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CLAIMS

1. A damage mitigating aerial vehicle, comprising:
 - a) an aerial vehicle body configured with at least one lift generator;
 - b) parachute deploying apparatus interactable with an undeployed parachute which is retained in a chamber attached to said aerial vehicle body;
 - c) a controller of drive means for said at least one lift generator;
 - d) a lift generator deactivation unit in electrical communication with said controller;
 - e) one or more aerial vehicle mounted sensors which are configured to detect flight related characteristics for said aerial vehicle; and
 - f) a communication unit in electrical communication with said parachute deploying apparatus and with said controller of the drive means, said communication unit comprising a failure detection unit which is responsive to said detected flight related characteristics to determine when said detected flight related characteristics are indicative of a flight failure,

wherein said communication unit is operable to command activation of said parachute deploying apparatus and said lift generator deactivation unit following determination of the flight failure,

wherein deactivation of each of said at least one lift generator by said lift generator deactivation unit ensures that the parachute that is being expanded by said parachute deploying apparatus will not become entangled with a rotating lift generator.
2. The aerial vehicle according to claim 1, wherein the parachute deploying apparatus comprises;
 - i. a manifold positioned within an interior of, and fixed to, the chamber, with said manifold is releasably coupled a single vessel within which pressurized gas is generated;
 - ii. a gas generator which cooperates with said vessel;
 - iii. a plurality of hollow tubes which extend obliquely and upwardly from, and are in fluid communication with, said manifold; and
 - iv. a plurality of projectiles, each of which formed with a rod that is receivable in a corresponding one of said tubes and to each of which is connected a cord that is also connected to a corresponding portion of the undeployed parachute;

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wherein the pressurized gas which is generated upon triggering of said gas generator is flowable through each of said tubes to propel said plurality of projectiles in different directions and to cause the parachute to become deployed,

wherein the parachute deploying apparatus is configured to cause the parachute to achieve a desired canopy diameter simultaneously with ejection of the parachute from the chamber.

3. An aerial vehicle based damage avoidance system, comprising:

- a) a plurality of aerial vehicles flying in an airspace; and
- b) an unmanned aircraft traffic management system (UTM) station in data communication with said plurality of aerial vehicles,

wherein each of said aerial vehicles comprises:

- i. one or more on-board sensors including a location detector which are configured to detect flight related characteristics;
- ii. a processing unit configured to process outputs of each of the on-board sensors and to detect a critical failure;
- iii. a remote communication unit configured to transmit an instantaneous location identifier to said UTM station and to generate and transmit an aerial vehicle specific critical failure alarm signal to said UTM station following detection of the critical failure; and
- iv. an activation unit configured to activate a flight generator deactivation unit and a parachute deployment apparatus following detection of the critical failure to initiate a descent operation along a descent path,

wherein said UTM station is configured to transmit a warning signal to neighboring aerial vehicles that are predicted to be in a vicinity of the descent path of the failed aerial vehicle which is indicative that each of said neighboring aerial vehicles is to urgently change its flight path to avoid collision with the failed aerial vehicle.

4. A method for performing a damage mitigating operation by rapidly deploying a fabric, comprising the steps of:

- a) positioning a manifold, from which a plurality of hollow tubes extend distally, and are in fluid communication therewith, within an interior of a chamber directed to a target of a damage mitigating operation, wherein a single vessel

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within which pressurized gas is generatable is releasably coupled with said manifold;

- b) introducing a rod terminating with a projectile into a corresponding one of said tubes and attaching said projectile to a corresponding peripheral portion of an undeployed fabric;
- c) storing said fabric within said chamber so as to be in a folded condition such that each folded portion of said fabric is separated without contact from another folded portion with the exception of an expandable crease therebetween; and
- d) performing a triggering action which causes pressurized gas generated within the vessel to flow through said manifold to each of said plurality of hollow tubes and each of said projectiles to be distally propelled for a predetermined distance, whereby said fabric achieves a desired expanded dimension simultaneously with ejection of said fabric from said chamber that facilitates performance of a damage mitigating operation.

5. The method according to claim 4, wherein the fabric is fully deployed within less than a second following a gas generator triggering event.

6. The method according to claim 4, wherein the generated pressurized gas is discharged from an aperture formed in the vessel to an interior of the manifold and flows from said manifold interior through of each of the tubes simultaneously.

7. The method according to claim 4, wherein the vessel contains a compressed or liquid gas and the pressurized gas is generated by a spring loaded puncturing mechanism upon puncturing the vessel.

8. The method according to claim 4, wherein the chamber has a discontinuous exterior wall configured with a plurality of hollow portions, each of said hollow portions extending inwardly from said exterior wall into the chamber interior and spaced from the manifold and having a hollow portion interior within which a corresponding hollow tube extending from the manifold and receiving one of the projectile rods is positioned,

wherein a group of folded portions of the fabric is retained within the chamber between two adjacent hollow portions, such that a first folded portion is separated without contact from a

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second folded portion adjacent to the folded portion, with the exception of an expandable crease between the first and second folded portions,
wherein each of said folded portions undergoes interference-free ejection from the chamber with respect to another one of said folded portions as well as simultaneous fabric ejection and deployment.

9. The method according to claim 4, wherein the damage mitigating operation is performed by an initiating aerial vehicle.

10. The method according to claim 4, wherein the fabric is a net and the damage mitigating operation is interception of a malicious aerial vehicle using the net.

11. The method according to claim 4, wherein the fabric is a fire suppressing fabric and the damage mitigating operation is suppression of a fire using the fabric.

12. The method according to claim 11, wherein the damage mitigating operation is performed by smothering a fire present within an indoor structure.