Experiment on the forces acting between two rotating disks of different sizes.

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Based on the previous results, it was suggested that iron-based materials would be affected by the magnetic force of the electric motor, so we should try experimenting with non-magnetic materials such as aluminum and copper. However, before even considering the materials, we hadn't conducted any clear, fundamental experiments on the forces acting between two rotating disks of different sizes. Ultimately, what we want to clarify is whether a force exists between two rotating disks of different sizes. If such a force exists, there would be a gravitational flow from the inner disk to the outer disk, and this force could be used to create a gravity-propelled engine.

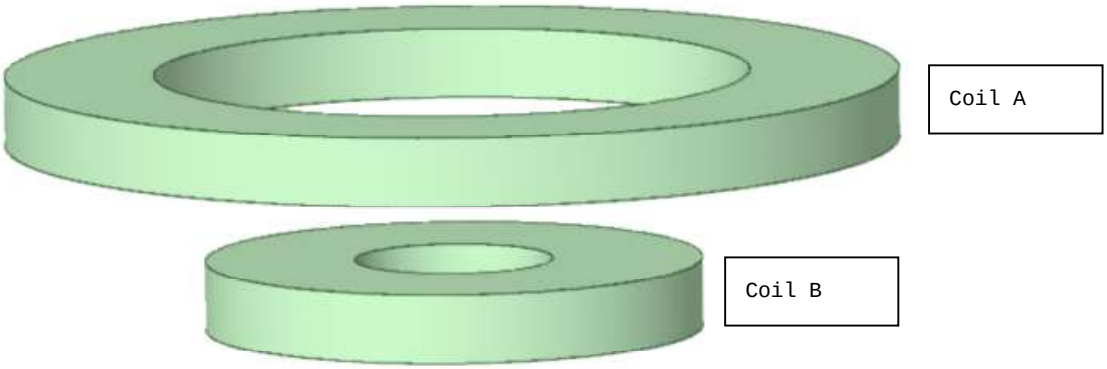
This time, we've decided to go back to basics and conduct an experiment on the forces acting between two rotating disks of different sizes. (Getting too complicated can lead to great confusion. You start to doubt the fundamentals.) Let's begin by reiterating the theory I presented in the version published on November 29, 2023.

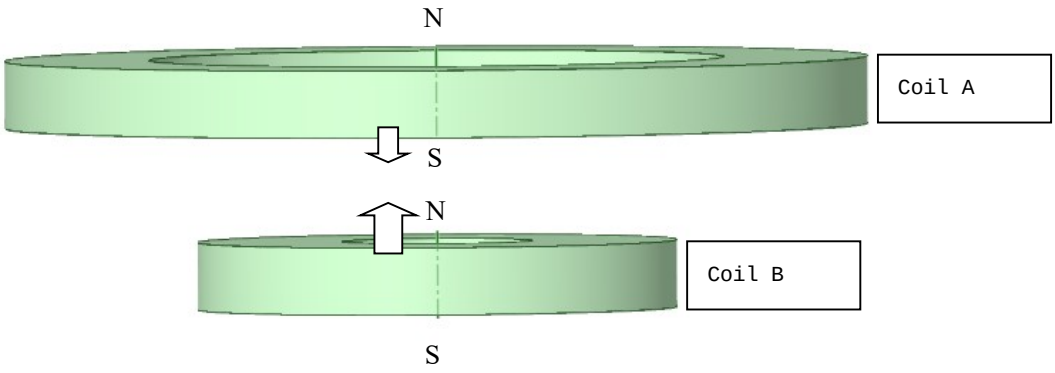
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<Principles, control, and applications of propulsion force (Reprint of the version published on November 29, 2023)>

■ How is propulsion generated?

If we have two electric coils as shown below, and we pass current through them in the same direction, they will become electromagnets and attract each other. A magnetic field is a moving electric field.

