Super Maglev Trains

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Super Maglev Train is a new concept using which a train can attend high speed by reducing the most favorable resistances like AIR, FRICTION.

The train works on the principles of Electromagnetic fields, EMF are surrounded all over the body and which keeps the train away from the ground.

The EMF used in SMT should be accurate and it is placed in such a way that all the Electromagnetic fields are accepted by the acceptor of SMT and the outermost field does not intermit with the interior part of the body.

Special Features of SMT:-

A.   Wheels.
B.   Electromagnets.
C.   Air Absorbent & Air Supplier.
D.   Negligible Friction.
E.   High Speed with more comfort.

SMT is designed such a way that it can attend high speed by enabling limited amount of air for its passage. Using this unwanted air causing Resistance can also be avoided. Thus it can be done by one of its key features Air Absorbent & Air Supplier.
As SMT works on EMF, the body is moving without making contact with a ground. Thus Friction can also be avoided. SMT is an upgrade version of bullets trains. SMT can attend high speed with negotiable air resistance. Bullets trains are conical from front side so that it can act as an air cutter and which helps to attend additional speed but at the same time it also allows the air to fall on it, which leads to pressure mounting on the first compartments of the bullet.
Thus, SMT is the better option which allows limited air needed for its motion thus the additional unwanted air can be removed.
SMT is exactly at the centre of its closed circular Electromagnetic runway surface. It is well balanced from all the side. EMF is induced from the runway for e.g. From 12 sides of that closed surface and those EMF are accepted by the acceptor Electromagnet on the body of SMT such that the body attends the steady state forming equilibrium at the center.
SMT is small in size which is equivalent to one compartment of the train; it is equipped with certain load policy. It can withstand to certain load once the equivalent weight is filled, the train or a capsule is move ahead enabling 2nd SMT to move inside the platform. thus each compartments are released one by one and traffic is not possible, as the SMT is fully based on EMF, it is programmed very first with the respective motion from the reference position to the Destination, thus using its Field strength, distance of FS, time to enabling FS, this important features of motion are varied depending on the speed of the SMT.
These features are explained in the very last motion topic.

Application of SMT:-

A.   High speed transport of goods.
B.   Travelling.
C.   It can surpass the airplane with its speed.

SMT is a future technology which is 30-40 feet above the ground and it is focused straight away to its destination without turning.
It is designed to travel long distance with less possible time. It can surpass airplane with its speed and straight runway.

SMT is sub-grouped depending on the jobs done by each component:-

A.   Front view of Electromagnetic Train.
B.   Side view of EM train.
C.   Outer Surface (Runway of train).
D.   External supply.
E.   Field Strength.
F.   Motion.

A. Front View of Electromagnetic Train:-

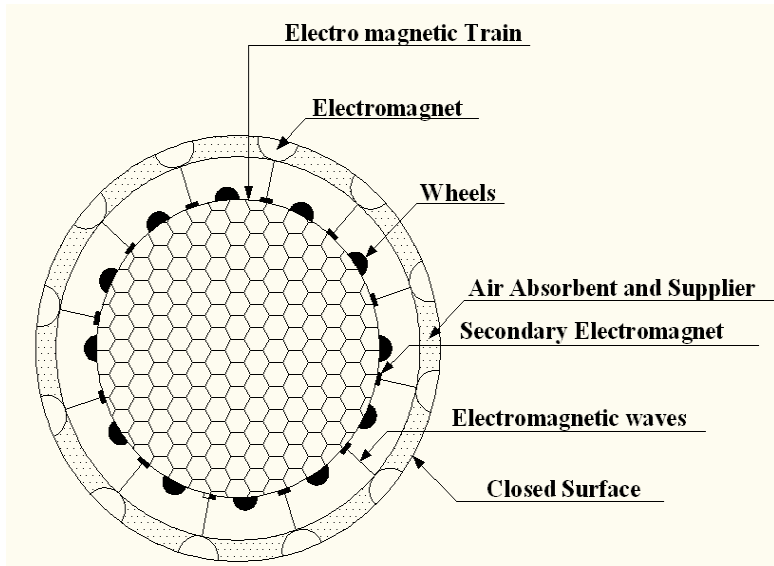### B. Side view of Electromagnetic Train:-

Figure 1

1. Hexagon surface at the centre is the front view of Electromagnetic Train.

2. Runway consists of Electromagnet and Air Absorbent & Supplier region which are well separated with each other.

3. Electromagnets are present with specific gaps all over the body and are represented by the semicircle on the Runway (closed Surface).

