UNIVERSITY TRANSPORTATION CENTER

RESEARCH BRIEF

Magnetic Acceleration (MagAcc) Propulsion System

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Background

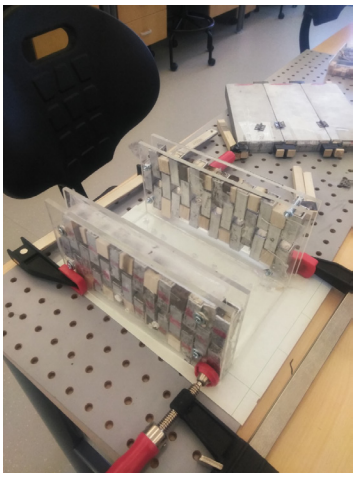
Traditional Maglev systems use DC and AC Linear Motors to generate thrust for their trains. Both require a polarity switching mechanism that is complex to build. Direct Current (DC) motors: For instance, a brushed DC motor uses commutator and brushes for current switching in the windings.

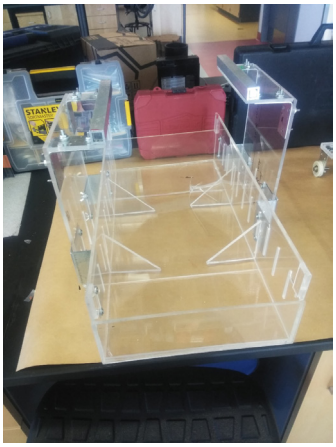
This condition gives rise to excessive wear and tear at the brush contacts, which makes it unsuitable for high-speed applications. Alternating Current (AC) motors: An AC motor requires a costly, external, high-precision switching computer algorithm. Externally switching the polarities back and forth is the current way propulsion systems operate on all existing Maglev systems. Timing must be precise, and the gate must be positioned accurately for effective propulsion.

Research Project

Perform the polarity orientation switching actions automatically without the use of external circuitry and without the actions of any motor with permanent magnets. Because the polarity orientation switching component isbeing performed internally, it is simpler, more reliable, more robust, lower maintenance, and more cost-efficient than any other Maglev system in existence.

Investigate effectiveness of the actions of the linear polarity switching series of the force of the magnetic fields and polarity orientation by: Building a prototype to demonstrate the effectiveness of acceleration solely utilizing permanent magnets arranged in the London Assemblage (LA) configuration and the Linear Polarity Switching (LPS) series. Comparison of MagAcc polarity switching components and polarity switching mechanism currently used in traditional Maglev systems use DC and AC Linear Motors to generate thrust for their trains.





ABOUT THE AUTHORS

The research team consisted of Billy Connor of the University of Alaska Fairbanks.

ABOUT THE FUNDERS

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EXPECTED DATE OF COMPLETION

March 2023

FOR MORE INFORMATION

https://depts.washington.edu/pactrans/research/projects/magacc-proof-of-concept-for-experimental-propulsion-system-tr5-tr6/