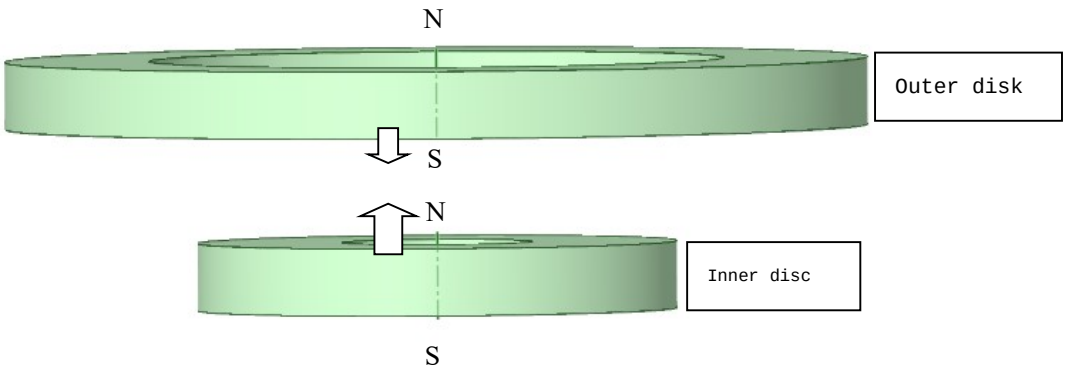




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If two disks are rotated in the same direction as shown below, a rotating gravitational field is created, and a moving gravitational field becomes a gravitational magnetic field (just as an electric magnetic field is a mathematical phenomenon of a moving electric field, a moving gravitational field also produces something like a magnetic field, which is called a gravitational magnetic field), and an attractive force acts between the two disks.

First, the question is whether such a force exists, but it seems that this was confirmed in the previous experiment.



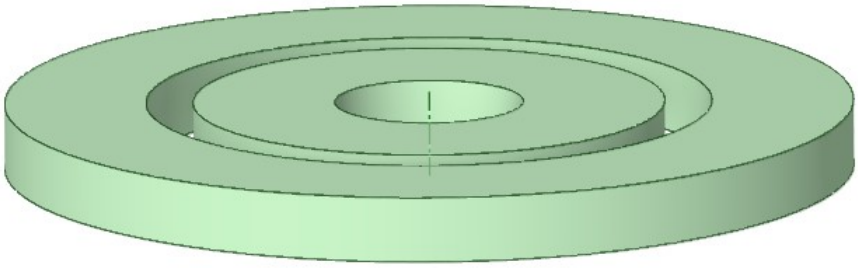
Just as a spring tries to return to its original position when pulled, things generally try to move from an unstable state to a stable state.

The stable state of the two rotating disks is when they are superimposed (their centers of gravity coincide), and it is also possible that a force acted on the inner disk to move to that position.

If the two disks rotate in opposite directions, it creates an unstable state similar to a pole shift, like bringing two north poles of a magnet closer together. If you hold a small gyroscope in your hand and twist it on Earth, you'll get a similar feeling to bringing two north poles of a magnet closer together. For this reason, reversing the rotation directions of the two disks is not recommended.

Because the rotating gravitational field affects the surroundings outside the device, it is possible for light to appear like a rainbow passing through a prism, or to momentarily disappear from view from the outside. This is not because the light has vanished, but because it has been bent.

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The expression that two disks are attracted to each other is not accurate. More accurately, the superposition of the rotational gravitational fields generated by the two rotating disks creates a force on the object depending on the direction of the gravitational field at each location. The same applies to the expression that two static objects are attracted to each other; more accurately, they move according to the state of their field.

If two rotating disks were to attract each other, they would try to converge at a point like the center of gravity of the two disks, and no thrust would be generated for the entire apparatus. A thrust is generated for the entire apparatus because it moves according to the direction of gravity in that place, so it moves as if falling. Normally, a sudden change of direction would cause strong G-forces that would crush the people inside, but if the direction is changed by gravity, it moves as if falling, so it would be possible to make sharp turns in a state like zero gravity. Electromagnetic force requires an opposing force, so this cannot be done.

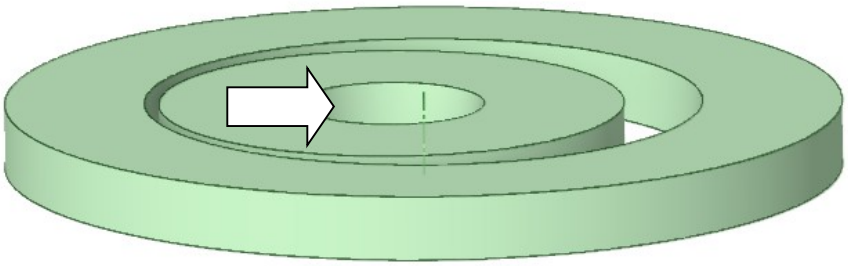
The effect of a rotating gravitational field can generate a significant force that can be easily perceived even in everyday objects like spinning tops or bicycles, so it could potentially have industrial applications.

