

## Conceptual of Anti-Gravity Pump

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### Abstract

An Anti-Gravity Pump is similar to a hydraulic ram pump which is a method of raising water without the need for an outside energy source. The primary goal is to construct an anti-gravity pump that will lower the complexity and expense of microfluidic systems by raising the water to a height of around 1 meter. Elbow pipes, spring valves, T connectors, pressure gauges, valves, and PVC adhesive are all part of the experimental setup. The objective is to design and develop an anti-gravity pump model, as well as to determine and analyze height, pressure and flow rate against time using the anti-gravity pump. The project focuses on modern anti-gravity concepts and technology and uses a PVC-based configuration. The main component of the pump is a pipe that creates a flow route for the water, and a pressure gauge that monitors and analyses liquid pressure in real-time. A valve is an essential component of the pump's fluid flow control system that enables accurate modifications to the flow conditions. Additionally, spring valves help to regulate flow dynamics and pressure, which enhances experiment accuracy and deepens our comprehension of how various components of the anti-gravity pump system interact. In conclusion, by concentrating on the creation of an affordable and low-maintenance anti-gravity pump, this project seeks to bridge the knowledge gap between theory and practical application in anti-gravity technology.

## 1. Introduction

Researchers, engineers, and inventors have long been fascinated by the idea of anti-gravity in the context of scientific inquiry and technological development. Theoretically, it is possible to control gravitational forces, which opens revolutionary possibilities, especially in areas like energy and transportation. However, there is still a huge gap between theoretical ideas and workable, practical solutions, making the actual implementation of anti-gravity technology a difficult task. There are several theoretical frameworks for anti-gravity, but putting these ideas into real, technical wonders is a difficult undertaking that requires painstaking attention to detail. Innovative solutions are necessary to overcome significant obstacles like material limits, energy needs, and the complexities involved in regulating gravitational forces. Progress is further impeded by the lack of actual data and experiments in this field, which leaves a gap in our knowledge of the practical applications of anti-gravity principles. This project attempts to close the knowledge gap between theory and real-world application in the field of anti-gravity technologies in answer to this urgent problem [1]. The building of an anti-gravity pump is the main topic of discussion. This apparatus aims to solve practical issues related to water delivery as well as investigate the

theoretical underpinnings of modifying gravitational forces. There is a global problem with water shortage, and there is a pressing need to develop creative solutions [2].

The experimental setup was built with selected parts, such as elbow pipes, spring valves, T connections, pressure gauges, valves, and PVC adhesive. The prototype recorded and analysed flow rates over time by combining these components. This data helped to understand antigravity dynamics and the pump's effectiveness and functionality. The pump could lift water to a height of about 1 meter, depending on the pipe diameter and droplet size. Beyond that, gravity broke the surface tension and the water fell. The pump could be used for microfluidic devices, which were tiny systems that controlled small volumes of fluids for various applications, such as chemical synthesis, medication delivery, and disease diagnosis. The pump could move fluids without external power, reducing the complexity and cost of microfluidic systems.

