Development of Antigravity Device (Ion Propulsion Method) using Artificial Intelligence

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Abstract

Antigravity was always an interesting part of human interest. Many scientists had contributed to this field with many discoveries. But antigravity is always formed in other fundamental energy. It becomes more resourceful when its application is used for the good of people. As for ion propulsion, antigravity works as a silent thruster. Ion propulsion method is now an interesting topic to levitate object to higher height.The motivation for developing such a 'solid-state', fully electric thrust production system is threefold: it is quieter, mechanically simpler, and emits no direct combustion emissions (although ozone is produced in the ionization process). Therefore, an EAD propulsion system could potentially reduce the noise and air pollution produced by conventional propulsion systems and in the near term may find applications in drones, particularly those operating in urban environments.

Keywords: *Ion propulsion, Cockcroft walton voltage multiplier, Plasma physics, Antigravity, Electro aerodynamic (EAD), Dielectric barrier discharge (DBD)*

I. Introduction

Anti-gravity is a hypothetical phenomenon of creating a place or object that is free from the force of gravity. Actually, there is no such term of antigravity. It is basically result of some fundamental and compound field's application of physics. One of the many methods is the Ion Propulsion method. We are making an artificial intelligence device using this method. It's a flying robot in another words. Artificial intelligence devices have led to many complex problems and heavy dangerous tasks. But you have to get speed to solve any task in less time. So, if it is possible to create an antigravity artificial intelligence device, it will be able to go a long distance in a short period of time and work. Electro aerodynamic (EAD) is now new interested factor of research. However, achieving sufficient thrust-to-lift up a craft is a significant challenge in developing. Theory predicts that devices with larger inter-electrode gap spacing will enable higher thrust-to-power, but most experimental work has been limited to gap spacings of less than 80 mm. Those studies which have investigated spacings of greater than 100 mm have found results deviating from theory, with lower thrust-to-power than predicted. Electro aerodynamic (EAD) devices are a means to generate propulsive forces in fluids without any moving parts. These devices use an electric field to produce ions in a neutral fluid, such as air, and then accelerate these ions by the Coulomb force. Collisions between the ions and neutral molecules transfer momentum from the ions to the bulk fluid and result in an 'ionic wind'. Ionic winds have been studied for applications such as solid-state pumping, heat transfer enhancement, and flow-control. Most EAD devices produce and accelerate ions in a neutral fluid using a corona discharge, which is a type of self-sustained glow discharge created by applying a steady state direct current (DC) voltage across two asymmetric electrodes. There are also EAD devices which operate using pulsed and alternating current (AC) discharges. In particular, the AC dielectric barrier discharge (DBD), whose geometry can be integrated into the surface of an aerofoil, is being studied for aerodynamic flow control applications. EAD devices and the ionic winds which they produce have also been proposed as a method of propulsive force-generation for aircraft, either as a 'lifter', or as a forward propulsor. Conventional aircraft propulsion systems which are used for lift and forward propulsion rely on moving aerodynamic surfaces, such as propellers and gas turbines, to produce thrust. EAD is an alternative which directly converts electrical energy to mechanical energy in the airflow, with no need for moving surfaces.

II. Methods and Materials:

II.A Design of the research work:

Our first task is to convert a 220-250 dc voltage source to 20,000 volts from which both negative and positive charges can be obtained. In this conversion method we will use Cockcroft Walton voltage multiplier.

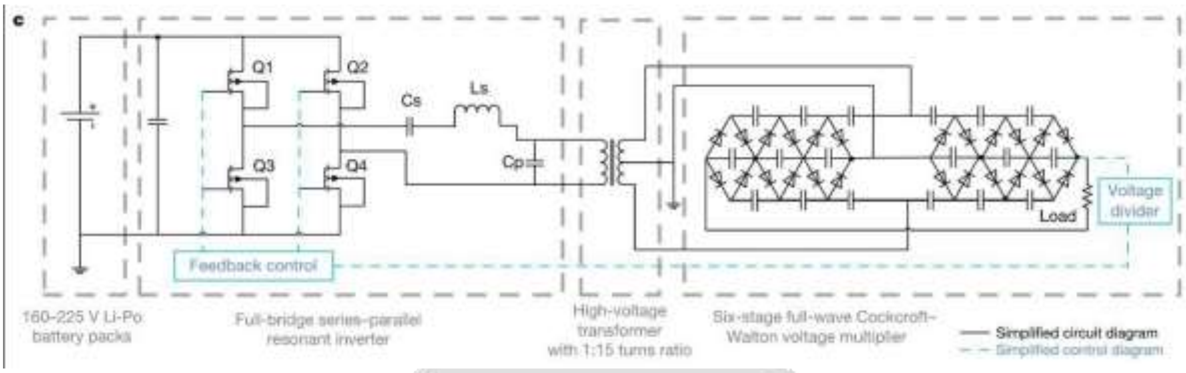


Fig-1: 2D picture of the high-voltage power converter (HVPC).

Fig.1 shows the circuit diagram of picture of the high-voltage power converter (HVPC). It is shown that 160-225 V battery paks, full-bridge series-parallel resonant inverter, High-voltage transformer with 1;15 turns ratio, Six stage full-wave cock croft walton voltage multiplier.