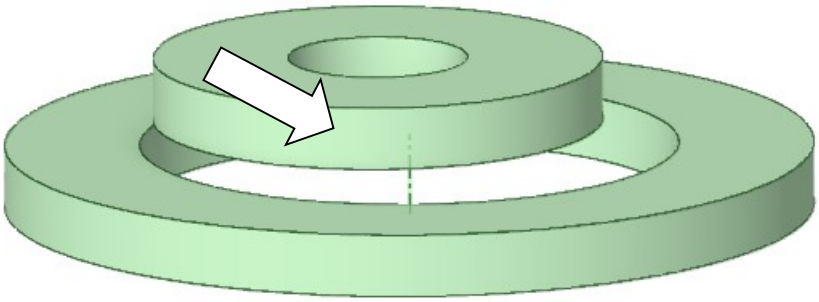
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■ How can we change the direction of the propulsion force?

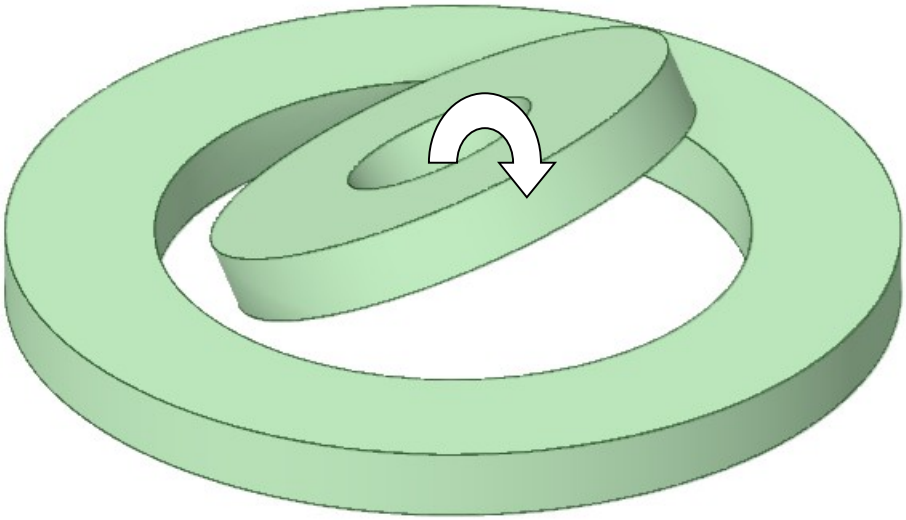
If the rotation directions of the outer and inner disks are essentially the same, the thrust force of the entire device will coincide with the direction in which the inner disk moves toward the center of the outer disk.

The direction will likely be as follows.





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In a 3D printer that controls the print head within an equilateral triangular prism using six arms, the head can be kept horizontal and its position controlled in 3D. Using three arms allows for control of the head's angled position.

By installing an inner disc in the print head area, it becomes possible to control the direction of propulsion in forward/backward, left/right, up/down, and diagonally.

While there are methods to control attitude and direction of movement using the rotation speed of four turbines, like in a quad drone, these methods are functionally superior because they cannot move unless tilted like a helicopter and cannot make sudden changes in direction.

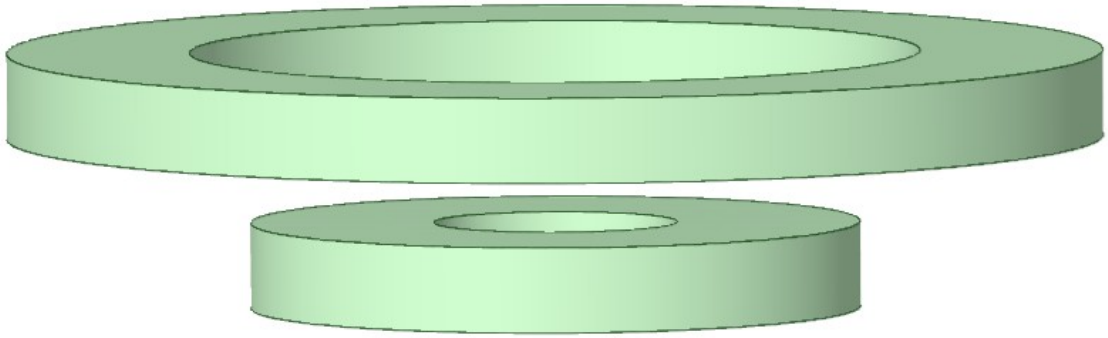
The quaddrone-like system is structurally simple, the thrust from two discs of different sizes sharing the same axis of rotation has been confirmed experimentally, and its control system is highly adaptable, making it highly feasible in the initial stages.

