Name(s)	Project Number
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Project Title

Which Method of Maglev Train Works Best?

Abstract

Objectives/Goals
The objective of my project was to build a magnetic levitated train, a working EMS system, and a rail gun system.

Methods/Materials
I used 44 1in neodymium magnets, 46 ½ inch neodymium, 4 1in circular neodymium magnets, twelve feet of six inch wide wood, 12 feet of 1 inch high wood lengths, 4 1in wide 8 feet lengths of aluminum, 4 1in wide 3 feet lengths of aluminum, 2 half square 8 feet lengths of aluminum, 4 4in wide 2 feet long lengths of wood, 4 3in wide 2 feet lengths of wood, 6 - 9 volt batteries, 4 Resistors, 3 Transistors, 1 Hall Effect Sensor, 2 Diodes, 1 Solenoid, 1 piece of breadboard
Built the guide way and train, I put together the EMS drive circuit, then put that in the train, I took aluminum strips laid them out and electrified them and put my rail gun axle system on that, I tested all these out five times.

Results
My results were that the rail gun did the best; it accelerated the fastest, was stable and kept a quick speed. The 2 feet per second push was second best, the 1 foot per second push did third best, and the EMS system did the worst.

Conclusions/Discussion
My conclusions from my experiment are that the rail gun system worked better. The EMS system didn#t have the power to over come the friction on the sides of the guideway. But if I was able to scale up the rail gun it would need a lot of new rails and a lot of power, while the EMS system would take lower power. The pushes in large scale are out of the question, you would have to build a large pushing device, and what happens if the push isn#t strong enough? The train would stop in the middle of the track. I don#t think the sparks flying off the rails from the rail gun would be too safe either. So in a nut shell the rail gun and push do well in small scale, but not in large scale. My hypothesis is void, my data does not support it.

Summary Statement
My project is to build a working maglev train.

Help Received
My father helped cut wood and wire electronics