CLAIMS

1. A method for assembling an Unmanned Autonomous Vehicle (UAV), comprising:

connecting a wing spar with boom carriers to form an H-frame, wherein the wing spar provides first mounting locations for securing horizontal propulsion units, and wherein the boom carriers provide second mounting locations for securing vertical propulsion units;

attaching a fuselage body to the wing spar;

attaching a pre-formed wing shell to the H-frame; and

attaching pre-formed boom shells to their corresponding boom carriers,

wherein the H-frame provides a structural frame for mounting the pre-formed wing shell and the pre-formed boom shells, and wherein the pre-formed wing shell includes grooves for housing the wing spar and the boom carriers.

2. The method of claim 1, wherein the boom carriers and the wing spar are connected with clamps.

3. The method of claim 1, wherein the pre-formed wing shell comprises:

a wing body;

an upper wing skin; and

a lower wing skin.

4. The method of claim 3, wherein the upper and lower wing skins are permanently attached to the wing body by adhesion.

5. The method of claim 1, wherein the pre-formed wing shell comprises a wing body and an upper wing skin, the method further comprising:

attaching a lower wing skin to the wing body after attaching the pre-formed wing shell to the H-frame.

6. The method of claim 5, further comprising:

after attaching the lower wing skin to the wing body, connecting the upper wing skin and the lower wing skin with a wing skin clip.

7. The method of claim 3, wherein attaching the pre-formed wing shell to the H-frame includes adhering the wing body to the wing spar.

8. The method of claim 4, further comprising:

attaching at least one motor mount for the horizontal propulsion units to the wing spar.

9. The method of claim 8, wherein an individual motor mount for a horizontal propulsion unit comprises:

a 2-piece C-shell, and

a fastener protruding through the C-shell and through the wing spar.

10. The method of claim 9, wherein attaching the at least one motor mount comprises:

sliding the 2-piece C-shell over the upper and lower wing skins; and

clamping the 2-piece C-shell to the pre-formed wing shell by tightening the 2-piece C-shell.

11. The method of claim 8, further comprising:

attaching one of the horizontal propulsion units to the at least one motor mount.

12. The method of claim 1, further comprising:

attaching a plurality of printed circuit boards (PCBs) to the boom carriers.

13. The method of claim 12, wherein the PCBs are attached with electrical cables to the fuselage.

14. The method of claim 12, further comprising:

after attaching the PCBs to the boom carriers, attaching pre-formed boom shells to the boom carriers.

15. The method of claim 14, wherein the pre-formed boom shells are adhered to their corresponding boom carriers.

16. The method of claim 14, wherein the PCBs remain at least partially exposed after attaching the pre-formed boom shells to the boom carriers.

17. The method of claim 12, further comprising:

attaching vertical motor mounts to the boom carriers; and

attaching vertical propulsion units to the vertical motor mounts.

18. The method of claim 17, further comprising:

electrically connecting the vertical propulsion units to the PCBs; and

running electrical tests of the vertical propulsion units.

19. The method of claim 1, wherein the wing spar is a carbon fiber tube with pre-drilled holes.

20. The method of claim 1, wherein the boom carriers are carbon fiber tubes with pre-drilled holes.

21. The method of claim 1, further comprising:

prior to attaching the fuselage body to the wing spar, testing electrical and/or mechanical components of the fuselage body.

22. The method of claim 1, further comprising:

replacing the fuselage body with another fuselage body while keeping the same H-frame.

23. A method for assembling an Unmanned Autonomous Vehicle (UAV), comprising:

connecting a wing spar with boom carriers to form an H-frame, wherein the wing spar provides first mounting locations for securing horizontal propulsion units, and wherein the boom carriers provide second mounting locations for securing vertical propulsion units;

attaching a fuselage body to the wing spar;

attaching a pre-formed wing shell to the H-frame;

attaching pre-formed boom shells to the boom carriers; and

attaching at least one motor mount for the horizontal propulsion units to the wing spar, wherein an individual motor mount for a given one of the horizontal propulsion units comprises:

a 2-piece C-shell, and

a fastener protruding through the 2-piece C-shell and through the wing spar,

wherein the H-frame provides a structural frame for mounting the pre-formed wing shell and the pre-formed boom shells, wherein the pre-formed wing shell comprises:

a wing body;

an upper wing skin; and

a lower wing skin,

and wherein the upper and lower wing skins are permanently attached to the wing body by adhesion.

24. The method of claim 23, wherein attaching the at least one motor mount comprises:

sliding the 2-piece C-shell over the upper and lower wing skins; and

clamping the 2-piece C-shell to the pre-formed wing shell by tightening the 2-piece C-shell.

25. The method of claim 23, further comprising:

attaching a plurality of printed circuit boards (PCBs) to the boom carriers; and

after attaching PCBs to the boom carriers, attaching the pre-formed boom shells to the boom carriers.

26. The method of claim 25, wherein the PCBs remain at least partially exposed after attaching the pre-formed boom shells to the boom carriers.