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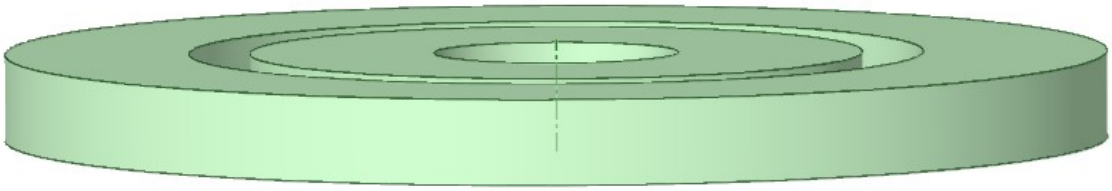
<Experimental method for measuring the force acting between two rotating disks of different sizes>

■Things to verify through experimentation

Two discs, one large and one small, are rotated at high speed in the same direction on the same axis of rotation that runs through their centers.



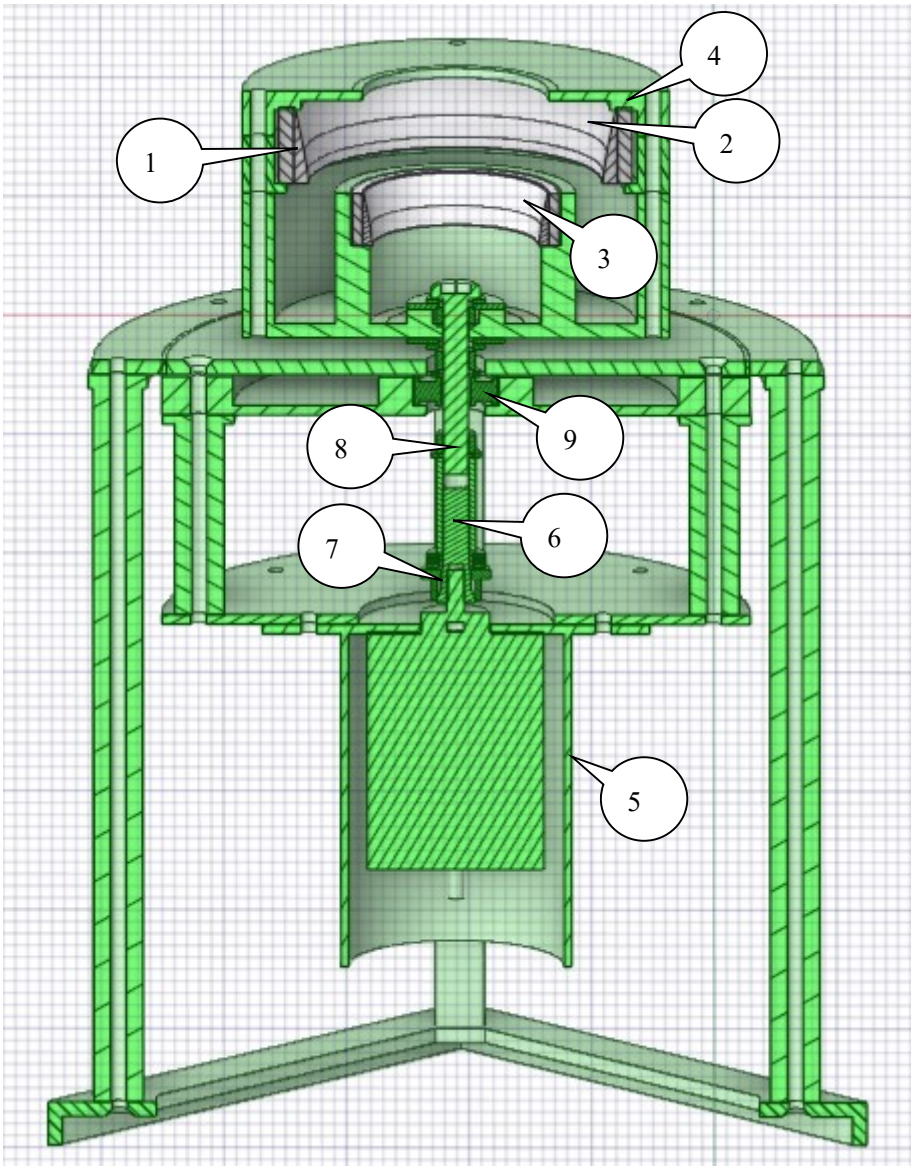
If the lower inner disk rises as shown below, it can be confirmed that an upward force is acting on the lower inner disk. This means that it has risen against the downward force of Earth's gravity.