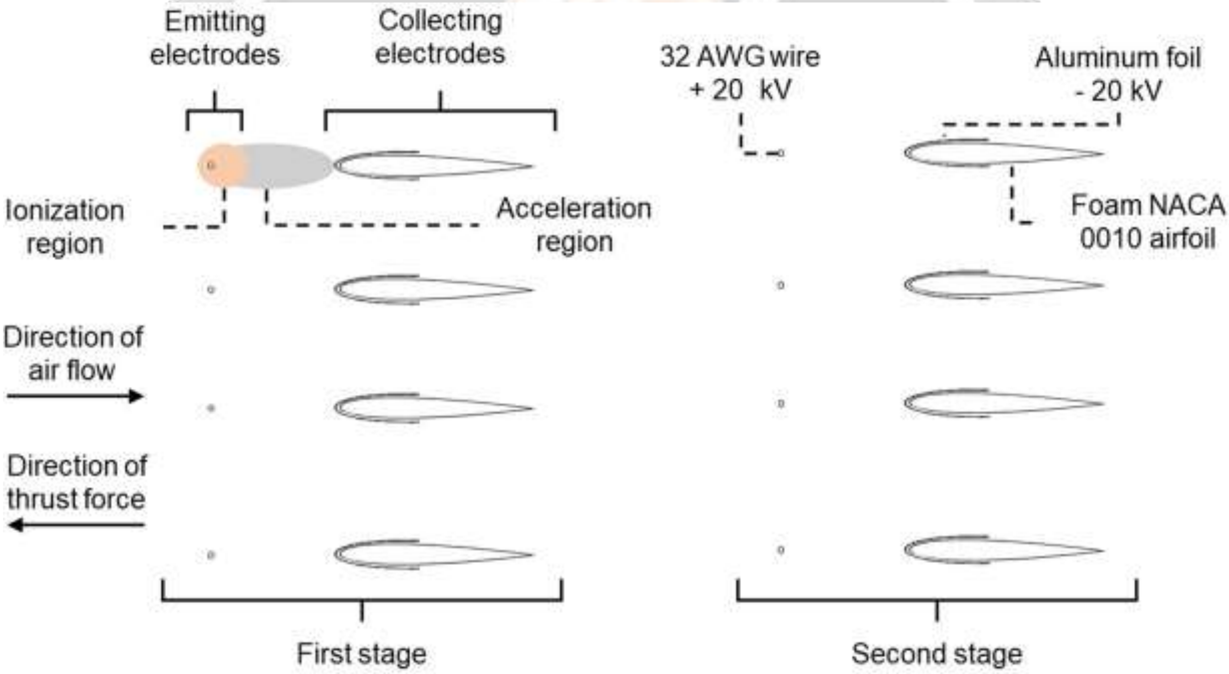
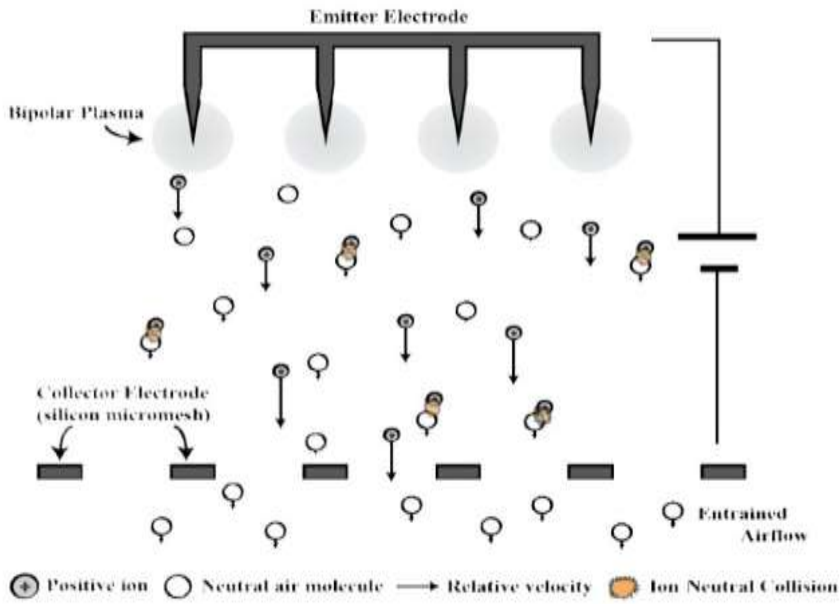
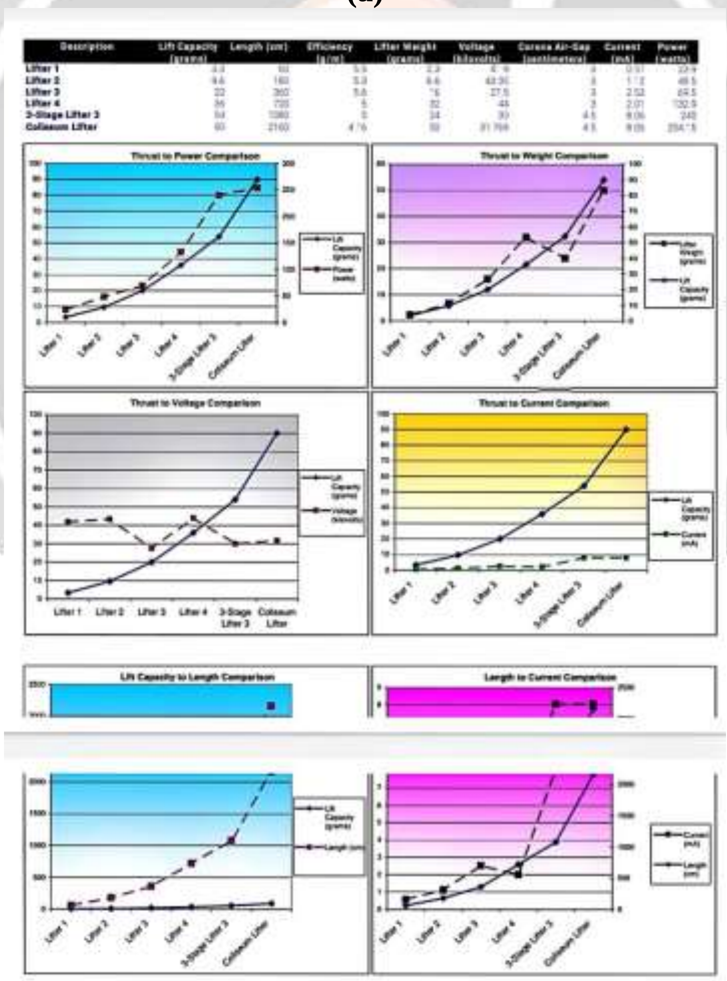