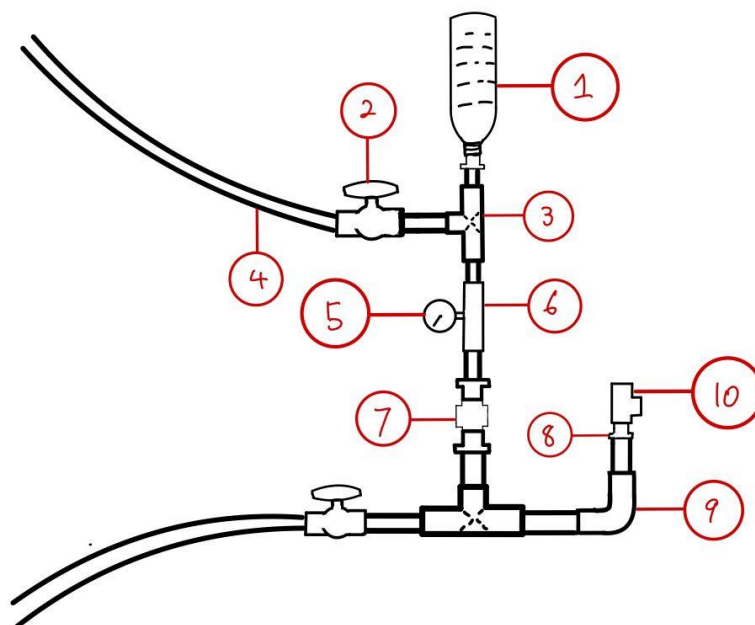
Long-distance spontaneous antigravitational liquid transportation has been extensively observed in nature; one example is the movement of water from a tree's root to its crown. However, artificial liquid delivery remains a challenge. "Carrying liquids up a hill usually involves a pump or a lot of buckets. But now it seems water can do some of the heavy lifting itself". The anti-gravity pump is similar to a hydraulic ram pump which is a method of raising water without the need for an outside energy source. "Hydraulic ram pumps can lift water over a considerable elevation, and do not require any external power source." [3]. Hydraulic ram pumps, or simply "hydrams," are self-powered water pumps that can be used to raise water levels for human use, livestock watering, or irrigation. Pumping does not require a generator, electricity, or even wind. Instead, the power comes from the water moving through gravity to the pump. Water can be raised by hydrams up to ten times its original height from the water source. In this project, anti-gravity pumps the main component is PVC pipe. PVC pipe is a product of contemporary technology that provides dependable and long-lasting service to a range of users, such as irrigation districts, utilities, contractors, engineers, operators, and plumbers. "As one of the most-used plumbing materials, PVC pipe is known for being very durable and long-lasting. PVC pipes last approximately 100 years. PVC pipe also saves cost and maintenance" [4].

The objective of this project is to systematically address the core issues associated with the operation and efficiency of an anti-gravity pump. This study aims to provide a comprehensive analysis of the relationship between height and time, which is fundamental to understanding the dynamics of fluid movement in anti-gravity conditions. Additionally, the project focuses on the development of an innovative system for measuring the pressure of liquid in the anti-gravity pump over time. This system is crucial for monitoring and optimizing pump performance under varying conditions. Finally, the investigation into the changes in flow rate against time will offer valuable insights into the pump's efficiency and reliability. By achieving these objectives, the project seeks to contribute significantly to the advancement of anti-gravity pump technology, ensuring improved functionality and broader application in various industries.

## 2. Materials and Methods

The methodology employed for the development of the anti-gravity pump is structured to encompass a thorough exploration of gravitational manipulation principles, fluid dynamics, and pump design. In the first stage, all relevant material is thoroughly reviewed to clarify current ideas and technology related to pump mechanics and anti-gravity. The design and build of the anti-gravity pump prototype will then be guided by the theoretical framework that has been constructed. Furthermore, the application of this anti-gravity pump is explained, along with the test that will be conducted on its functionality.

Internal workings of the anti-gravity pump: As water moves through the anti-gravity pump's intricate mechanism, a complicated but carefully planned series of events takes place. Water enters from the left and flows steadily through the drive pipe before emerging through the well-placed waste valve marked position 8 as in Fig. 1. This flow continues until a certain speed is reached, which is the critical point at which the waste valve abruptly and forcefully closes. When the waste valve closes, the system experiences a large pressure surge that forces the water to be forced into the carefully positioned air vessel. The water in the air vessel builds up momentum and energy before being methodically forced upward through the delivery pipe to reach a higher level. The cycle keeps repeating rhythmically until the water flow slows down and the waste valve opens again with grace. This dynamic and complex process, which is typified by a nuanced interaction between pressure changes and valve actions, coordinates the smooth and effective operation of the anti-gravity pump.



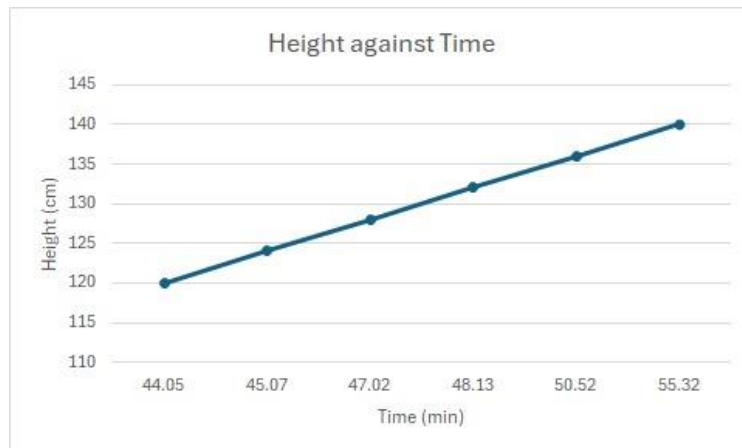
**Fig. 1** Sketch Drawing of Anti-Gravity Pump