According to conventional physics, an object rotating at high speed will strongly try to stay in place due to rotational inertia, so the above situation is impossible.

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■Structure



The same conical roller bearing outer ring is used as in the previous version.

① The inner surface of the outer ring has a mortar-shaped slope, and the center of gravity is at the bottom (horizontal lines are present because 3D rendering was difficult).

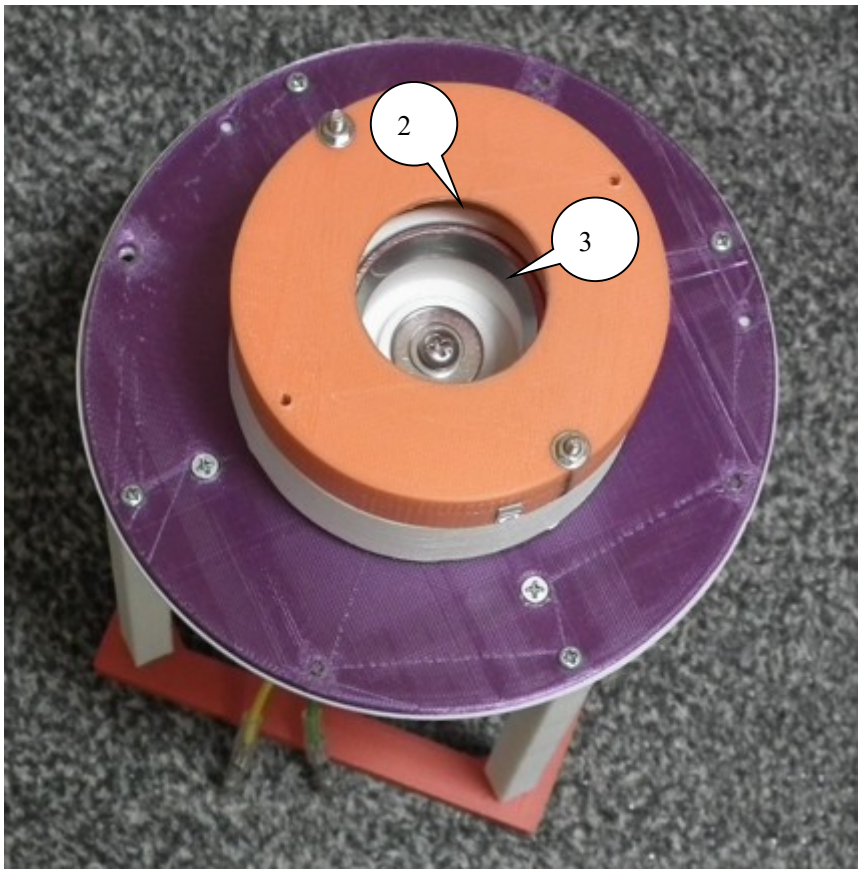
② Outer ring of the conical roller bearing (NTN_30306), equivalent to the outer disc (outer diameter 72 [mm], mass 131.2 [g]).

③ Outer ring of the conical roller bearing (NTN_30302), equivalent to the inner disc (outer diameter 42 [mm], height 10 [mm], mass 33.5 [g]), thicker

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at the bottom and with a lower center of gravity. The material is ferromagnetic iron-based.