Fig.2: Schematic of propulsion system electrodes. The emitting electrode is stainless steel wire. The collecting electrode is an airfoiled foam section covered in a thin layer of aluminium foil.

Fig.2 shows the Schematic of propulsion system electrodes. The emitting electrode is stainless steel wire. The collecting electrode is an airfoiled foam section covered in a thin layer of aluminium foil. It shows the emmiting electrodes, Collecting electrodes, Ionization region and Acceleration region. It also shows the direction of air flow and the direction of thrust force. It also shows the 32 AWG wire+ 20 kV, Aluminium foil-20 kV, Foam NACA 0010 airfoil for first stage and second stage.



(a)



(b)

Fig.3: (a)Schematic depiction of the cross-sectional view of an emitter wire and collector grid electrode pair and (b)lifter efficiency graph.

Fig.3 shows the (a)Schematic depiction of the cross-sectional view of an emitter wire and collector grid electrode pair and (b)lifter efficiency graph. It is shown in Fig.(a) that the Schematic depiction of the cross-sectional view of an emitter wire and collector grid electrode pair and Fig.(b) shows the lifter efficiency curve.

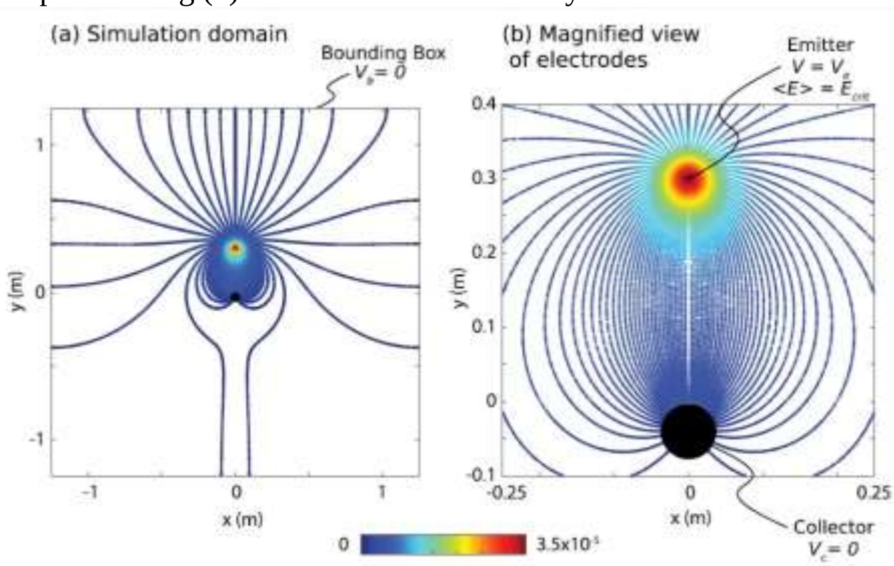


Fig 4. (a) Entire simulation domain and (b) magnified view of electrodes, showing current paths.

Fig. 4 shows the (a) Entire simulation domain and (b) magnified view of electrodes for showing current paths. Fig. 4(a) also shows the Entire simulation domain and Fig.4(b) shows the magnified view of electrodes for showing current paths.

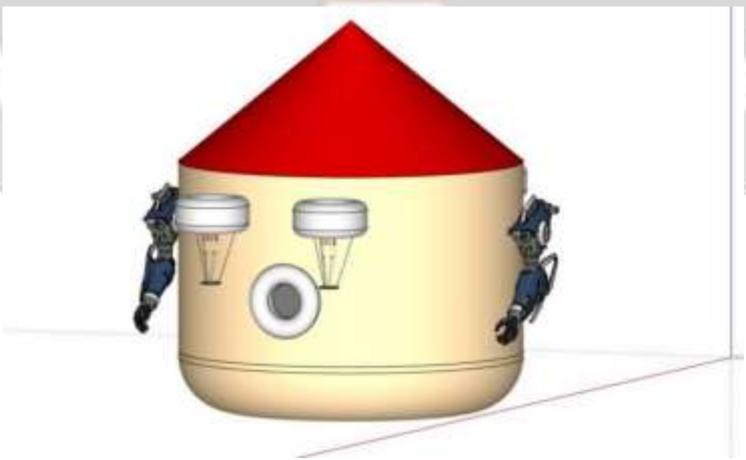


Fig 5: Antigravity Device (Front Side)

Fig. 5 shows the Antigravity Device (Front Side). The front size of any device is more important than the others.

