

Introduction

Maglev trains are trains powered by magnetic levitation, using magnets to push trains away from point A and attract them to point B. They produce almost no pollution and are very efficient. Highly developed countries, e.g. China and Japan are already taking advantage of this technology. The experiment is to spread awareness on maglev trains' effectiveness as a new means of transport and encourage its development.



Results

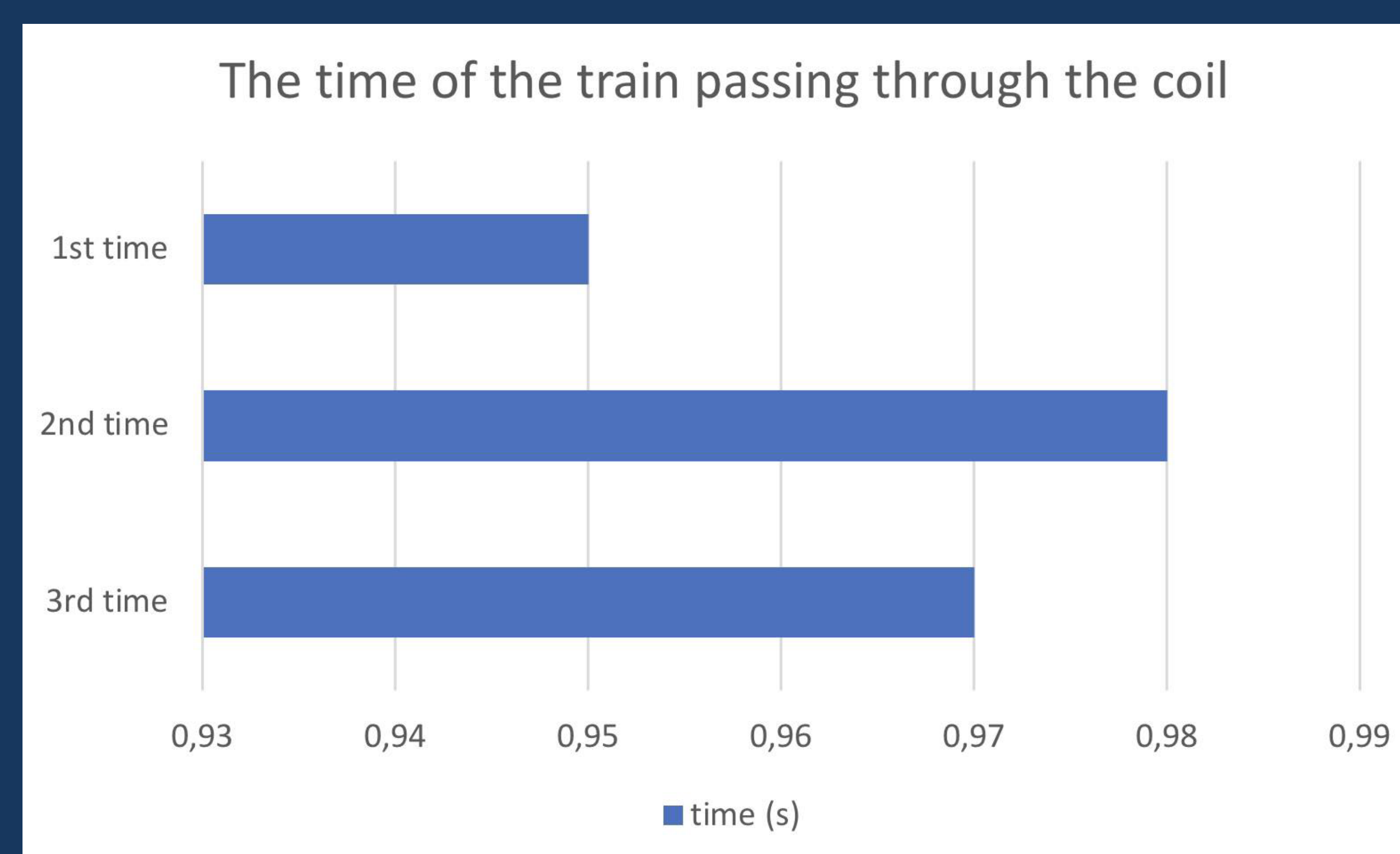
The battery, emulating the train, moved towards the other side of the coil to the second magnet, with an average speed of 5.15 m/s. The battery with magnets attached once in the coil slid across the coil (0.5 m length) towards the other end after being gently pushed towards it.

