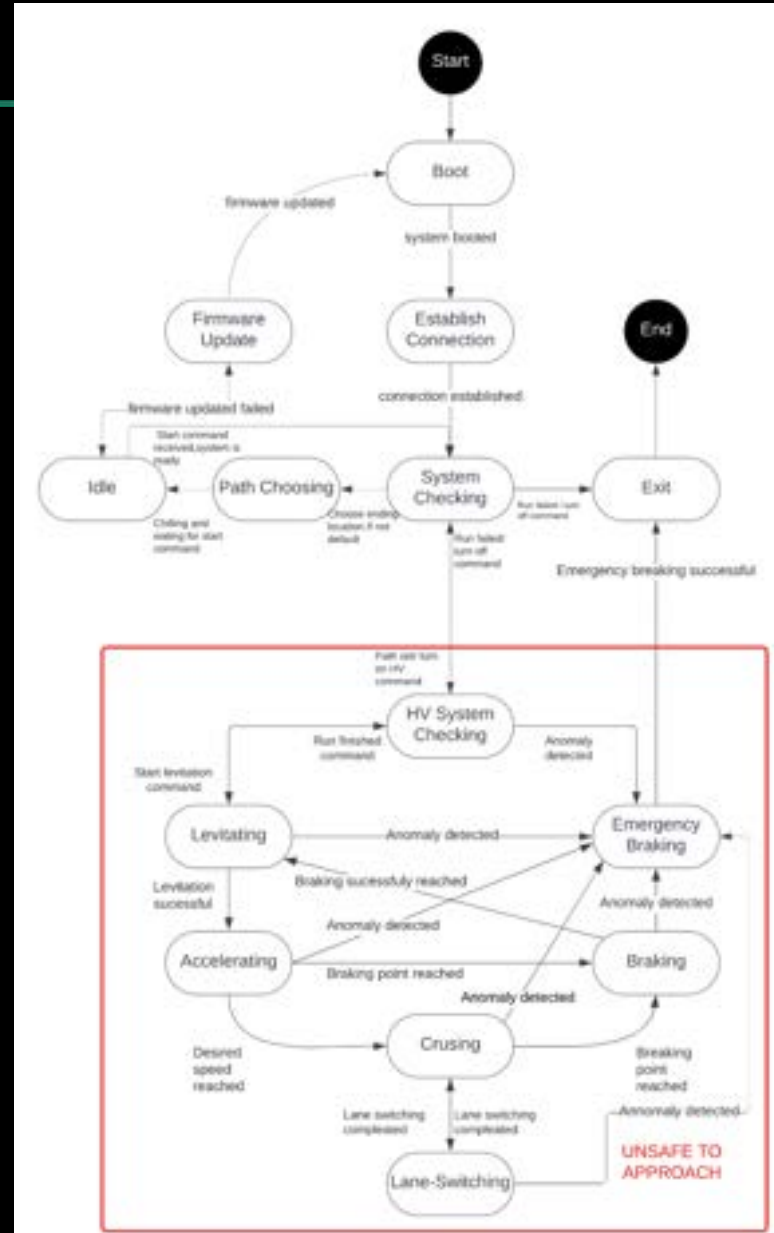
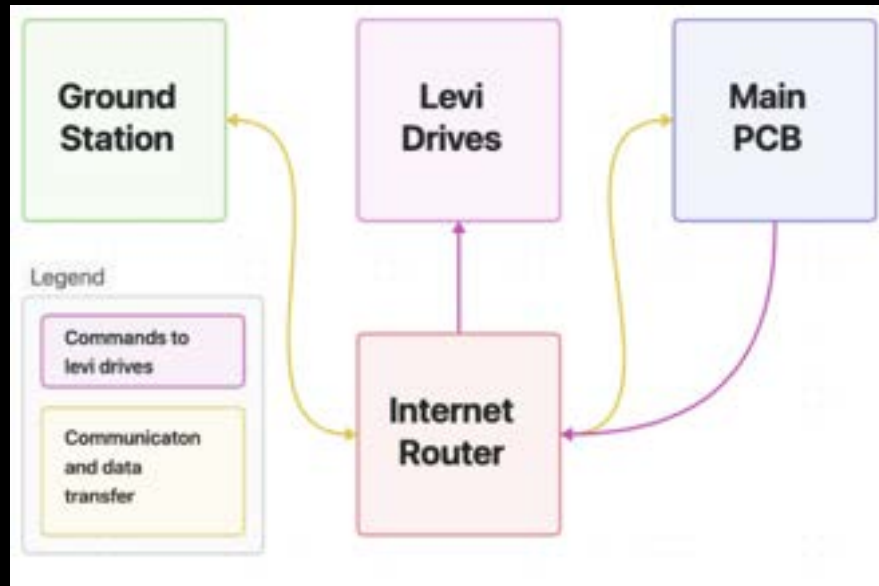
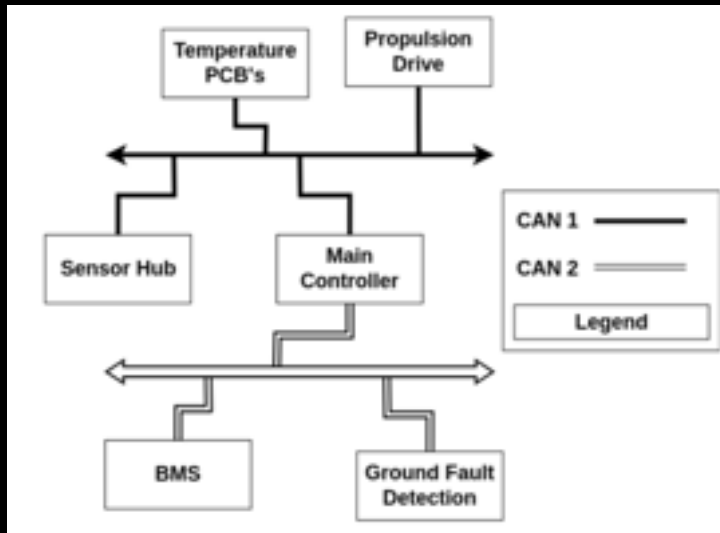
**Andreas Tsatsanis**  
Software