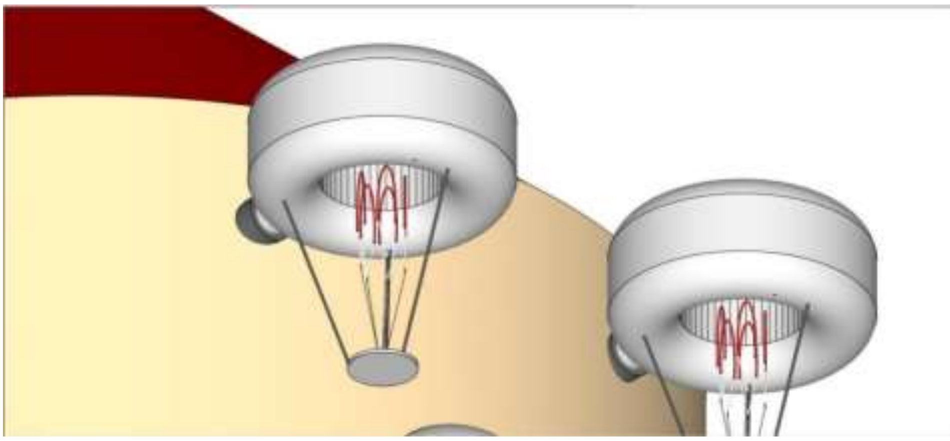


Fig. 6: The Thruster Method (Ion Propulsion)

Fig. 6 shows the Thruster Method (Ion Propulsion). It shows the two seperate of the Thruster Method (Ion Propulsion).

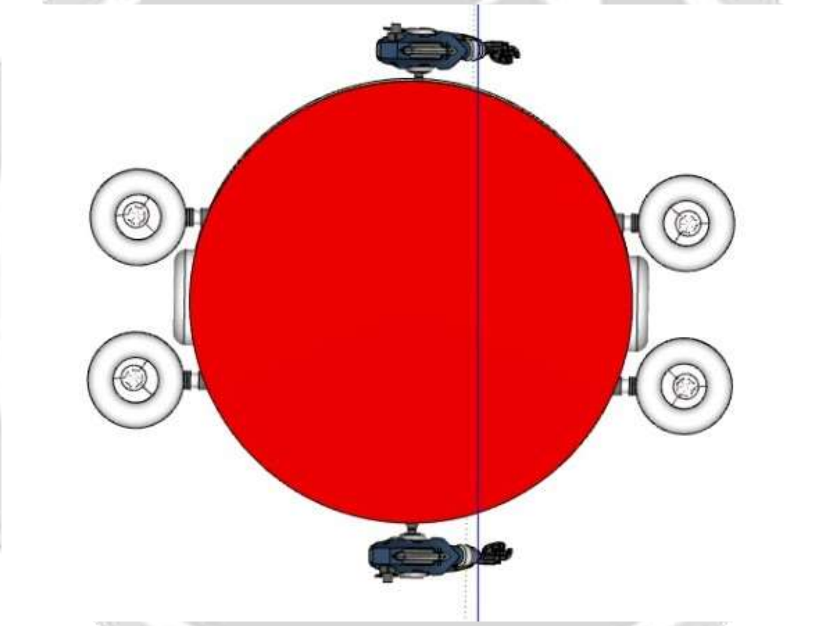


Fig 7: The Upper Side of the device.

Fig 7 shows the Upper Side of the device including the lower part and the side parts (each encludes also 2 wings).

II B Fabrication

Necessary Equipment for this research work is given below:

i. Power Converter
ii. Battery
iii. Electrodes (stainless steel wire)
iv. Aluminium Foil
v. Wing.
vi. Transistor
vii. Lithium-Ion Battery packs

i. Power Converter

Construction of Power Converter:

A power converter is an electrical or electro-mechanical device for converting electrical energy. A power converter can convert alternating current (AC) into direct current (DC) and vice versa; change the voltage or frequency of the current or do some combination of these. The power converter can be as simple as a transformer or it can be a far more complex system, such as resonant converter.

Working Principle:

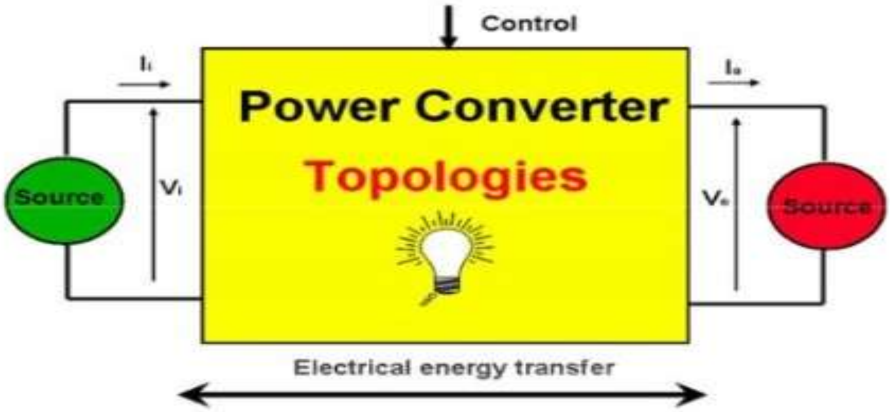


Fig 8: Power Converter Definition.