4. Gaps between the Electromagnet are acting as Air Absorbent and Supplier, thus to control Aerodynamics.

5. Required amount of air is supplied through it, once the train is passed, air is again absorbed.

6. There is a secondary electromagnet attach on the train, so as to accept the Electromagnetic waves only at that specific region.

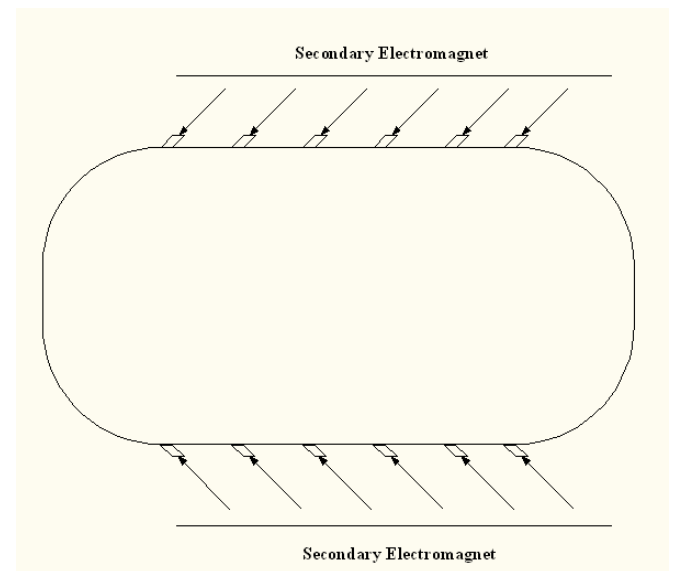7. Wheels play a crucial role in landing the train.

Figure 2

1. The small boxes shown on the SMT are the acceptor Secondary Electromagnets.

2. When the Current pass through the Electromagnet, it charges and attracts the secondary electromagnet present on the SMT.

3. Since, the Train is under influence of electromagnet from all the sides, Equilibrium is attended by the train.

4. Thus the only factor affect the train is its load, which can be neglected by using single compartment train instead of 12 compartments.

5. Once the load limit exceeds, capsule is set into motion and next capsule is reported on the platform.

D. **External Supply:-**

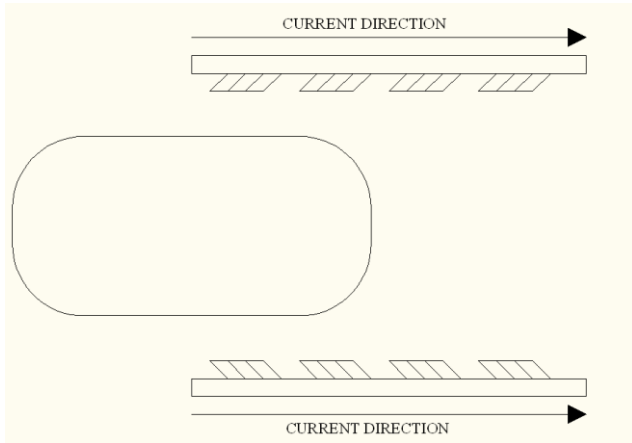### C. **Outer Surface (Runway of train):-**

Figure 3

1. Electromagnets are divided into many sections, when body is lifted from its reference point; high Electromagnetic field is required through these sections of runway for the motion of the body.

2. While the body is in motion, the speed of SMT increases linearly with increase in the distance of field strength throughout the sections.

3. Thus this section plays an important role in adjusting speed of train.

4. These sections require the *Field strength*, *Time,* and *Distance of Field Strength* to be adjusted with respect to the movement of the train which is further explained in the Motion topic.

