

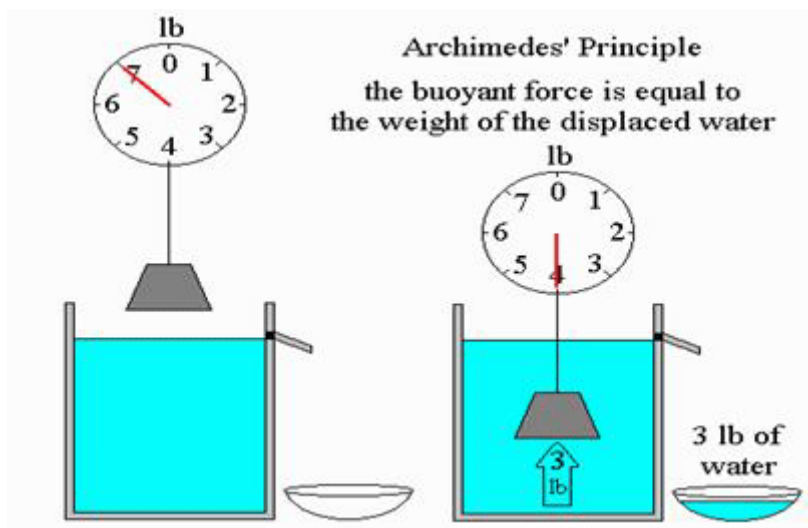


FLOATING DESIGN

If we are going to fly a drone above the sea, a river or a lake, we need to be sure that it is going to float if it falls accidentally on them. The structure is made of ABS plastic with the 3D printer.



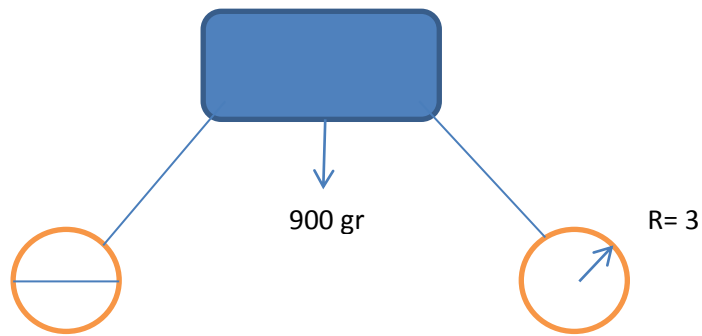
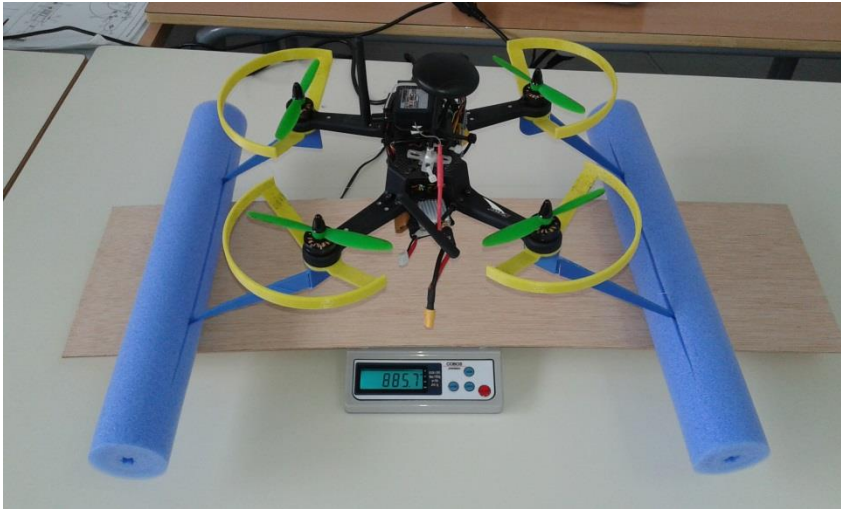
Based on Archimedes' principle,



<https://physics.weber.edu/carroll/archimedes/principle.htm>



Applying to the drone, we need to install floats as big as necessary.



V= Volume of floats

R= Radio of floats

L = Length of floats

ρ = Density of water (1 g/cm ³)

B= Buoyancy

W = Weight (900 g)

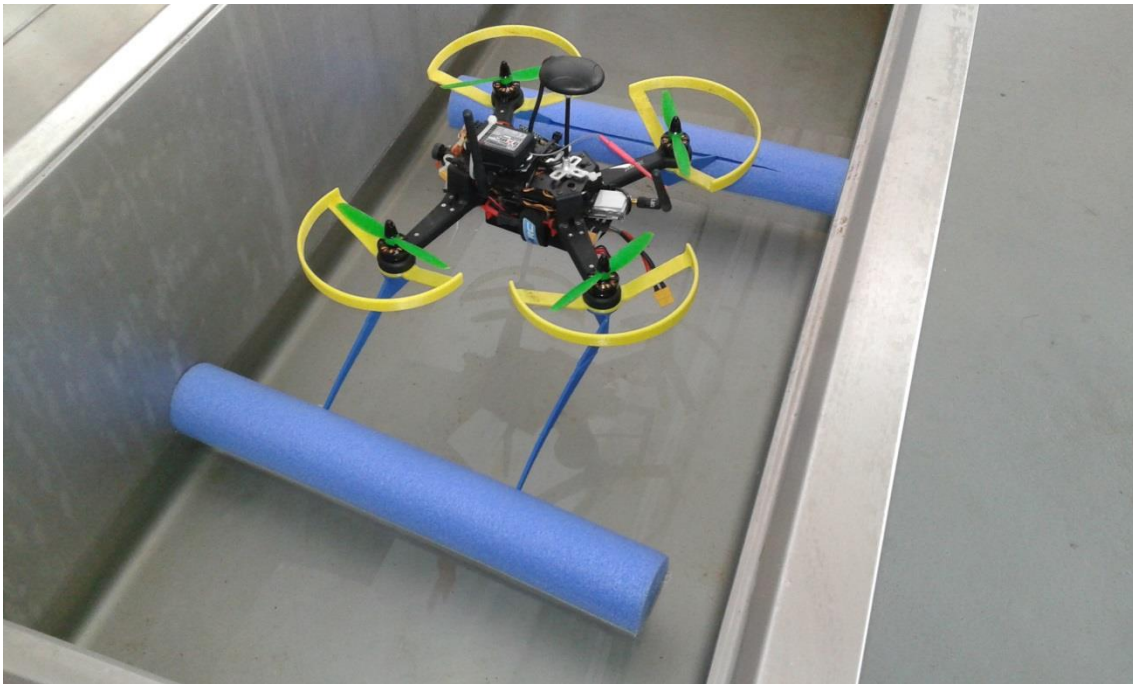
I need $B > \text{Weight} * 2$

$$B = 2 \text{ floats} * \pi * R^2 * L * \rho = 2 * \pi * 3 \text{ (cm)}^2 * 32 \text{ (cm)} * 1 \text{ (g/ cm}^3) = 1800 \text{ g}$$

In this case the floats only sink half of them.



Co-funded by the
Erasmus+ Programme
of the European Union



The test was successful.