Fig.8 shows th there are two types of sources: voltage and current sources. As mentioned earlier, any of these sources could be a generator or a receptor (load). A source is called a voltage source if it is able to impose a voltage regardless of the current flowing through it. This implies that the series impedance of the source is zero (or negligible in comparison with the load impedance). A source is called a current source if it is able to impose a current regardless of the voltage at its terminals. This implies that the series impedance of the source is infinite (or very large in comparison with the load impedance). It should be noted that a square wave voltage generator (respectively a current generator) is indeed a voltage source (respectively a current source) as defined above since the voltage steps (respectively current steps) are not caused by the external circuit. With these definitions, it is interesting to define the notion of instantaneous impedance of a source as the limit of the source impedance when the Laplace operator tends towards infinity. Theoretically this instantaneous impedance can be zero, finite or infinite. A source is referred to as a voltage source when its instantaneous impedance is zero, while a source is called a current source if its instantaneous impedance is infinite.
For example:

$$\text{Capacitor: } Z(s) = 1/(C_s), \qquad \lim_{s\to\infty} Z(s) = 0 \Rightarrow \text{voltage source.}$$

$$\text{Inductance: } Z(s) = L_s, \qquad \lim_{s\to\infty} Z(s) = \infty \Rightarrow \text{current source.}$$

The determination of the source reversibility's is fundamental. We shall see that the static characteristics of the switches can be derived from the reversibility analysis. The voltage (or the current) that characterizes a source is called DC if it is unidirectional. As a first approximation, it can be taken as constant. The voltage (or the current) is called AC if it is periodic and has an average value equal to zero. As a first approximation, it can be taken as sinusoidal. A source is voltage reversible if the voltage across its terminals can change sign. In the same way, a source is current-reversible if the current flowing through it can reverse. In summary, the input/output of a converter can be characterized as voltage or current sources (generator or loads), either DC or AC, current-reversible and/or voltage-reversible.

ii. Battery

Construction of Battery:

Battery, in electricity and electrochemistry, any of a class of devices that convert chemical energy directly into electrical energy. Although the term *battery*, in strict usage, designates an assembly of two or more galvanic cells capable of such energy conversion, it is commonly applied to a single cell of this kind. Every battery (or cell) has a cathode, or positive plate, and an anode, or negative plate. These electrodes must be separated by and are often immersed in an electrolyte that permits the passage of ions between the electrodes. The electrode materials and the electrolyte are chosen and arranged so that sufficient electromotive force (measured in volts) and electric current (measured in amperes) can be developed between the terminals of a battery to operate lights, machines, or other devices. Since an electrode contains only a limited number of units of chemical energy convertible to electrical energy, it follows that a battery of a given size has only a certain capacity to operate devices and will eventually become exhausted. The active parts of a battery are usually encased in a box with a cover system (or jacket) that keeps air outside and the electrolyte solvent inside and that provides a structure for the assembly.

Working Principle:

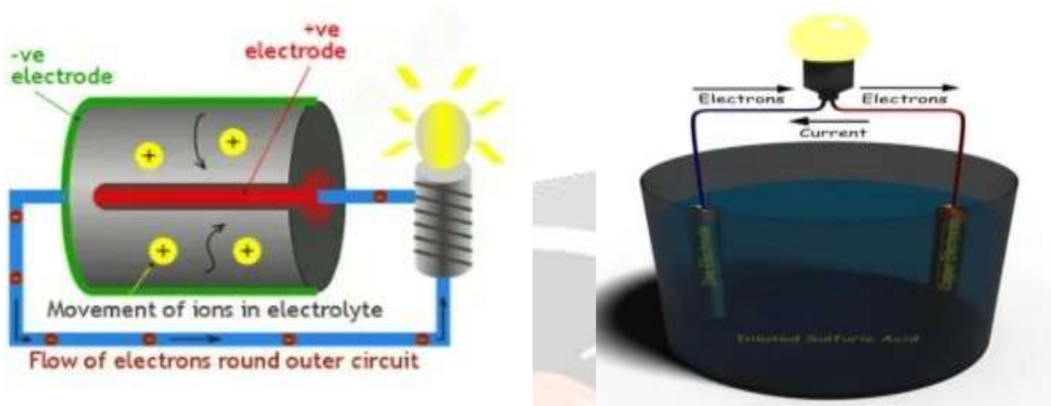


Fig 9: Analysis of battery structures.