5. Thus current is supplied in SMT is similar to the functioning of LED lights when the body is in motion.

6. At specific location current is passed for few seconds to few minutes depending on the speed of SMT.

7. This current is allowed to move ahead, leaving behind the remaining section unmagnetized, (the portion which body had done with its acceleration).
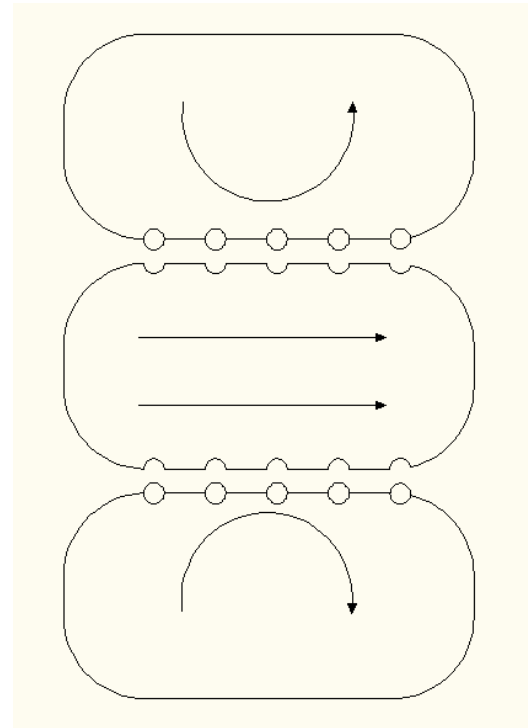

Figure 4

1. When the body is resting, it requires strong field in order to come in motion, thus secondary method irrespective of High Field Strength can also be applied.

2. There are two cycles present below and above the train, which behaves like gears of cycle.

3. 1st cycle move in anti clock wise direction, while 2nd in clock wise direction, though there is a supporter attached on both the side, thus train is pushed in forward direction.

4. Once the SMT is set into motion, High Electromagnetic Field Strength is applied to attend high speed. Thus High Fields is 2nd step after the external supply.

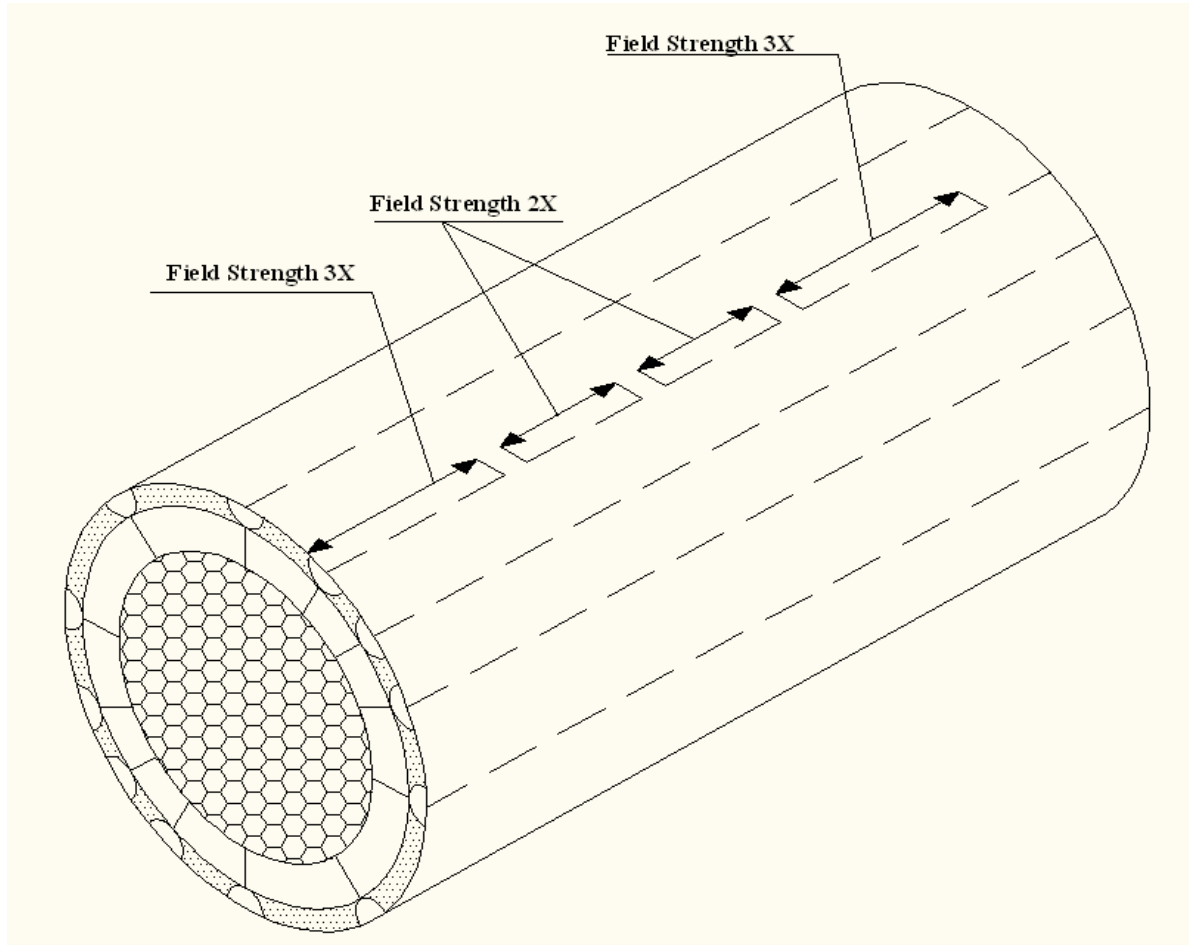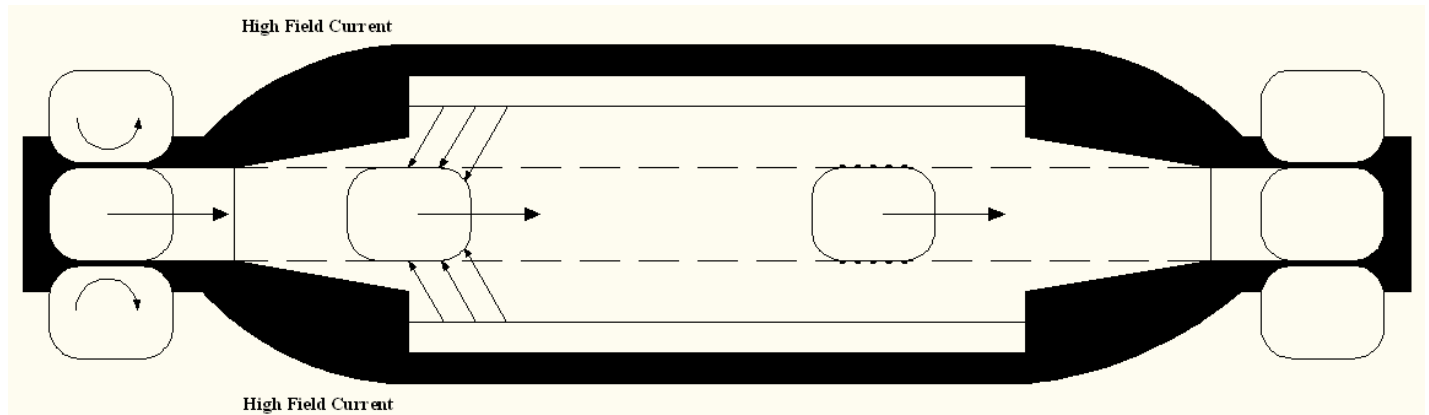**E.**   <u>**Field Strength:-**</u>

