CLAIMS

1. An aircraft comprising:

a fuselage defining a body frame with longitudinal, lateral and height axes extending perpendicular to each other and intersecting in a center of gravity of the aircraft;

a pair of wings rotatably coupled, at wing roots, to opposing lateral sides of the fuselage, the pair of wings being rotatable relative to each other about a rotational axis which is at least substantially parallel to the lateral axis, and each wing having an airfoil with a leading edge and a chord;

a pair of servo motors, each of which connected to a corresponding wing and configured to rotate the corresponding wing about its rotational axis in two rotational directions;

a pair of thrust motors, each of which mounted on a corresponding wing and configured to provide a thrust in a leading direction of the airfoil of the corresponding wing; and

a flight controller connected to the servo motors and to the thrust motors, and configured to control each servo motor and each thrust motor, wherein each servo motor is able to rotate the corresponding wing about the rotational axis within such a rotational range that the aircraft can be selectively operated in a cruising mode, in which the pair of thrust motors provide thrust in a common direction so that the pair of wings are in a non-permanent-rotation-state about a yawing axis which is at least substantially perpendicular to the lateral axis and which extends at least substantially through the center of gravity, and a monocopter mode, in which the pair of thrust motors provide thrust in opposite directions so that the pair of wings are in a permanent-rotation-state about the yawing axis,

wherein each of the thrust motors has a propeller rotatable about a central propeller axis, and each thrust motor is configured to rotate the propeller thereof about its central propeller axis in clockwise direction in both the cruising mode and the monocopter mode, and the wings, when in the monocopter mode, are configured to rotate in a clockwise direction about the yawing axis.

2. An aircraft comprising:

a fuselage defining a body frame with longitudinal, lateral and height axes extending perpendicular to each other and intersecting in a center of gravity of the aircraft;

a pair of wings rotatably coupled, at wing roots, to opposing lateral sides of the fuselage, the pair of wings being rotatable relative to each other about a rotational axis which is at least

substantially parallel to the lateral axis, and each wing having an airfoil with a leading edge and a chord;

a pair of servo motors, each of which connected to a corresponding wing and configured to rotate the corresponding wing about its rotational axis in two rotational directions;

a pair of thrust motors, each of which mounted on a corresponding wing and configured to provide a thrust in a leading direction of the airfoil of the corresponding wing; and

a flight controller connected to the servo motors and to the thrust motors, and configured to control each servo motor and each thrust motor, wherein each servo motor is able to rotate the corresponding wing about the rotational axis within such a rotational range that the aircraft can be selectively operated in a cruising mode, in which the pair of thrust motors provide thrust in a common direction so that the pair of wings are in a non-permanent-rotation-state about a yawing axis which is at least substantially perpendicular to the lateral axis and which extends at least substantially through the center of gravity, and a monocopter mode, in which the pair of thrust motors provide thrust in opposite directions so that the pair of wings are in a permanent-rotation-state about the yawing axis,

wherein each of the thrust motors has a propeller rotatable about a central propeller axis, and each thrust motor is configured to rotate the propeller thereof about its central propeller axis in counter-clockwise direction in both the cruising mode and the monocopter mode, and the wings, when in the monocopter mode, are configured to rotate in a counter-clockwise direction about the yawing axis.

3. The aircraft of claim 1 or claim 2, wherein the flight controller is configured to individually control each servo motor.

4. The aircraft of any one of claims 1 to 3, wherein the flight controller is configured to individually control each thrust motor.

5. The aircraft of any one of claims 1 to 4, wherein at least in the cruising mode the yawing axis is at least approximately the height axis.

6. The aircraft of any one of claims 1 to 5, wherein in the monocopter mode, the fuselage is rotated at least substantially perpendicular relative to the chords of the wings such that the yawing axis is at least substantially the longitudinal axis.

7. The aircraft of any one of claims 1 to 6, wherein the pair of wings are rotatable to be at least substantially 180° relative to each other such that the thrust motors provide thrust in opposite directions.

8. The aircraft of any one of claims 1 to 7, wherein each wing is rotatable by at least substantially 90° in an opposite direction to rotation of the other wing such that the thrust motors provide thrust in opposite directions.

9. The aircraft of any one of claims 1 to 8, wherein the wings are immovable relative to the fuselage, about the longitudinal and height axes.

10. The aircraft of any one of claims 1 to 9, wherein each servo motor is coupled to the respective wing at a position proximal the wing root.

11. The aircraft of any one of claims 1 to 10, wherein each thrust motor is mounted proximal to the leading edge of the airfoil of the respective wing.

12. The aircraft of any one of claims 1 to 11, wherein each thrust motor is configured to provide thrust at least substantially parallel to the chord of the airfoil of the respective wing.

13. The aircraft of any one of claims 1 to 12, wherein the rotational axis of the wings is collinear with the lateral axis of the aircraft.

14. The aircraft of any one of claims 1 to 12, wherein the airfoil of each wing defines a corresponding center of gravity which is located at a distance of a quarter +/- 5%, or +/-1%, of the length of the chord from the leading edge of the airfoil.

15. The aircraft of any one of claims 1 to 14, wherein the flight controller is further configured to control pitch and roll of the aircraft by controlling the servo motors to rotate the corresponding wings about the rotational axis.

16. The aircraft of any one of claims 1 to 15, wherein the flight controller is further configured to control yaw of the aircraft by controlling the thrust motors.

17. The aircraft of any one of claims 1 to 16, wherein the airfoil of each wing is a flat plate airfoil.

18. The aircraft of any one of claims 1 to 17, wherein the airfoil of each wing is symmetrical about the chord of the wing.

19. The aircraft of any one of claims 1 to 18, wherein the aircraft is tailless.