Fig 9 shows a battery works on the oxidation and reduction reaction of an electrolyte with metals. When two dissimilar metallic substances, called electrode, are placed in a diluted electrolyte, oxidation and reduction reaction take place in the electrodes respectively depending upon the electron affinity of the metal of the electrodes. As a result of the oxidation reaction, one electrode gets negatively charged called cathode and due to the reduction reaction, another electrode gets positively charged called anode. The cathode forms the negative terminal whereas anode forms the positive terminal of a battery. To understand the basic principle of battery properly, first, we should have some basic concept of electrolytes and electrons affinity. Actually, when two dissimilar metals are immersed in an electrolyte, there will be a potential difference produced between these metals. It is found that, when some specific compounds are added to water, they get dissolved and produce negative and positive ions. This type of compound is called an electrolyte. The popular examples of electrolytes are almost all kinds of salts, acids, and bases etc. The energy released during accepting an electron by a neutral atom is known as electron affinity. As the atomic structure for different materials are different, the electron affinity of different materials will differ. If two different kinds of metals are immersed in the same electrolyte solution, one of them will gain electrons and the other will release electrons. Which metal (or metallic compound) will gain electrons and which will lose electrons, depend upon the electron affinity of these metals. The metal with low electron affinity will gain electrons from the negative ions of the electrolyte solution. On the other hand, the metal with high electron affinity will release electrons and these electrons come out into the electrolyte solution and are added to the positive ions of the solution. In this way, one of these metals gains electrons and another one loses electrons. As a result, there will be a difference in electron concentration between these two metals. This difference in electron concentration causes an electrical potential difference developed between the metals. This electrical potential difference or emf can be utilized as a source of voltage in any electronics or electrical circuit.

Electrodes (stainless steel wire)

Construction of Electrodes (stainless steel wire):

Stainless steel wire according to whether the wire is divided into soft and hard state. Soft state after annealing and bright, with toughness, strength. Hard wire, high strength, but brittle, easily broken.

Working Principle:

We performed experiments with wire-to-cylinder EAD thrusters, applying a voltage across the electrodes and measuring the current and thrust force. The span of the emitter was 750 mm, which is wider than all known previous experiments. The collector was 100 mm longer than the emitter, which reduces corona emission at the electrode ends. The thruster consisted of a rectangular glass fibre reinforced polymer (GFRP) frame which held the emitting and collecting electrodes. The emitter was a 0.254 mm tungsten wire, which offers high erosion resistance in coronas [30]. The collector was a thin-walled aluminium cylinder with a diameter of either 9.5, 12.7, 19.1, 25.4, or 38.1 mm.A voltage was applied to the electrodes using benchtop high voltage DC power supplies. Insulated wire (28 AWG stranded wire with fluorinated ethylene propylene insulation) was used to connect the high voltage outputs to the thruster electrodes.

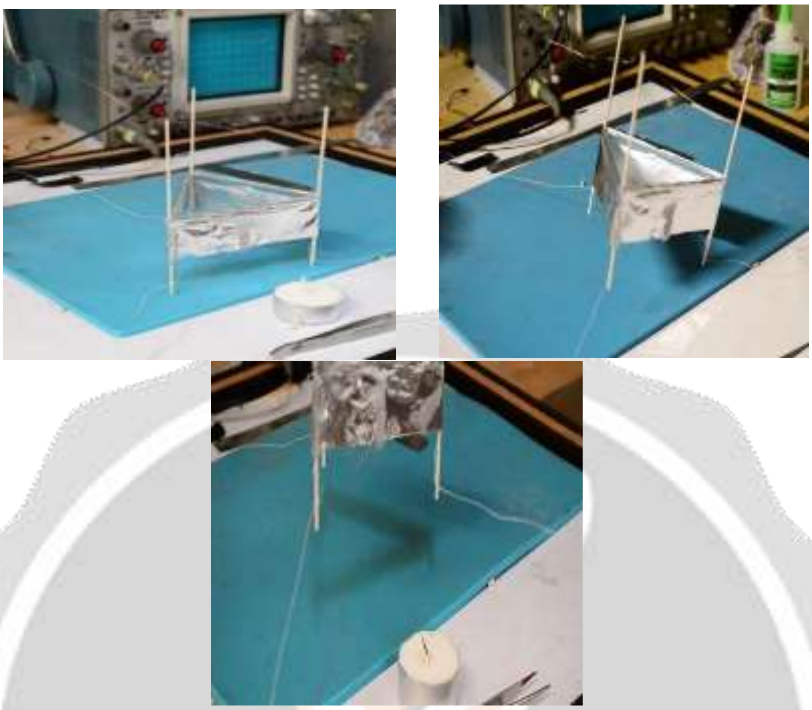


Fig 10: low-cost practical sample showing antigravity.

Fig.10 shows the low-cost practical sample showing antigravity. It shows the sample for low cost.

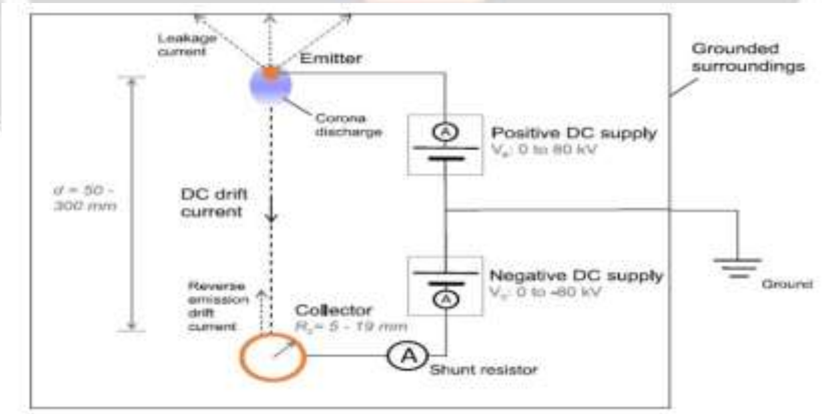


Fig 11. Electrical schematic of experimental setup for end view of electrodes.