Figure 5

1. As shown in the figure, Field Strength are varied with respect to the speed of the SMT.
2. At initial condition, when the body is in equilibrium state, External supply pushes the body and once the body is in motion high electromagnetic field strength is applied across it.
3. High field is necessary because of the heavy weight of SMT and its initial slow speed.
4. This high field try to accelerate the body linearly until it get its average speed, there after field strength is slowly decreased because at that instant body is already set in motion and moderate field strength is sufficient for further operations.
5. When the body is to be stopped at the platform, its high field act as a repulsive factor for the SMT.
6. With high field the distance of the field strength is also minimized such that equilibrium state is formed that too linearly.
7. Thus the Field Strength plays an crucial role by accelerating and decelerating the speed of SMT.

F. **Motion (Working of SMT):-**

2D-sideview of the working of SMT (Figure 6)

When the current is applied across the apparatus, External supply region gets active, External supply uses the concept of bicycles gear, the two cycles moves in opposite directions as shown in the figure, it gradually pushes the SMT in forward direction, once the current reaches the closed runway surface, current is converted into magnetic fields by the electromagnets and thus Magnetic fields are induced.
These magnetic fields are attracted by the Acceptor Electromagnet on the SMT, due to these acceptors, no extra fields are surrounded in the background, and all this fields are focused only on the SMT.
Thus the field does not interfere with the interior and the exterior of the body.
Initially when high field strength is applied across the SMT, the speed of the body increases linearly, Field strength requires for the motion of the body should be high and distance of field strength should cover whole body such that body is attracted in forward direction

When the body attends certain speed, Field strength can be minimize because the field is much stronger for the moving body. A bit smaller field strength is sufficient for the motion of the body and ultimately distance of field strength is increased such that it covers certain additional distance from the moving body, and which forces the body move forward with more speed. Similarly timing is also an important factor, as discuss earlier this train uses concept of LEDs, when output is 1 LED glows, and when output is zero it again vanishes. Thus proper timing is a must. Which are represented in below table.