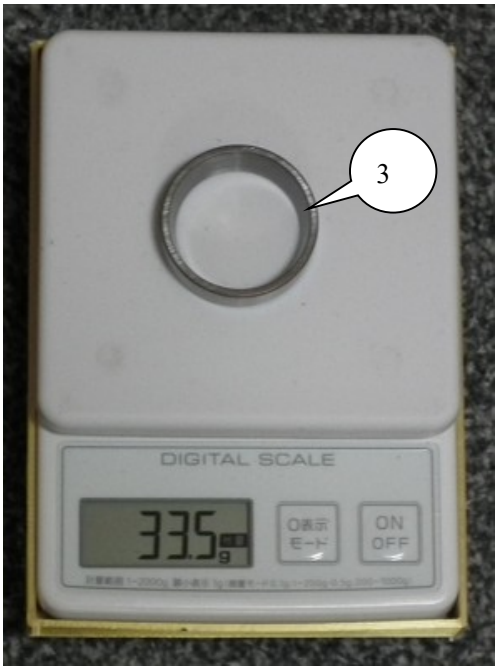
④ Component is originally there to hold ③ down so that it does not float, but it has been rotated 180 degrees upside down. Here, it serves to prevent ③ from flying upwards.



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131.2[g] and 33.5[g]





⑤ Motor cover: The motor was covered in this way to attach magnetic stainless steel tape (stainless steel comes in magnetic and non-magnetic forms) around the motor to provide magnetic shielding for the electric motor. (Apparently, even if you place a magnet in the center of a tin can of high-quality cookies, no magnetic force escapes, so I tried to emulate that, but for the first experiment, I didn't attach the stainless steel tape.)

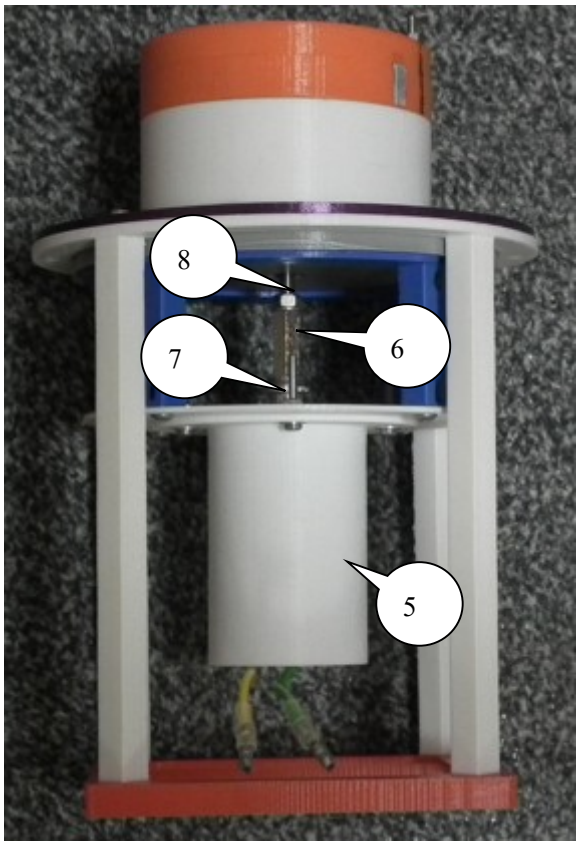
⑥ The tall nut is made of non-magnetic brass.

⑦ The collet is made of non-magnetic aluminum.

⑧ Other bolts, nuts, and washers are mostly made of non-magnetic stainless steel.

⑨ This large bearing is made of ferromagnetic iron (the influence of the rotational gravitational field on this bearing is surprisingly large, but in this case it is being allowed to spin freely without being tightened. The hole diameter is 6mm and the bolt is 5mm).

