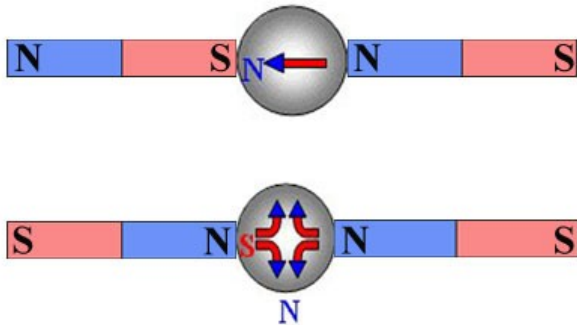


WORKING MODEL

Working Principle of Maglev Trains:



The basic principle behind the magnetic levitation is to use the magnetism property to levitate any objects.

Magnetism is a part of our elementary science, and the principle is that “the like/same poles repel each other but the unlike/opposite poles attract each other”.

Actually our Maglev Train works on this principle of magnetism. The train floats on the guide rail due to this principle of magnetism that the magnetic forces.

Materials Required for Maglev Trains:

The materials required for the construction of Maglev Train model are listed below.



other parts together.

•Pen, Marker etc.

- Wooden block : 5" x 1 1/2" x 3/4" for the train
- For Rails : Hi force Long Magnetic stripes (2 No.s)
- For the Train : Hi force short Magnetic stripes (2 No.s)
- Plastic Guide Rails (2 No.s)
- Card board or wooden board having large size for act as the ground for the train.
- Adhesive tape.
- Strong Glue for joining the woods and

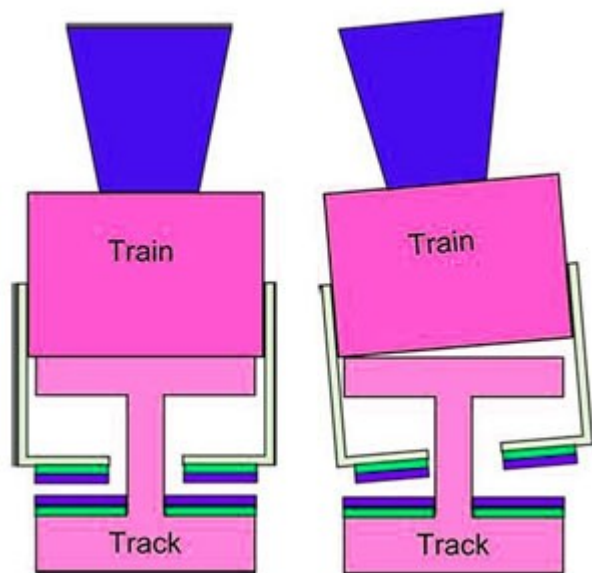
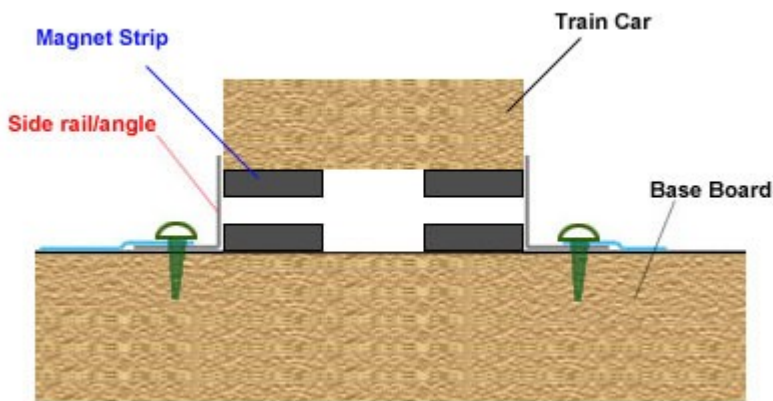
Arrangements Needed:

1. There should be a plastic film on the back side of the magnetic strip. First peel the plastic coated film from the magnetic strip (short).
2. Now fix this magnetic strip on any one side of the wooden block (5" x 1 1/2"), in such a way that the magnetic strip is 1/2" apart from each other as shown in the figure. This act as the wheels of the maglev train model.