Air absorbent and supplier were also discussed earlier, when a bullet train runs there are some repulsive factors acting on it i.e. Air, once the body is in motion, front side of the body is opposed by the air and which results in heating. Thus they are build in such a way that they can act as an air cutter, due to which it is pointed from the front side and gain some speed.

But in this case, SMT uses required amount of air proportionally with its field strength distance, which goes on increasing when the body accelerates from the reference position. It doesn't mean that the body is in vacuum, it just clears the way of the body by limiting the air inside the closed surface thereafter the unwanted air is again absorbed by air absorber, it also works on the principle of field strength thus when field strength is on the verge to vanish, air is again absorbed by the Air Absorber. Thus Air absorber and Supplier plays an important role in the motion of the SMT.
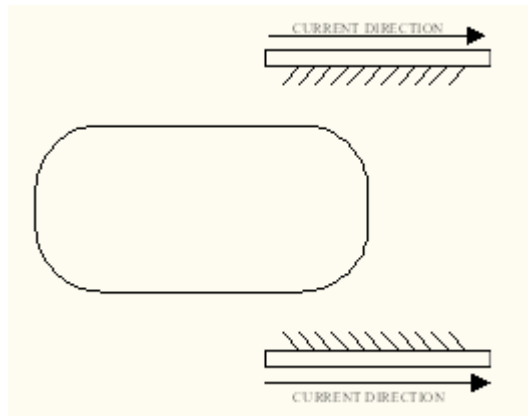
In order to land body successfully and safely, Field strength distance is minimized with increasing its field strength and time. Once the field strength is high, body tries to cooperate with the field simultaneously time is also increasing which helps SMT to acquire its equilibrium state.

Thus when the platform is near, body slow down and wheels are released by the body in order to attend safe landing, body is acting on the wheels just before the body is coming to rest, it is used as a safety precautions and finally train is stops at the exact point where it should be. And finally when the SMT is in equilibrium state it rest on the wheel and electromagnets are turned off.

As Discussed earlier this train is completely automatic, once the coding is right, human error may not occur in this train.
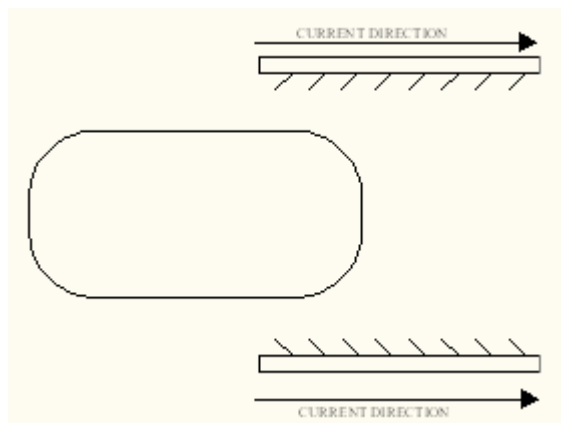
Field Strength at initial condition

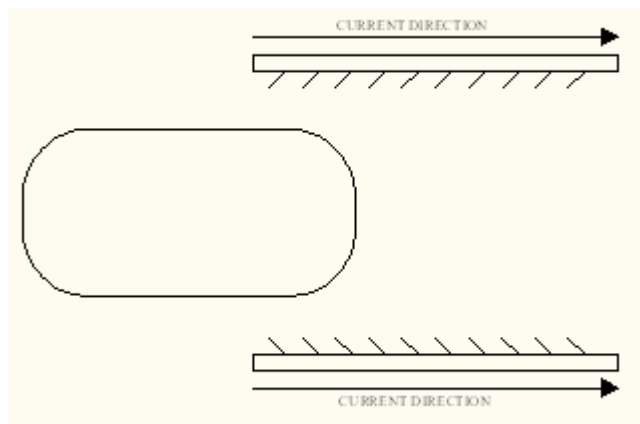| Distance of FS	X
Time	2Y
Field Strength	2Z

Moderate Speed

Distance of FS	2X
Time	Y
Field Strength	Z

High Speed

Distance of FS	3Z
Time	Y/2
Field Strength	Z

AUTHORS

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