Application No. 788: Magnetic levitation train with power unit

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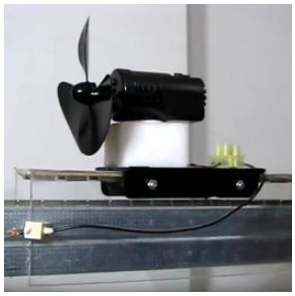
Model magnetic train with fan as power unit

YouTube Video: www.youtube.com/watch?v=0ZulG487Z08



This application is not exactly the same as the real Maglev train (de.wikipedia.org/wiki/JR-Maglev) but it looks very similar. The experiment was a real challenge, but in the end I was very happy with it.

The train levitates above the tracks thanks to the repulsion between strong block magnets. Two Plexiglas boards that are attached to the train serve as stabilisers.

The winder power comes from a 12V car fan. The electricity is transferred to the train through sliding contact.

The video shows all the steps for building the model. As you can see, I only used common recycling materials.

Material for the train

- Sturdy cardboard (to which I attached the magnets)
- Plexiglas board (4 mm tick)
- Base of a NAS (the plastic piece to which the Plexiglas boards are screwed)
- 12V car fan
- Piece of cardboard tube, into which the fan is embedded
- Piece of plastic packaging, into which the cardboard tube is embedded
- Double-sided adhesive tape
- 2 electric cables for sliding contact
- Electric clamp
- 20 neodymium magnets Q-15-04-04-MN (www.supermagnete.fr/eng/Q-15-04-04-MN)

Material for the 3 m long magnetic tracks

- Iron sheet strips, which are used for building plasterboards
- Duct tape
- 360 neodymium magnets Q-15-04-04-MN (www.supermagnete.fr/eng/Q-15-04-04-MN)

Important building tips

- The 2 tracks have to be insulated to avoid a short-circuit.
- The magnets on the tracks have to be positioned at a minimum distance of 2 mm.
- The distance between the Plexiglas boards and the train has to be 1-2 mm larger than the width of the tracks.

Note from the supermagnete team: This project is very similar to other projects "Levitating train (model)" (www.supermagnete.fr/eng/project235), "Antigrav - Magnetic levitation train" (www.supermagnete.fr/eng/project665) and "Levitating car "Flycar"" (www.supermagnete.fr/eng/project615).

Articles used
380 x Q-15-04-04-MN: Block magnet 15 x 4 x 4 mm (www.supermagnete.fr/eng/Q-15-04-04-MN)

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