# Hardware Topology



# Software Topology







# Software without hardware





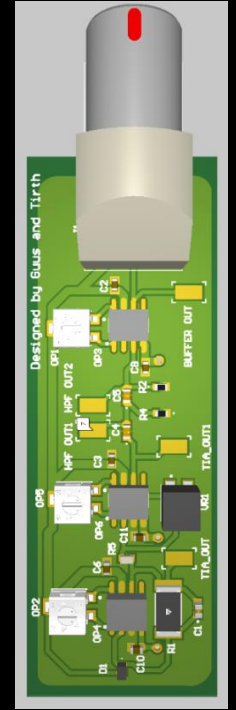
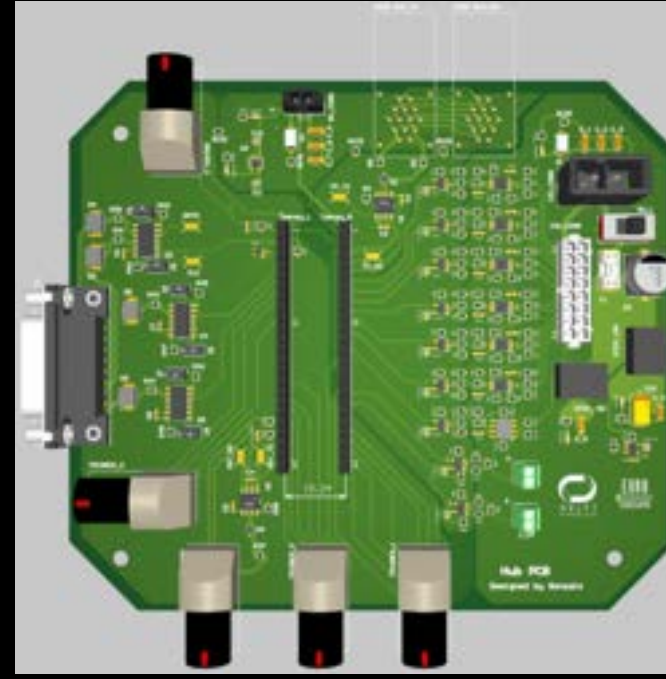