3. Similarly peel the plastic coating from the long magnet too.

4. Fix them 1/2" apart on the large wooden box or card board.

5. Properly mount the plastic guide rails or side rails on the edges of the long magnetic strips as shown in the figure 1 & 2 shown below. This will act as a protective wall for the maglev train from move off to the rail.



Working Procedure:

1. First draw two lines parallel to each other having length 24" and 1/4" apart each other (say 1&2). This is the line where we mount the plastic guide rails.

2. Now draw two more lines (line A & B), as shown in the figure 3, which is 1/8" outside the line 1&2. These lines A&B, used as the guidance for the magnetic strips.

3. Now start placing the parts one by one. First place the angle brackets or plastic guide rails on the board and it should be aligned in such a way that its edge should be placed with the 'line 1' and the flat portion of the guide rail will cover the 'A line'. Use screw or gum, tape etc. for securing the rail at this proper position. Similarly, place another plastic guide rails in the same manner as shown in figures.

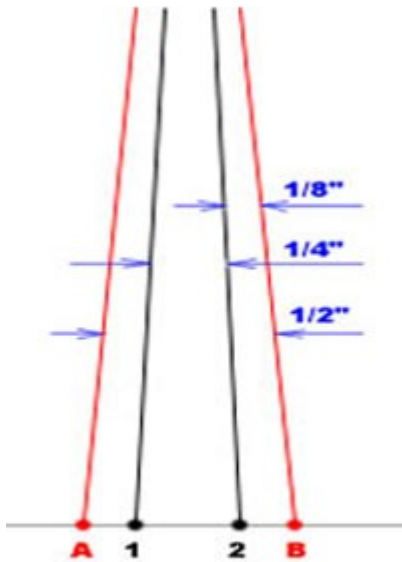


Fig:3

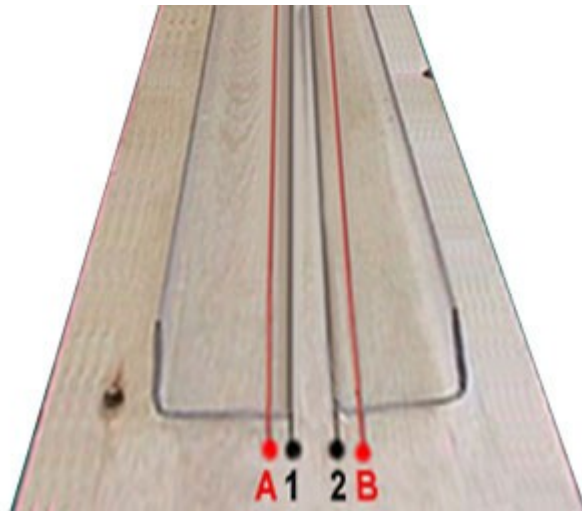


Fig:4 Track with Guid Rails

4. After peeling the plastic coating from the long magnetic strips of 24", place them in the flat portion of the plastic guide rails .

5. Now place this rail board arrangement in a smooth horizontal exterior and then place properly the maglev train over the rail tracks. The train looks like floating in the air and the side walls of the angle brackets protect it from go off in to the wrong path.

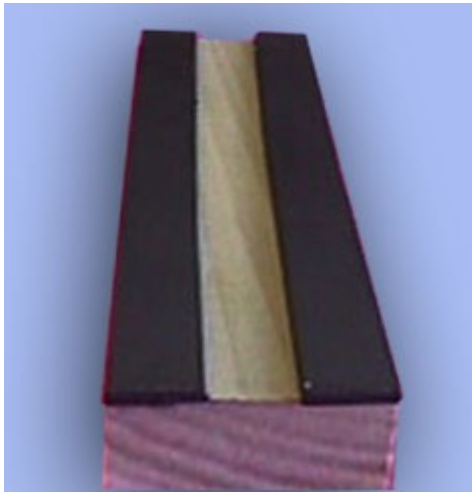


Fig:5 Maglev track with guides
Train/Car

Fig:6 Maglev

Now the last question is “how we run this maglev train forward?”

