

DRONE FLIGHT TIME

TESTABLE QUESTION

Will different weight affect the flight time of the drone?



HYPOTHESIS

I believe the drone's flight time will be a lot shorter with the heavier weight because I think the motors will have to work harder so it will use more battery

DEPENDENT VARIABLE

The total flight time of the drone before the drone is forced to land due to a low battery.

INDEPENDENT VARIABLE

Three different sized flat washers measured in grams that will be placed on top of the drone

CONTROLLED VARIABLE

1. Drone (Quadcopter)
2. Fully charged battery
3. Tape measure to set a testing flight height
4. Volt meter to make sure the battery charge is the same.

MATERIALS

- Drone
- Screw
- different weights
- drone controller
- tape measure
- hot glue
- Stopwatch
- volt meter
- digital scale.

PROCEDURE 1/3

1. Hot glue a screw to the top of the drone, make sure it is centered.
2. Fully charge drone battery.
3. Measure the starting voltage of the drone battery.
4. Insert battery into drone and bring it outside.
5. Have an assistant(my older sister Jescie)hold a tape measure at ten feet high in the air.

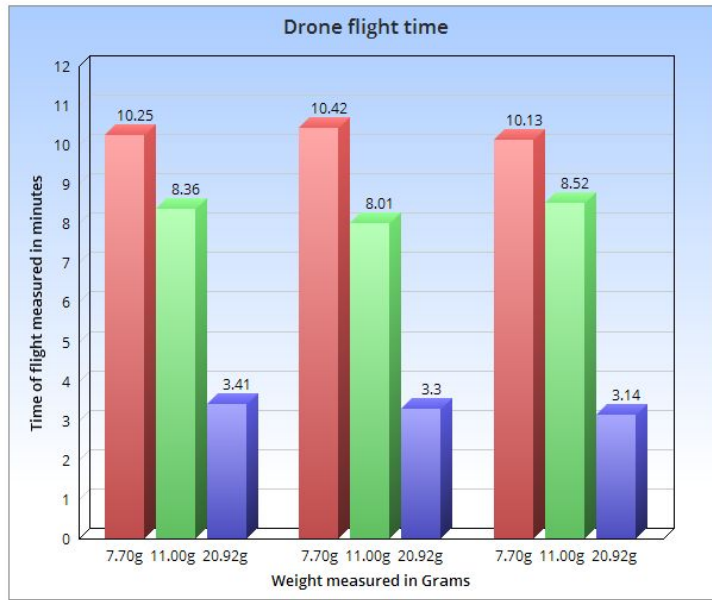
PROCEDURE 2/3

6. Measure two same sized flat washers(7,70 grams)
7. Place the two flat washers on the screw on top of the drone
8. Turn on the drone and fly it up and make it hover at 3 meters.
9. Start the stopwatch and continue until the drone is forced to land.
10. Document the flight time.

PROCEDURE 3/3

11. Fully charge the battery on the drone.
12. Re-produce steps three thru ten except use two different flat washers measured at 11.00 grams.
13. Fully re-charge the battery on the drone.
14. Re-produce steps Three thru Nine except use two differnt flat washers measured at 20.92 grams.
15. Document the flight time.

RESULTS 1/2



Data Chart

Weight measured in Grams		Time of flight in minutes		
		Trial 1	Trial 2	Trial 3
	7.70	10.25	10.42	10.13
	11.00	8.36	8.01	8.52
	20.92	3.41	3.30	3.14



RESULTS 2/2

The drone flight time was affected by the different sized weights. The one with the least weight flew the longest, the one with the most weights always had the shortest flight time. The one that was in the middle of the other weights always had a longer flight time than the heavier weight.

CONCLUSION

My hypothesis was correct.
The flight time of my drone
was cut in half with the
heavier weight.