Claims

1. A steerable parachute system for use with a drone comprising:

a directional control module comprising:

an enclosure supporting:

a sensor for capturing a signal associated with a target site;

a controller connected to the sensor for determining a direction of travel in response to the signal; and

an actuator responsively coupled to the controller;

an attachment component for securing a payload to the enclosure; and

the parachute connectable to the directional control module, the parachute having a plurality of tension elements, at least one of the tension elements being connected to the actuator for steering the parachute during controlled descent towards a location relative to the target site.

2. The steerable parachute system of claim 1 wherein the payload is the drone or a parcel.

3. The steerable parachute system of claim 1, further comprising a drop system; the drop system comprising:

a mounting bracket for securing to the drone;

a chassis depending from a first side of the mounting bracket for supporting a drop system control module and a jaw for releasably securing a first side of the directional control module;

a securing arm depending from the opposite side of the mounting bracket to secure the opposite side of the directional control module.

4. The steerable parachute system of claim 2 or claim 3 wherein the attachment component comprises at least one linear tension member for securing said parcel.

5. The steerable parachute system of claim 4 further comprising a swivel so that said parcel can rotate freely independently from the directional control module.

6. The steerable parachute of claim 2, further comprising a recovery system; the recovery system comprising:

a deployment mechanism that deploys upon detection of drone failure, the deployment mechanism being attached to the directional control module and the parachute; and

at least one mounting bracket to secure the directional control module to the drone;

wherein parachute system is to provide guided recovery of the drone.

7. The steerable parachute of claim 6, wherein the deployment mechanism comprises a spring or a pyrotechnic mechanism.

8. A directional control module comprising:

an enclosure supporting:

a sensor for capturing a signal associated with a target site;

a controller connected to the sensor for determining a direction of travel in response to the signal; and

an actuator responsively coupled to said controller and connectable to at least one tension element of a parachute for controlling descent towards a location relative to the target site.

9. The directional control module of claim 8, wherein the actuator comprises at least one servo pulley or the enclosure comprises at least one shackle for securing at least one of said tension elements on the parachute.

10. A ram-air parachute comprising:

a canopy structure formed of a plurality of cells;

wherein a cell of the plurality of cells includes walls of a first material;

the canopy structure further including an inflation portion made of a second material;

wherein the first material has a lower mass per unit area than the second material;

wherein the second material is less self-adhering than the first material; and

wherein the inflation portion is positioned at a perimeter of the canopy structure to initiate inflation of the cell and separation of the walls made of the first material when the canopy structure is deployed.

11. The ram-air parachute of claim 10, wherein:

the walls of the first material include portions of a top and bottom wall of the canopy structure; and

the inflation portion comprises a portion of a side wall of the canopy structure.

12. The ram-air parachute of claim 11, wherein:

the portions of a top and bottom wall of the canopy structure include first triangular portions having vertices at a center and corners of the canopy structure; and

the inflation portion further includes second triangular portions having vertices at the center and corners of the canopy structure.

13. The ram-air parachute of claim 11, wherein the inflation portion further includes a linear portion extending between opposite corners of the canopy structure or a corner portion of the side wall of the canopy structure or a middle portion of the side wall of the canopy structure or wherein the inflation portion comprises an entire side wall of the canopy structure.

14. The ram-air parachute of claim 11, wherein the first material comprises ultra-high molecular weight polyethylene or the second material comprises nylon.

15. A parachute comprising a first portion of a first material and an inflation portion of the first material, wherein the first material is self-adhering, and wherein at least some of the inflation portion is calendared.