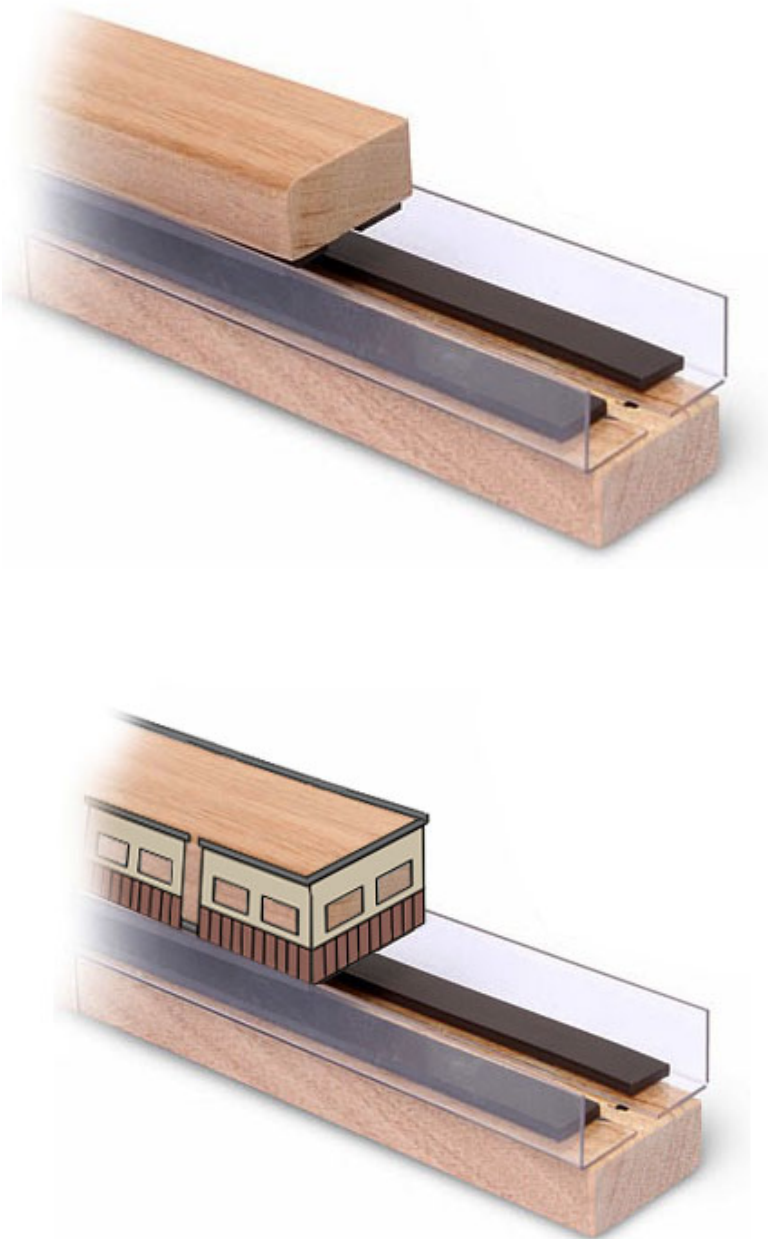


Fig:7 Working models of Maglev Train

Mainly there are two ways to run the train, one way is to seize anything on the ground and push or pull forwards, tilting the rail etc. The other method is to make a force on any side of the train to drive it to forward. For that you can use a propeller or motor with fan etc.

The Maglev Train project is very interesting DIY project for a student or a hobbyist and it can be used in science exhibitions too. We can make modifications in to this maglev train project and make it more automatic and user friendly.