

FABRICATION OF LOW COST HOVER BOARD

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Abstract- With the advent of the energy crisis, new forms and alternatives for the IC Engine are being developed at a rapid pace. And at this turning point of the Automobile sector it is important to also look into alternative modes of transportation itself. With that scheme of things we have tried to bring our own version to the alternative mode of transportation. In order to first do this there we got to see the flaws of the current automobiles and found the following: Too much loss of Energy Restrictions in maneuverability Automobile and Human Interface Considering the above problems we have created our own solution in a way. The Hover board as we have come to call it is basically a flat base which floats a few centimeters off the ground. We can be travel at inside of buildings, no skill required to operate it, quickly move from one place to others and environment cannot be polluted. This project is more suitable for handicaps and older ages people.

I. INTRODUCTION

A **hover board**, also known as an **air-cushion vehicle** or **ACV**, is a craft capable of travelling over land, water, mud or ice and other surfaces both at speed and when stationary. Hover boards are hybrid vessels operated by a pilot as an aircraft rather than a captain as a marine vessel. They operate by creating a cushion of high-pressure air between the hull of the vessel and the surface below. Typically this cushion is contained within a flexible "skirt".

Hover board Operation

Piloting a hover board is an interesting proposition. Since very little of it actually touches the ground, there isn't much friction, making it very difficult to steer and also very susceptible to strong winds. Imagine trying to drive around on top of an air-hockey puck! We've discovered that the best way to drive it is treat it like a jetski, i.e. leaning back and forth and steering very carefully. It is also possible to

do a 360-degree turn without stopping, which is quite a sight

II. COMPONENTS

2.1.1 DC MOTOR

The result is to increase the flux density in to the region directly above the conductor.

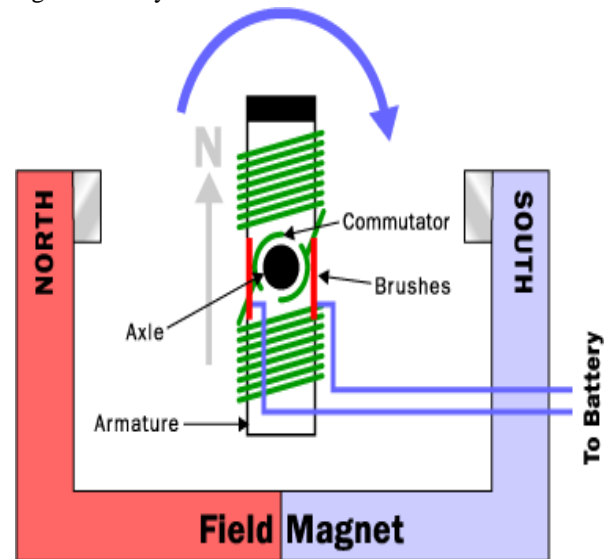


Fig 2.1 : Operation of an Electric Motor

An electric motor is all about magnets and magnetism:

- A motor uses magnets to create motion.
- Opposites attract and likes repel.

So if there are 2 bar magnets with their ends marked north and south, then the North end of one magnet will attract the South end of the other. On the other hand, the North end of one magnet will repel the North end of the other (and similarly south will repel south). Inside an electric motor these attracting and repelling forces create rotational motion. In the diagram above, you can see two magnets in the motor, the armature (or rotor) is an electromagnet, while the field magnet is a permanent magnet (the

field magnet could be an electromagnet as well, but in most small motors it is not to save power).

2.1.2 WHEEL



Fig 2.2: Layout of Wheel

A wheel is a circular component that is intended to rotate on an axle bearing. The wheel is one of the main components of the wheel and axle which is one of the six simple machines. Wheels, in conjunction with axles, allow heavy objects to be moved easily facilitating movement or transportation while supporting a load, or performing labor in machines. Wheels are also used for other purposes, such as a ship's wheel, steering wheel, potter's wheel and flywheel.

2.1.3 LEAD ACID WET CELL

Where high values of load current are necessary, the lead acid cell is the type most commonly used, the electrolyte is a dilute solution of sulfuric acid (H₂SO₄). The application of battery power to start the engine in an automobile, for example the load current to the starter motor is typically 200 to 400 A. One cell has a nominal output of 2.1 V, but lead-acid cells are often used in a series combination of three for a 6 V battery and six for a 12 V battery. The Lead Acid cell type is a secondary cell or storage cell, which can be recharged. The charge and discharge cycle can be repeated many times to restore the output voltage, as long as the cell is in good physical condition, however, heat with excessive charge and discharge currents shortens the useful life to about 3 to 5 years for an automobile battery. Of the different types of secondary cells, the lead-acid type has the highest output voltage, which allows fewer cells for a specified battery.



Fig 2.3 lead acid battery

2.1.4 FRAME



Fig 4.12 : Frame

Cold-formed steel framing is sheet steel that is formed into shapes and sizes that are similar to what builders are accustomed to seeing in dimensional lumber (2x4, 2x6, 2x8, 2x10, 2x12, and so forth). Steel framing members are formed in a process called roll forming by passing sheet steel through a series of rollers to form the bends that make the shape, e.g. the web, flanges, and lips of a stud or C-shape. Because this process is done without heat (also called “cold forming”) the studs and joists are made stronger than the original sheet steel.

III. EXPERIMENTAL SETUP

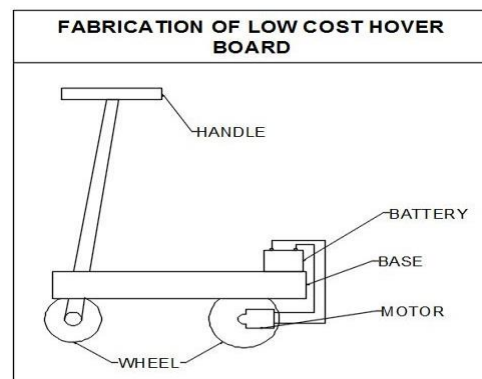


Fig 3 .1 : Low Cost Hover Board

3.1 WORKING PRINCIPLE

This projects is consists of DC gear motor, wheels and battery. The wheels are used to move vehicle so fixed at the bottom of base. This rear wheel is

connected with DC motor which takes from electrical source at battery. Wheel is rotating with respect to motor rotation. Handle is connected with front wheel which is used to change direction of hover when moving. If we want to stop or start vehicle to connect or disconnect power supply from battery by using switch.

3.2 ADVANTAGES

- We can be travel at inside of buildings.
- No skill required to operate it.
- Quickly move from one place to others.
- Environment cannot be polluted.
- No emission in this vehicle.

IV. CONCLUSION

The emissions of automobiles have been a hot topic for both scientists and engineers alike for many years. There is a lot of on-going research in this field and probably too much research. A lot of promising solutions are available for this problem and a project to solve this issue cannot be completed within the given time of one year due to its complexity and size of research required. By this project we are able to fabricate a vehicle which is pollution free and it has no emission to the surroundings. By this vehicle we can travel at inside of home or industry as well as road. It is very useful for handicaps.

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