1st time- 0.95s

2nd time- 0.98s

3rd time- 0.97s

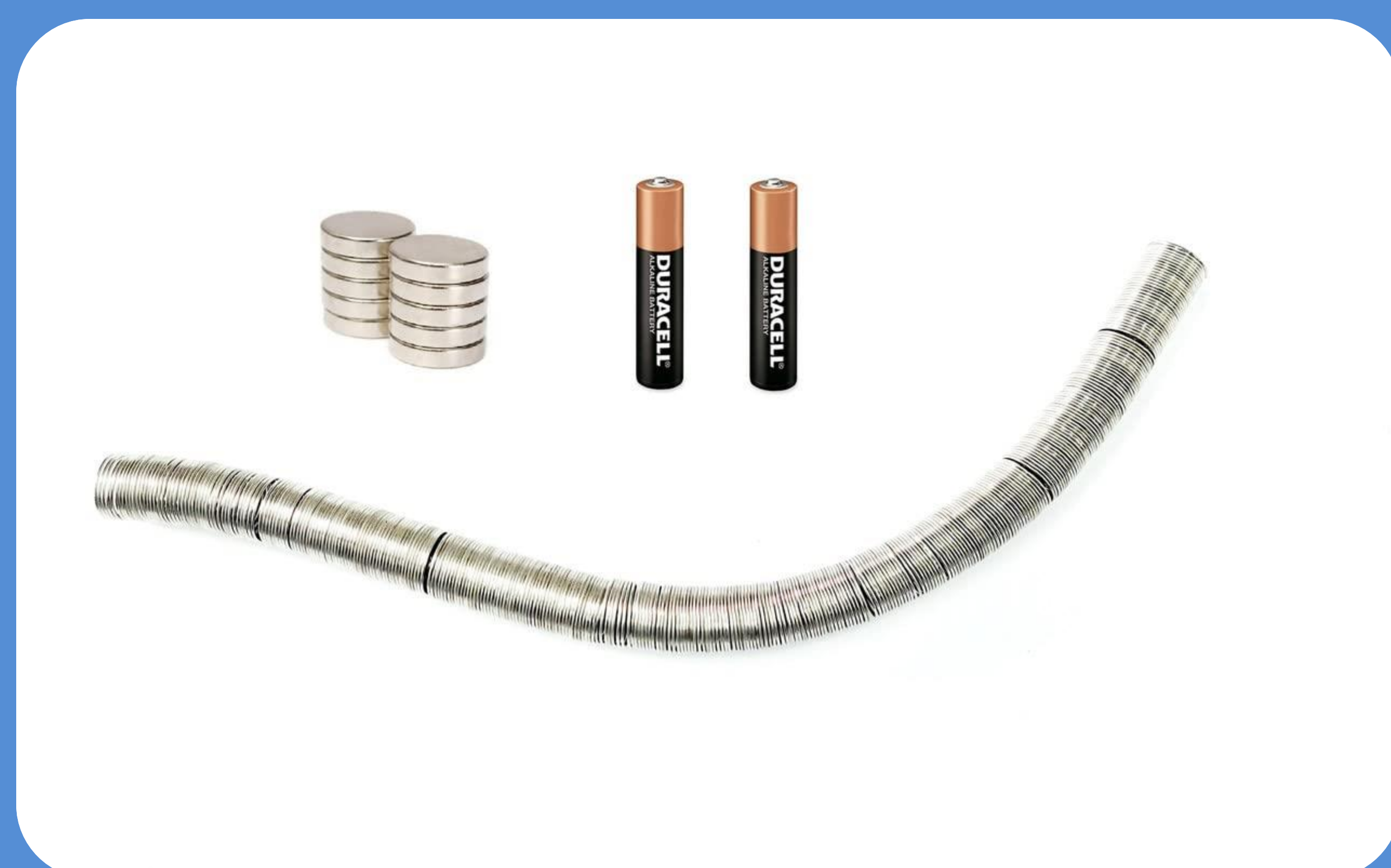
The average speed of the battery-train was 0.52 m/s.



