

**Claims**

1. A tail-sitter aircraft comprising:
  - a fuselage for carrying a payload;
  - a first lift body and a second lift body offset from the first lift body normal to a plane of the first lift body;
  - one or more first propulsion units mounted to the first lift body and one or more second propulsion units mounted to the second lift body; and
  - a controller configured to change a speed of one or more of said propulsion units relative to a speed of one or more other ones of said propulsion units, to adjust an orientation of the aircraft around one or more primary axes.
2. The tail-sitter aircraft of claim 1, wherein the controller is configured to control a speed of each of the one or more first propulsion units, relative to a speed of each of the one or more second propulsion units, to adjust a pitch of the aircraft.
3. The tail-sitter aircraft of claim 1 or 3, wherein the fuselage is disposed between the first lift body and second lift body.
4. The tail-sitter aircraft of any one of claims 1 to 3, comprising no control surfaces.
5. The tail-sitter aircraft of any one of claims 1 to 4, wherein the second lift body is offset from the first lift body in a direction of travel of the aircraft.
6. The tail-sitter aircraft of claim 5, wherein the second lift body is rearwardly offset relative to the direction of travel, and the first lift body is located above the fuselage when the aircraft is in a forward flight mode.
7. The tail-sitter aircraft of any one of claims 1 to 6, wherein the

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controller is configured to control a relative speed of two or more propulsion units to control a yaw of the aircraft.

8. The tail-sitter aircraft of any one of claims 1 to 7, wherein the controller is configured to control a relative speed of two or more propulsion units to control a roll of the aircraft.

9. The tail-sitter aircraft of any one of claims 1 to 8, comprising four said first propulsion units and four said second propulsion units.

10. The tail-sitter aircraft of claim 9, wherein the four first propulsion units and four second propulsion units are spaced along the first and second lift bodies, with two first propulsion units and two second propulsion units being located either side of the fuselage during forward flight mode.

11. The tail-sitter aircraft of any one of claims 1 to 10, wherein the first lift body comprises a wing and the second lift body comprises a wing.

12. The tail-sitter aircraft of any one of claims 1 to 11, wherein the fuselage comprises an adjustment mechanism for controlling a position of the payload relative to the first lift body and/or second lift body.

13. The tail-sitter aircraft of any one of claims 1 to 12, wherein each propulsion unit comprises a rotor.

14. An unmanned aircraft comprising:  
a fuselage for carrying a payload;  
an adjustment mechanism on the fuselage;  
a first lift body and a second lift body; and  
one or more propulsion units mounted to the first lift body and/or the second lift body,  
wherein the adjustment mechanism is configured to control a position of at least one of the payload and fuselage, relative to the first lift body and

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second lift body, for forward flight mode of the aircraft.

15. The unmanned aircraft of claim 14, wherein the adjustment mechanism is configured to secure the payload in either:

one of a plurality of discrete locations spaced in a direction of travel of the aircraft during forward flight mode; and

along a continuum extending in a direction of travel of the aircraft during forward flight mode.

16. The unmanned aircraft of any one of claims 14 to 16, wherein the adjustment mechanism comprises at least one of:

a rail; and

one or more rollers for engaging the rail,  
mounted to the fuselage.

17. The unmanned aircraft of claim 16, comprising:

a sensor unit for determining a position of a centre of gravity (CoG) of the aircraft; and

a payload controller for:

comparing the position to a desired position for the CoG; and

controlling the adjustment mechanism to move the payload relative to the first lift body and/or the second lift body to match the position and the desired position, if the position does not match the desired position.

18. The unmanned aircraft of claim 17, wherein the sensor unit determines the position of the CoG of the aircraft by determining a relative power consumption of two or more of the propulsion units.

19. The unmanned aircraft of any one of claims 14 to 18, wherein the adjustment mechanism is configured to control the position of the payload in a direction of travel, or perpendicular to the direction of travel, of the aircraft in a forward flight mode.

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20. The unmanned aircraft of any one of claims 14 to 19, wherein the adjustment mechanism controls an angle of the fuselage with respect to one of the lift bodies, ground and direction of travel.

21. An unmanned aircraft comprising:

a fuselage for carrying a payload;

at least one lift body;

one or more propulsion units mounted to each lift body;

a dynamic payload securing system in the fuselage; and

a payload controller controls a dynamic payload securing system to control or maintain a position of a payload in the fuselage.

22. An unmanned aircraft, being an unmanned aircraft according to at least two of claims 1, 14 and 21.