

The claims defining the invention are as follows:

1. A vertical take-off and landing (VTOL) aircraft comprising:
 - a fuselage;
 - first and second forward wings mounted to opposing sides of the fuselage, each wing having a fixed leading edge and a trailing control surface which is pivotal about a generally horizontal pivot axis;
 - first and second electric motors each having rotors, the motors being mounted to each wing, the electric rotors being pivotal with the trailing control surface between a first position in which each rotor has a generally vertical axis of rotation, and a second position in which each rotor has a generally horizontal axis of rotation,
 - a control system for controlling each motor;
 - wherein the control system is configured to selectively operate the first electric motor and the second electric motor at different rotational speeds to generate a turning moment to pivot the control surface about the pivot axis.
2. The vertical take-off and landing (VTOL) aircraft of claim 1, wherein a thrust line of the first electric motor is angularly offset relative to a thrust line of the second electric motor.
3. The vertical take-off and landing (VTOL) aircraft of claim 1, wherein the first electric motor has a rotor located above the control surface, and the second electric motor has a rotor located below the control surface, such that a thrust line of the first electric motor is generally parallel to and offset relative to a thrust line of the second electric motor.
4. The vertical take-off and landing (VTOL) aircraft of any one of the preceding claims, wherein the first motor is operated by the control system at a higher rotational speed than the second motor responsive to a command to move the control surface between the first position and the second position,
 - further wherein the first motor is operated by the control system at a lower rotational speed than the second motor responsive to a command to move the control surface between the second position and the first position.

5. The vertical take-off and landing (VTOL) aircraft of any one of the preceding claims, wherein each wing has at least two electric motors each having rotors, the rotors being arranged in pairs having thrust lines which cancel any turning moment when the pair of motors rotate at generally equal rotation rates.

6. The vertical take-off and landing (VTOL) aircraft of any one of the preceding claims, wherein in a hovering mode, the control system is configured to rotate each motor at a suitable speed to generate a combined thrust force of all motors equal to a total aircraft and payload mass multiplied by gravitational acceleration.

7. The vertical take-off and landing (VTOL) aircraft of any one of the preceding claims, further including a brake, small actuator or clamping device to hold the control surface in the desired first and second positions.

8. The vertical take-off and landing (VTOL) aircraft of claim 7, wherein the brake or clamping device is operated by the control system.

9. The vertical take-off and landing (VTOL) aircraft of any one of the preceding claims further comprising first and second rearward wings mounted to opposing sides of the fuselage, wherein a distal portion of each forward wing, furthest from the fuselage, is connected to a distal portion of the adjacent rearward wing with a connecting member, defining a boxed wing structure.

10. A vertical take-off and landing (VTOL) aircraft comprising:
a fuselage;
first and second forward wings mounted to opposing sides of the fuselage, each wing having a fixed leading edge and a trailing control surface which is pivotal about a generally horizontal pivot axis;
a first electric motor having a first variable pitch propeller, a second electric motor having a second variable pitch propeller, the first and second motors being mounted to each wing, the first and second propellers being pivotal with the trailing control surface between a first position in which each propeller has a generally vertical axis of rotation, and a second position in which each propeller has a generally horizontal axis of rotation,
a control system for controlling rotation speed and/or blade pitch each variable pitch

propeller;

wherein the control system is configured to change the pitch of the first propeller relative to the second propeller to generate a turning moment to pivot the control surface about the pivot axis.

11. The vertical take-off and landing (VTOL) aircraft of any one of the preceding claims, wherein the motors are brushless DC motors which change speed responsive to changing switching frequency from electronic speed controllers of the control system.