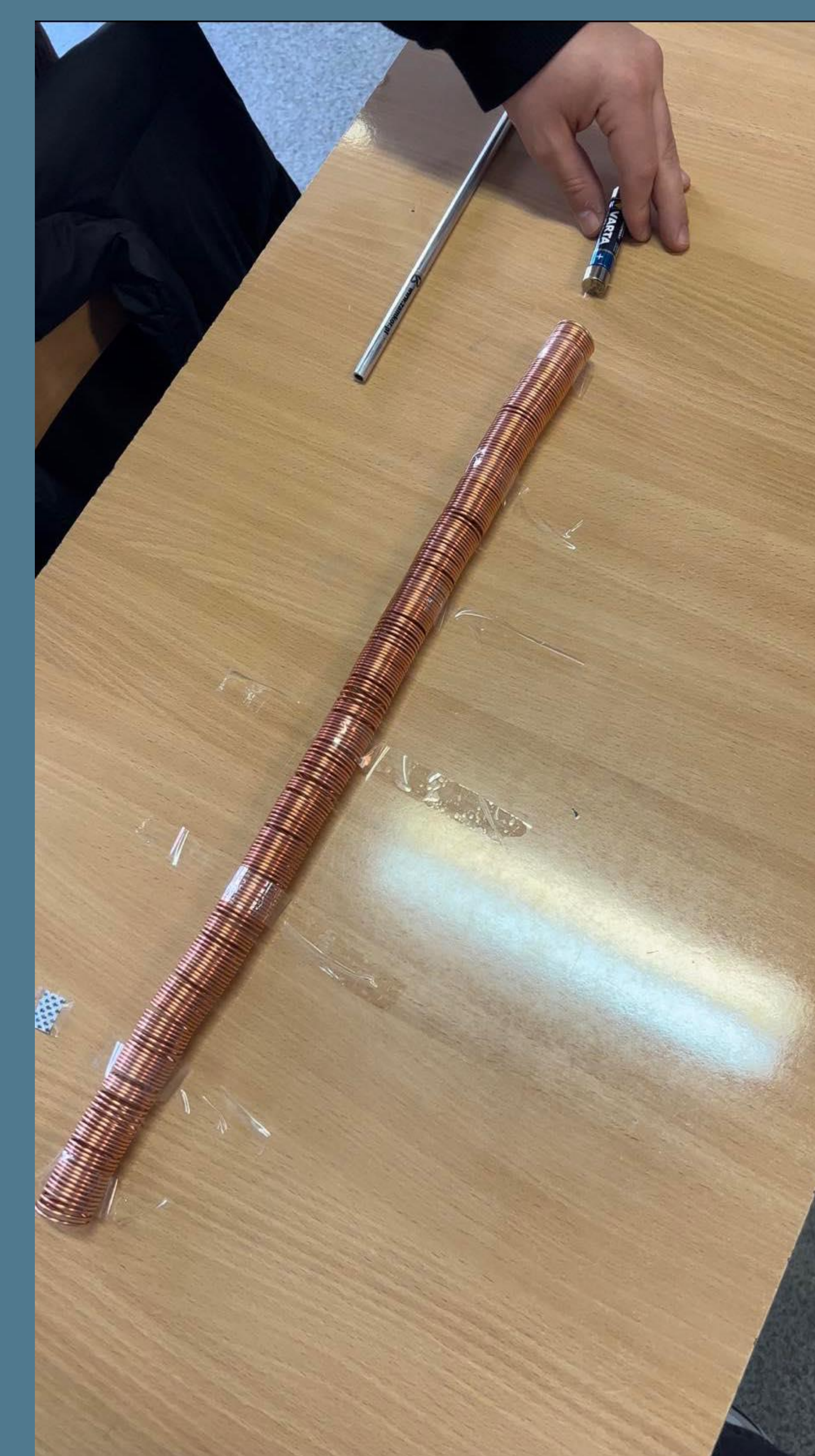
Method

The materials we used were: a 0.5 meter long copper wire, 2 neodymium magnets, an AA alkaline battery and a wooden roller.

We took a copper wire and a wooden roller. We passed the end of the wire to the end of the roller and wound the first coil. We wound the next coils right next to each other, pressing the wire with our finger. The coils must be close enough to each other and must be level enough for a train to pass through. We checked how the poles of the magnets are arranged. We arranged the magnets in such a way that they repel each other. With this arrangement, we moved the magnets to the ends of the battery. Then we placed the coil on a flat surface and straightened it. We gently inserted a train (battery with magnets) into one end of the coil. Trains powered by magnetic levitation.



Conclusion



The magnets we attached to the battery produce oppositely directed magnetic fields. When we put our train in the coil, we allowed current to flow through the wire, which in turn led to the creation of a magnetic field in the coil. This field began to interact with the fields of the magnets - one magnet was pulled in by the magnetic field, and the other was attracted by it. In this way, the train began to move.