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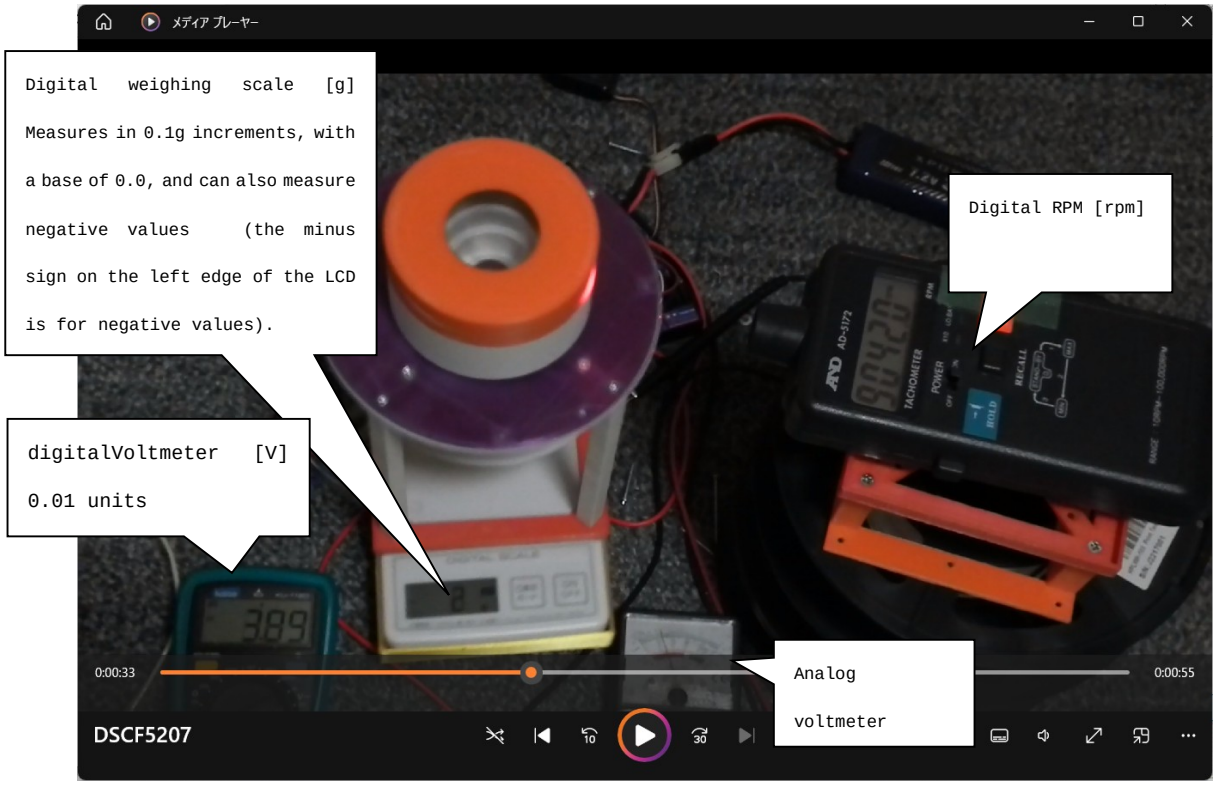


I used the same standard 540-class motor as last time. (This photo is reused from last time.)



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■ Experiment on the forces acting between two rotating disks of different sizes



Measured values (numerical values obtained from the recorded video [TR99/DSCF5207.mp4])				
No.	Voltage[v]①	Rotational speed[rpm]②	(Duration of video)	Weight[g]③
1	0.00	0	0:00	0
2	5.54	8068.2	0:28	−1
3	6.13	9073.4	0:32	−1
4	3.89	9042.0	0:33	−2
5	0.00	0	1:03	0

No. 1: Experiment begins.

No. 2 appears to have started to surface, but is now sliding sideways.

No. 3 shows the state just before the inner disk floats up.In

No. 4, the inner disk is floating. It appears that it did not hit the top cover, which is probably because the convergence point is near the center of the outer disk.For

No. 5, the rotation speed became 0, and the weight returned to 0 [g].

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The inner disk, with its center of gravity at the bottom, is at a right angle to the outer disk, yet it levitates more than 10mm against the downward force of Earth's gravity while rotating at a high speed of 9000 rpm. This is likely due to the effect of gravitational magnetic force (interaction of the rotating gravitational field). (Without such a force, it would not levitate.)