Fig. 11 shows the lectrical schematic of experimental setup for end view of electrodes.It shows the ground andground surroundings. It also shows the +ve and -ve DC supply including shunt resistor. It also shows the reverse emission drift current, DC drift current and leakage current and an emitter for corona discharge.

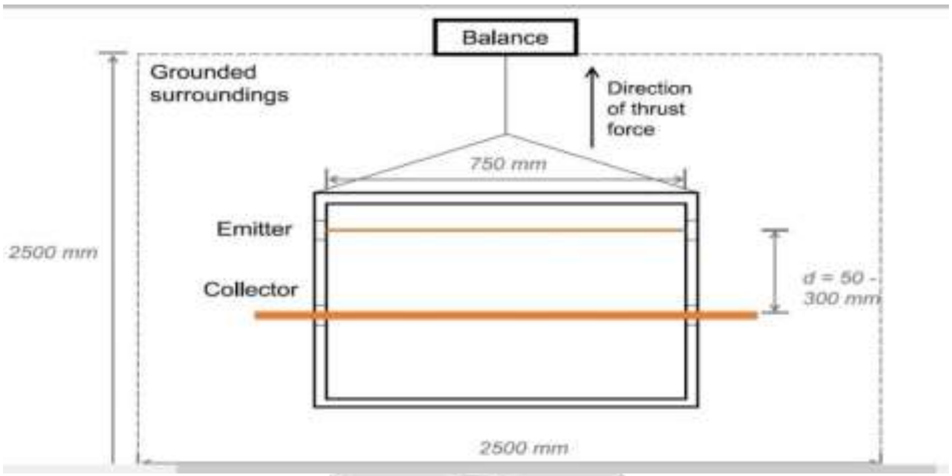


Fig. 12. Schematic of thruster and thrust measurement setup for Side view of electrodes.

Fig.12 shows the Schematic of thruster and thrust measurement setup for Side view of electrodes. It also show the emitter, collector, grounded surroundings and direction of thrust force.

Aluminium Foil

Construction of Aluminium Foil:

Aluminium foil (or aluminium foil in North America; often informally called tin foil) is aluminium prepared in thin metal leaves with a thickness less than 0.2 mm (7.9 mils); thinner gauges down to 6 micrometres (0.24 mils) are also commonly used.

Working Principle:

Foils are commonly measured in thousandths of an inch or mils. Standard household foil is typically 0.016 mm (0.63 mils) thick, and heavy-duty household foil is typically 0.024 mm (0.94 mils). The foil is pliable, and can be readily bent or wrapped around objects. Thin foils are fragile and are sometimes laminated with other materials such as plastics or paper to make them stronger and more useful.

Development of Wing

Construction of WING:

A wing is a type of fin that produces lift while moving through air or some other fluid. Accordingly, wings have streamlined cross-sections that are subject to aerodynamic forces and act as air foils. A wing's aerodynamic efficiency is expressed as its lift-to-drag ratio. The lift a wing generates at a given speed and angle of attack can be one to two orders of magnitude greater than the total drag on the wing. A high lift-to-drag ratio requires a significantly smaller thrust to propel the wings through the air at sufficient lift.

Working Principle:

What actually causes lift is introducing a shape into the airflow, which curves the streamlines and introduces pressure changes – lower pressure on the upper surface and higher pressure on the lower surface," clarified Babinski, from the Department of Engineering. "This is why a flat surface like a sail is able to cause lift – here the distance on each side is the same but it is slightly curved when it is rigged and so it acts as an aerofoil. In other words, it's the curvature that creates lift, not the distance.

Transistor

Construction of Transistor:

A transistor is a semiconductor device used to amplify or switch electronic signals and electrical power. Transistors are one of the basic building blocks of modern electronics. It is composed of semiconductor material usually with at least three terminals for connection to an external circuit.

Working Principle:

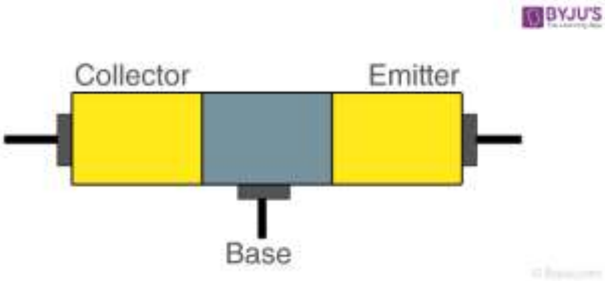


Fig.13: A transistor (Collector, Emitter, Base)

Fig. 13 shows a transistor is composed of three terminals: *emitter*, *collector*, and *base*. In this section, we discuss the functionalities of each terminal in detail. The base serves as a gate controller device for a larger electric supply. The collector is a larger electrical supply and the outlet of that supply is the emitter. The current flowing through the gate from the collector can be regulated by sending varying levels of current from the base. In this manner, a very small amount of current can be used to control a large amount of current like in amplifiers. Transistor works as a switch or as an amplifier.

