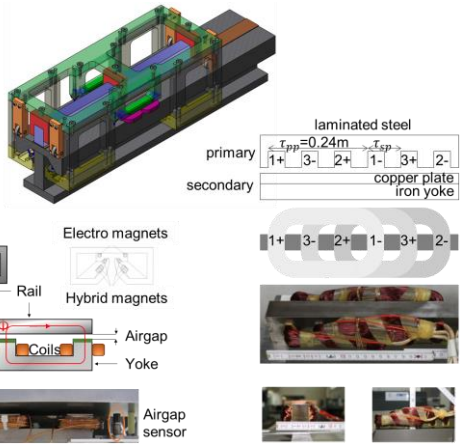
Test Bench
for Small Scale Magnetically Levitated Train

Technical data

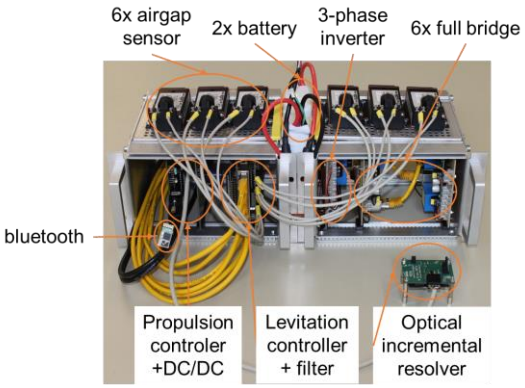
- Linear Induction (LIM) Motor with short-primary and long-secondary
- Electromagnetic Levitation System with PM-hybrid actuators

Propulsion thrust	25 N (breakdown)
Rated current LIM	10 A (max.)
Levitational force	4x80 N (remanent)
Rated current lev. act.	5 A (max.)
Length of track	2.8 m
Train length/width/height	500/200/200 mm
Train mass	20 kg
Train speed	2.4 m/s (max.)



Equipment

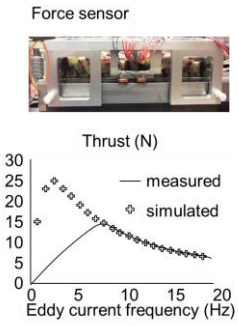
- Rapid Control Prototyping System: dSPACE DS1103 PPC Controller Board
- Converter: Copley Controls Corp: 1x Mod.No. 7225X1 & 6x Mod.No. 422CE
- Self-built electronics

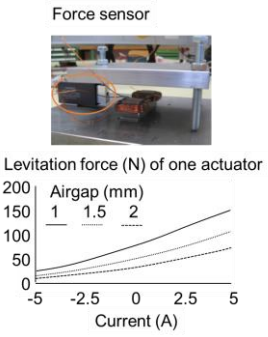


Measurement capabilities	
Airgaps	EPRO PR6423
Current	LEM-Wandler LA 25-NP
Acceleration	Freescale MMA8452Q
Force	HBM Z6FD1/10kg

Current application/ Opportunities

- Mechatronic system demonstrator, fully developed by students in individual projects:
- Analytical and numerical magnetic circuit design
- Construction of electromagnetic actuators
- Development of electric circuit boards: µC peripherals, full bridge, 3-phase-inverter
- Testing and commissioning using measurement equipment
- Implementation of control strategies on a Rapid Control Prototyping board and µC
- Interface programming





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