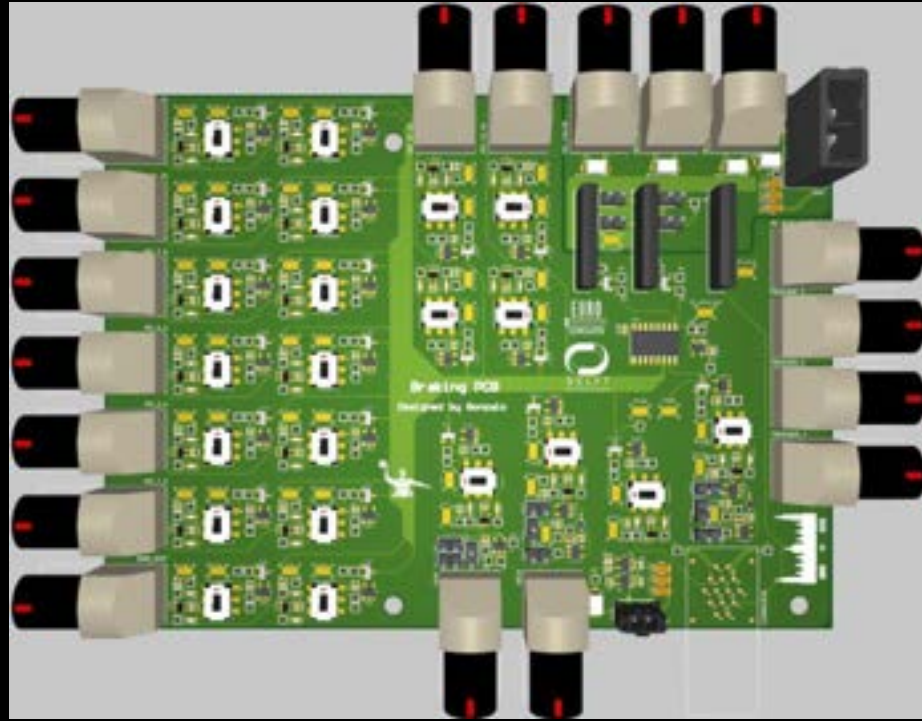
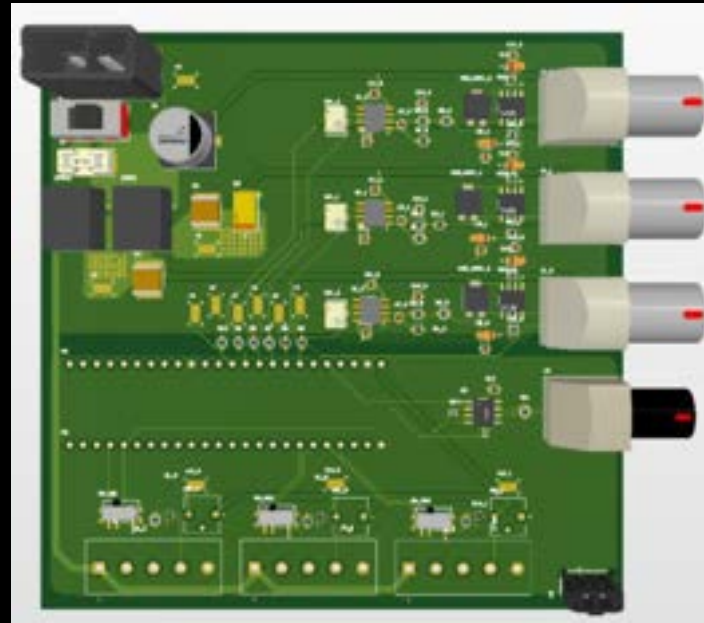
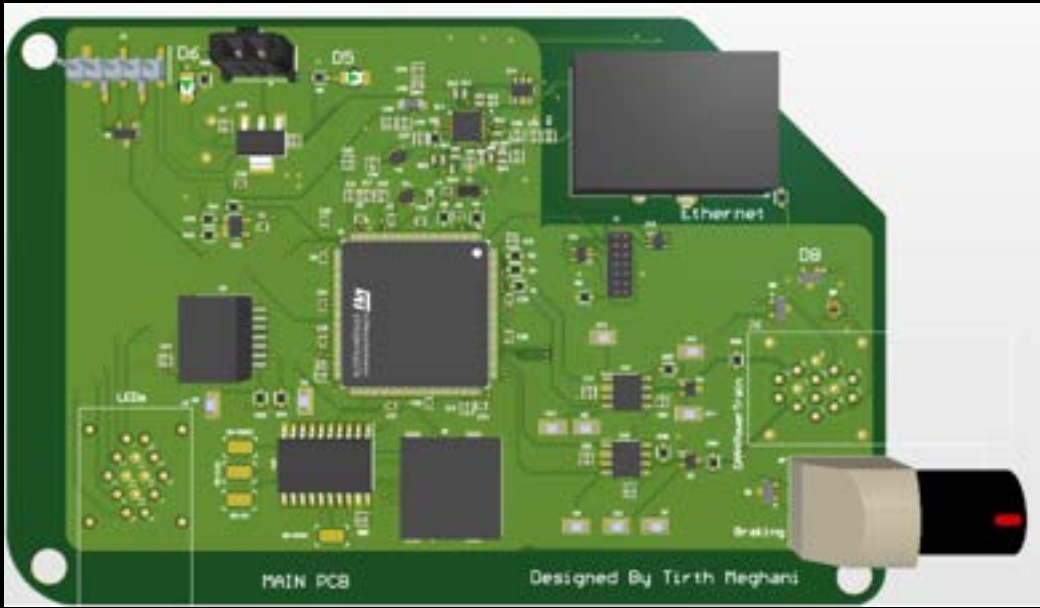
# Tight Deadlines