Lithium-Ion Battery

Construction of Lithium-Ion Battery:

A lithium-ion battery or Li-ion battery is a type of rechargeable battery in which lithium ions move from the negative electrode through an electrolyte to the positive electrode during discharge, and back when charging. Li-ion batteries use an intercalated lithium compound as the material at the positive electrode and typically graphite at the negative electrode.

Working Principle:

A battery is made up of an anode, cathode, separator, electrolyte, and two current collectors (positive and negative). The anode and cathode store the lithium. The electrolyte carries positively charged lithium ions from the anode to the cathode and vice versa through the separator. The movement of the lithium ions creates free electrons in the anode which creates a charge at the positive current collector. The electrical current then flows from the current collector through a device being powered (cell phone, computer, etc.) to the negative current collector. The separator blocks the flow of electrons inside the battery. While the battery is discharging and providing an electric current, the anode releases lithium ions to the cathode, generating a flow of electrons from one side to the other. When plugging in the device, the opposite happens: Lithium ions are released by the cathode and received by the anode. Thrust is produced when ions, drifting in the applied electric field, collide with neutral air molecules and impart momentum. Bipolar ions are generated in the corona plasma region localized at the sharp tips of the emitter electrode, but only positive ions (mainly N2+) will drift towards the collector grid.

II. C Cost Analysis:

Table 1: Table for cost analysis

Mass Budget	Total (kg)	2.45
	Power converter (kg)	0.51
	Battery (kg)	0.23
	Wing (kg)	0.63
	Electrodes (kg)	0.41
Aerodynamic Characteristics	Wing Span (m)	5.14
	Flight Velocity (m/s)	4.8 ± 0.2
	Aspect Ratio	17.9
	Drag (N)	3.0 ± 0.2
	Lift/Drag Ratio	8 ± 1
EAD Propulsion System	Thrust (N)	3.2 ± 0.2
	Voltage (kV)	40.3 ± 0.1
	Power Requirement (W)	620 ± 20
	Thrust Frontal Area (m^2)	0.9

Table 1 shows the cost analysis of the device. It describe the budget of the mass budget, aerodynamic characteristics and EAD propulsion system. The mass budget includes power converter, battery, wing, electrodes. The Aerodynamics characteristics include wing span, flight velocity, aspect ration, drag, and lift/drag ratio. The EAD propulsion system includes Thrust (N), Voltage(kV), Power requirement(W) and Thrust frontal area(m^2).

II D Application of the research work:

University Research Topic:

There are many good research articles based on antigravity. Every scientist is trying to work on this matter since decades. Examples can be given on gyroscopic processioning propulsion, spin stabilized magnetic levitation. NASA is already focusing on ion propulsion method specially on xenon Thrust. As fuel is on decrease nowadays, so they are moving on alternating way to lift up the future rockets and vehicles.

Agricultural Farming:

Although agriculture is an important sector in Bangladesh, we still have to import food from abroad to meet the demand, which is more than the export. This is because it is not possible to procure sufficient production from our farming community. But once the device is made, it will be able to go anywhere and work as well as work in many open spaces. In addition, one of the messages and functions of the US Green Building Council, established in 1993, is to make all established buildings green by planting. Building the world. It is very important to take such a step in Bangladesh where the people of our country have been suffering from air pollution for many years.

City Corporation Worker/Cleaner:

The antigravity device can act as a cleaner. As the population grows, new roads are being added to the houses. But it is not always possible to clean the roads mile after mile using manpower's propose antigravity device for such solution.

III. Results and Discussion:

The HVPC consists of three stages: a series–parallel resonant inverter that converts 160–225 V direct current to a high-frequency alternating current, a high-voltage transformer that steps up the alternating-current voltage, and a full-wave Cockcroft–Walton multiplier that rectifies the high-frequency alternating current back to direct current. The resonant converter uses transformer parasitics (including transformer capacitance) as part of the resonant tank. The three stages contribute a voltage gain of about 2.5×, 15× and 5.6×(Fig-1). The emitting electrode is a 32 American Wire Gauge (32 AWG;0.2 mm diameter) stainless steel wire, held at 60 mm spacing from the collecting electrode by 3D-printed spacers. The collecting electrode is a National Advisory Committee for Aeronautics (NACA) 0010 airfoiled foam section covered in a thin layer of aluminium foil (Fig-2). The electrodes are 3 m in span. Thrust is produced when ions, drifting in the applied electric field, collide with neutral air molecules and impart momentum. Bipolar ions are generated in the corona plasma region localized at the sharp tips of the emitter electrode, but only positive ions (mainly Nitrogen ions) will drift towards the collector grid(Fig-3). Large black circle is the collector. Boundary conditions are indicated (Fig-4). Simulation conditions: V_e = 80 kV, V_c = 0 kV, V_b = 0 kV, d = 300 mm, $2r_c$ = 38 mm. (a) Simulation domain. (b) Magnified view of electrodes. Some experiments used the positive DC supply only. Power supplies have internal current and voltage measurement. An independent shunt resistor is used to measure current through the collector when the negative DC supply is not used.

IV. Conclusions

With the advent of modern technology, the creation of artificial intelligence devices has led to many complex problems and heavy dangerous tasks. You have to get speed to solve any task in less time. So, if it is possible to create a antigravity artificial intelligence device, it will be able to go a long distance in a short period of time and perform other multifaceted tasks, including helping poor children in education, agriculture and contracting women.

Acknowledgement

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