We Claim:

1. A lift assembly (300) in an aerial vehicle, the lift assembly (300) comprising:

a wing (102) comprising a leading edge (108) and a trailing edge (110);

at least a vertical rotor (118) disposed below the wing (102);

wherein

a vertical axis (121) of the vertical rotor (118) is positioned within a span of the wing (102) at a pressure side (112);

the vertical rotor (118) is operational during a forward flight of the aerial vehicle;

a placement distance (122) between the leading edge (108) and the vertical axis (121) of the vertical rotor (118) is determined based on RPM of the vertical rotor (118), angle of attack (116) of the wing, and a wing chord (117); and

a combined effect of wing (102) and operating rotor (118) provides a higher lift coefficient compared to the sum of the lift coefficients of the wing (102) and the vertical rotor (118) operated individually, wherein

an optimum positioning of the vertical axis of the vertical rotor (118) at the rear side of the wing (102), towards the trailing edge (110), along a central axis of the span of the wing (102) for maximum lift force.

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2. The lift assembly (300) as claimed in claim 1, wherein

the lift force decreases as the positioning of the vertical axis of the vertical rotor (118) is shifted away from the rear side of the wing (102) along the central axis of the span of the wing (102) .

3. The lift assembly (300) as claimed in claim 1, wherein

   the positioning of the vertical axis of the vertical rotor (118) upstream of the wing (102), near the leading edge (108) provides a maximum reduction in drag;

   the reduction in drag force happens to be acting in the direction of thrust; and

   the ratio of lift to drag force is maximum when the vertical axis of the vertical rotor (118) is positioned at the rear of the wing (102).

4. The lift assembly (300) as claimed in claim 1, wherein

   the lift force increases in a linear manner with a throttle increased from 0 to 100%.

5. The lift assembly (300) as claimed in claim 1, wherein

   the lift force increase enables the wings (102) to be smaller and hence incur reduced drag for a given payload.

6. The lift assembly (300) as claimed in claim 1, wherein a lift coefficient of the lift assembly (300), at the optimum positioning of the vertical axis (121) of the vertical rotor (118), is higher when the vertical axis of the vertical rotor (118) is operational during forward flight of the aerial vehicle.