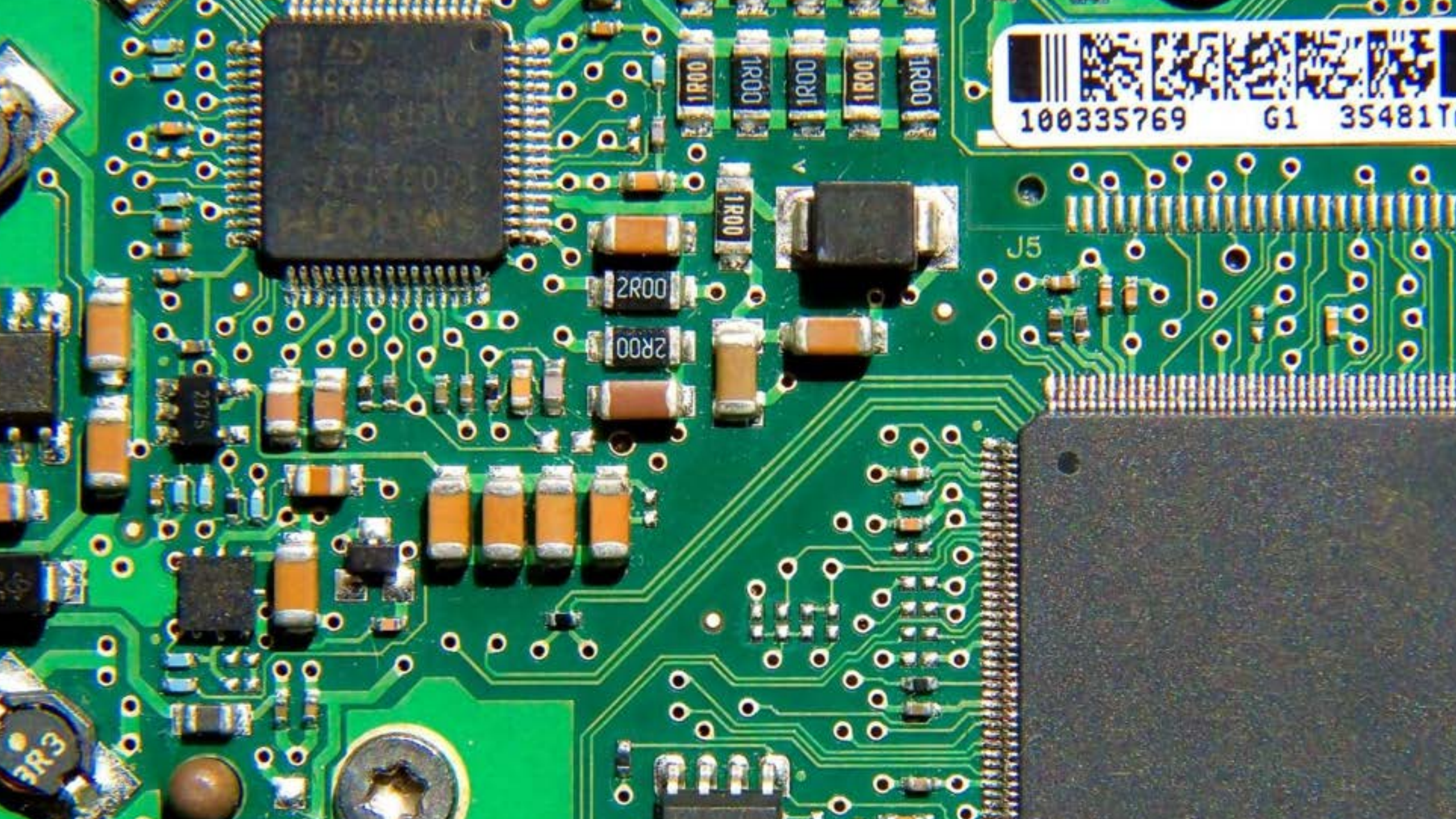


**Many interfaces**









100335769 G1 35481T

2975

2R00

2R00

1R00

1R00

1R00

1R00

1R00

1R00

J5

3R3



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1931 Congressentrum 's-Hertogenbosch



DELFT  
HYPERLOOP