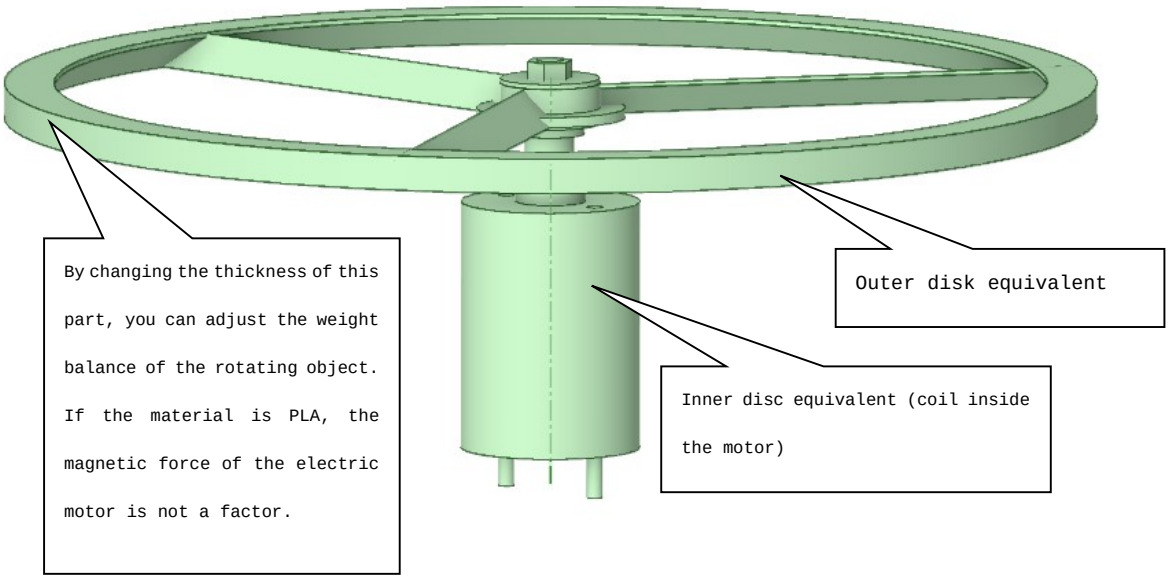
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<Concept for a hybrid air spacecraft>

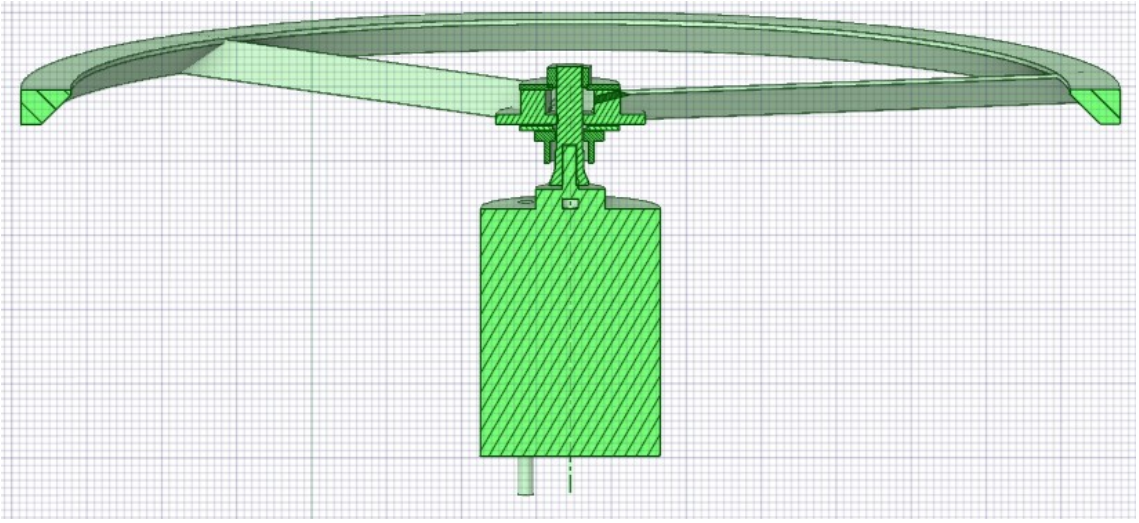
If it has propellers, no one will be surprised if it floats. Since gravity control would be incomprehensible to many people, a transitional structure will also be necessary. It's best to improve it gradually.

From an investor's perspective, it's problematic when you don't know whether something will take off or not. In that respect, having propellers guarantees that it will definitely fly.

This experiment has made it even clearer that gravity control is possible. Further development could make it a promising engine for highly efficient spacecraft in the future, and it would be important for the survival of humankind. If it's a hybrid, it would use the reaction of the air where the atmosphere is dense near the Earth's surface, and propel itself through gravity control at high altitudes where the atmosphere is thin, or in space. (This would create a new type of flying object that can fly seamlessly from the ground to space.) The Earth is already too small for humanity. We need to expand into space.



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This turbine is safer and less visually unusual than a conventional propeller with exposed blades. (You never know what might be lurking somewhere.)

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■Conclusion for the next step

The hybrid turbine described above can be printed using the layered 3D printer I'm currently using, so I think I'll try making a prototype next time.

That's all

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