PVC (polyvinyl chloride) pipes exhibit exceptional longevity due to a combination of advantageous characteristics [5]. The most important of these is their ability to withstand corrosion, making them extremely resilient to acidic or alkaline elements frequently present in soil and water. Furthermore, PVC's ability to withstand a wide range of chemicals helps maintain the pipes' structural integrity over time. PVC pipes' smooth inner surface reduces friction, which lessens the possibility of blockages and makes it easier to maintain a steady flow of fluid. Interestingly, PVC is made to withstand the damaging effects of UV radiation, thus exposure to sunshine doesn't cause brittleness or degeneration. Because the material is lightweight, handling and installation are made easier and there is less chance of harm. PVC pipes are a dependable and long-lasting option for a range of applications because of their minimal maintenance needs and extended service lives, which sometimes exceed several decades, as long as correct installation techniques and industry standards are followed [6].

### 3. Results and Discussions

#### 3.1 Height over Time

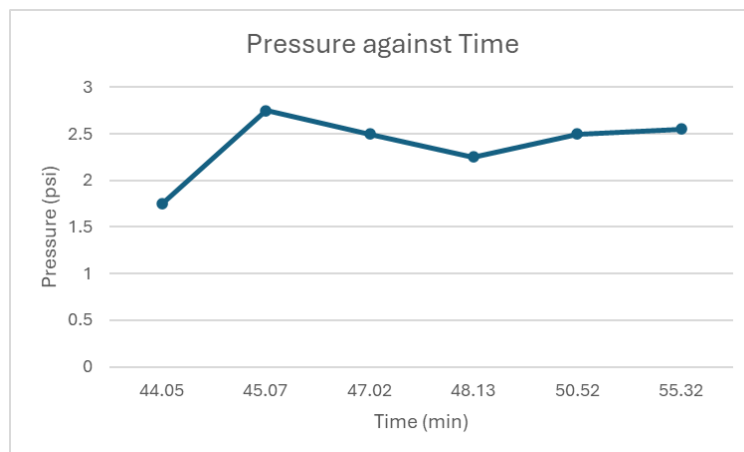
Fig. 2 below illustrates a positive linear relationship between height (centimetres) and time (minutes). Over 11 minutes, the height steadily increases from approximately 120 cm to around 140 cm. Notably, there are no abrupt fluctuations, suggesting consistent growth. However, without additional context, we cannot determine the specific factors driving this increase. Variables like growth rate, environmental conditions, or biological processes could play a role. To validate this pattern, we need to refer to related research or datasets. If previous studies confirm similar growth trends, it strengthens our understanding. In conclusion, this graph demonstrates a clear correlation between time and height, but further investigation is essential to uncover underlying mechanisms.



**Fig. 2** Graph Height against Time

### 3.2 Pressure over Time

Fig. 3 below provides an insightful representation of how pressure fluctuates over a short time span. Initially, there is a noticeable decrease in pressure from roughly 2.5 psi to just under 2 psi within the first three minutes of observation. Subsequently, the pattern stabilizes with minor oscillations maintaining around the 2psi mark for the remainder of the observed period. The significant result indicated by this graph is the initial drop in pressure, suggesting an event or reaction that caused a rapid decrease before reaching equilibrium. This stabilization after an initial drop could indicate that whatever process affecting pressure had completed its course or reached a state of balance between opposing forces or reactions. Comparing these findings with previous studies that show similar patterns can validate whether this behavior is typical or anomalous under certain conditions. Conclusively, understanding these dynamics can be pivotal for predicting system behavior and ensuring optimal operation within expected parameters.



