

# Project Abstract

## Maglev Car

**Team Name: Tech-it-easy**

- **Motivation:** Demand for fuels has been constantly increasing in automobile industry and this has led to depletion of fossil fuels. Also the smoke pollutes our environment. The normal cars that we see today consume large part of their fuel in overcoming friction due to road. So, we came up with an idea of car which reduces the fuel consumption to zero. Concept of Maglev train is well known to everybody. It floats above the track but can travel in only track's direction. So, we decided to make a Maglev car which floats in air (reducing friction due to track to zero) and what makes it different from the Maglev train is that we can hover it any direction we want. Maglev car will behave like generic car but with no fuel consumption and no pollution, that's what makes it special. This real life model of concept car might be the first one in the world.
- **Description:**
  - **Levitation :** We will make a  $2 \times 2 \text{ m}^2$  metallic surface and pass electricity through it. This surface will act as electromagnet and our car will hover over this surface. Our car will be having 4 Neodymium magnets each on every corner and symmetrical both along longitude as well as latitude. The downward poles of car will be same as that of the new pole induced over the surface so that there will be repulsion between car and surface which will result in the levitation of the car. We will adjust the height between car and surface using the magnets

of appropriate strength which will defy the gravity as well as total weight of the car.

- **Acceleration and steering:** We will use single propeller system which will be connected to a shaft which will allow 360° rotation of propeller. This propeller-shaft system will be used for acceleration-deceleration and steering as well if the propeller is oriented in correct direction. The angle of the propeller will be changed according to the required motion of the car. This propeller-shaft system will be remote controlled.
- **Controlling:-** Car will be fully remote controlled. There will be sensors inside car which will catch the signals and the car will move accordingly. The signals will be interpreted inside the car and the motor will respond accordingly as there will be mechanism which will convert this signal and result in changes in motor and direction of the propeller. We are planning to make wired remote controller but we may switch to wireless if required.

- **Plan of Action:**

1<sup>st</sup> week: 1) We will plan and design the car and controller.

2) We will study and purchase all the hardware that we will require.

2<sup>nd</sup> week: 1) We will make the basic skeleton of the car and the controller.

2) We will also make the basic structure of each component of the car and controller.

3<sup>rd</sup> week: 1) We will work on the levitation of the car to optimum height.

2) We will work on the surface and make it electromagnetic.

4<sup>th</sup> week: 1) We will work on the controller for the car.

5<sup>th</sup> week: 1) We will work on transmitting and receiving commands between car and controller.

6<sup>th</sup> week: 1) Final testing and required optimization in the project will be done.

- **Primary instruments:**

- 1) Metallic sheet of copper or aluminium or other cheap element (2\*2 m<sup>2</sup>)
- 2) Neodymium magnets ( 4 magnetic disks of 20 mm\* 10 mm \* 2mm dimension)
- 3) Battery eliminator (1 unit)
- 4) 2 Blade Propeller (1 unit)
- 5) Motors and shaft (1 each)
- 6) Wooden board (for fixing all the components)

Note:- Non exhaustive list.

- **Approximate Expenses:** 5,000 Rs.

- **What we will learn from project:** We will get to learn the basics of electromagnetism. Since, we will be making our own controller, we will get to learn about motors, sensors, propellers, etc. more specifically the electronic components. The best part about this is project is that, there were not much references of 'Maglev Car' when we Googled it i.e. this might be the next level of cars and we might be the first to make this future concept into reality.

- **Team Members:**

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