**Fig. 3** Graph Pressure against Time

### 3.3 Flow Rate over Time

Fig. 4 below provides valuable insights into how flow rate changes over a short time span. Initially, there is a sharp decline in flow rate—from approximately  $0.00052 \text{ m}^3/\text{s}$  to just under  $0.00048 \text{ m}^3/\text{s}$ —within the first three minutes (between 44.05 and 45.07 minutes). Subsequently, the pattern stabilizes with minor oscillations, maintaining flow rates around the  $0.00048 \text{ m}^3/\text{s}$  mark for the remainder of the observed period. The significant result indicated by this graph is the initial drop in pressure, suggesting an event or reaction that caused a rapid decrease before reaching equilibrium. This stabilization after an initial drop could indicate that whatever process affecting pressure had completed its course or reached a state of balance between opposing forces or reactions. Comparing these findings with previous studies that show similar patterns can validate whether this behavior is typical or anomalous under certain conditions. Conclusively, understanding these dynamics can be pivotal for predicting system behavior and ensuring optimal operation within expected parameters.

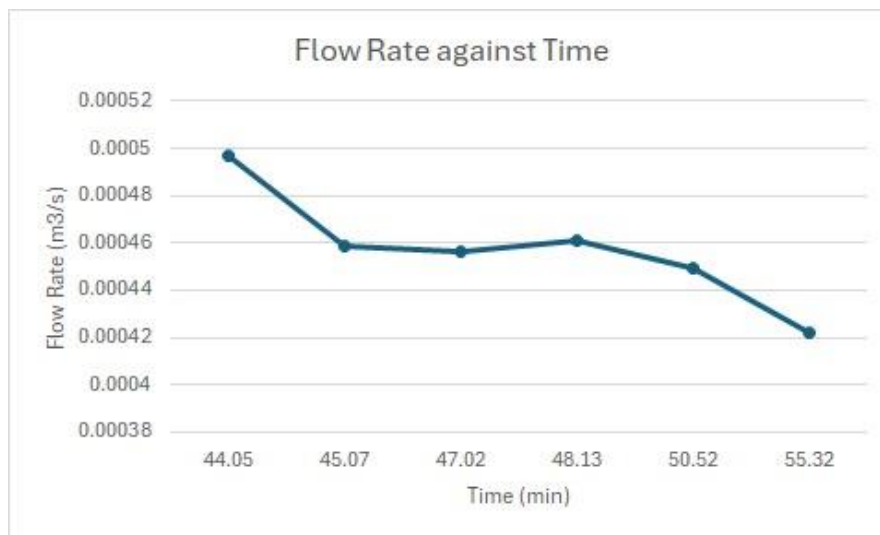


Fig. 4 Graph Flow Rate against Time

#### 4. Conclusion

In conclusion, the anti-gravity pump is a device that uses the kinetic energy of a large amount of moving water to pump a smaller amount of water to a higher elevation without the use of electricity or any other external power source. Using the momentum of falling water to generate pressure, this pump raises some of the water to a higher altitude using the hydraulic ram principle [7]. It is an efficient, sustainable, and cost-effective solution for water supply in remote areas, particularly where a natural water source is available. The anti-gravity pump is a highly prized asset because of its robustness, low maintenance needs, and continuous operation under steady water supply [8]. Furthermore, the research is to identify three objectives which are to design and develop an anti-gravity pump modelling, to determine and analyze pressure and height against time and the last objective is to investigate the changes in flow rate against time. These three objectives show that the anti-gravity pump is efficient to lift water to higher elevation steadily.

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#### Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

#### Author Contribution

The authors confirm contribution to the paper as follows: **study conception and design:** Muhammad Ammar Rifqi Izwan Razif, Darwish Rishdan Hishan, Muhammad Faris Norzan, Izat Yahaya; **data collection:** Muhammad Ammar Rifqi Izwan Razif, Darwish Rishdan Hishan, Muhammad Faris Norzan; **analysis and interpretation of results:** Muhammad Ammar Rifqi Izwan Razif, Darwish Rishdan Hishan, Muhammad Faris Norzan; **draft manuscript preparation:** Muhammad Ammar Rifqi Izwan Razif, Darwish Rishdan Hishan, Muhammad Faris Norzan, Izat Yahaya. All authors reviewed the results and approved the final version of the manuscript.

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