CLAIMS

What is claimed is:

1. A computer implemented method of delivering over the air, shelled portions of fluids or granular substances containing effective ingredients, to a target, the method comprising:
selecting a type and a size of the shelled portions containing the required effective ingredients, based on mission parameters and physical data of a scene containing the target;
conveying the shelled portions to a delivery point, based on the mission parameters and the physical data; and
ballistically delivering the shelled portions towards the target,
wherein the shelled portions comprise fluids or granular substances covered by shells that provide the shelled portions a ballistic coefficient that is higher than a ballistic coefficient of similar portions without the shells,
wherein the shelled portions are homogenous in size, shape and weight, and
wherein the shelled portions weigh each approximately 100 to 300 grams.

2. The method according to claim 1, further comprising deriving physical data associated with the scene which includes the target from one or more sources, wherein at least some of the sources are independent of each other.

3. The method according to claim 1, further comprising obtaining mission parameters containing at least one of: a required type of effective ingredients, a required density of the effective ingredients at the target, and a desired distribution footprint of the shelled portions at the target.

4. The method according to claim 1, further comprising targeting the delivering of the shelled portions towards the target using optical targeting means that predicts impact area for the shelled portions at any given time.

5. The method according to claim 1, wherein the selecting and the ballistically delivering are carried out in view of avoiding harmful impact of the shelled portions in a case of human or object presence near or at the target.

6. The method according to claim 1, wherein the shelled portions comprise a shell that is made of bio-degradable or compostable materials.

7. The method according to claim 1, wherein the shelled portions comprise a shell that is configured to break prior to impact with the target so as to release at least some of the effective ingredients prior to the impact with the target.

8. The method according to claim 1, wherein the shelled portions contain two or more substances that are arranged to interact upon hitting the target or prior to the hitting due to rotational forces.

9. The method according to claim 1, wherein the shelled portions contain two or more substances, and wherein one of the two or more substances is arranged to generate a gaseous substance or foam upon impact at target or prior to the impact.

10. The method according to claim 1, wherein the ballistically delivering is carried out by an aerial vehicle.

11. The method according to claim 10, wherein the selecting is carried out during flight of the aerial vehicle.

12. The method according to claim 10, wherein the conveying is preceded by loading the aerial vehicles with the selected shelled portions using a dispenser that is arranged to fit into a plurality of types of aerial vehicles.

13. The method according to claim 1, wherein the ballistically delivering of the shelled portions is carried out using a dispenser that comprises a conveyer and a container that contains the shelled portions and wherein the dispenser is configured to accelerate the container along the conveyer and then bring the container to a complete and sudden stop so as to force the shelled portions ballistically out of the container.

14. The method according to claim 1, wherein each one of the shelled portions includes holes going through the shell and tilted fins located at one end of the shell designed such that

during the ballistic delivery, the shelled portions rotate around their longitudinal axis at an increasing angular speed which results in the fluid exiting the shelled portion.

15. A system for delivering over the air, shelled portions of fluids or granular substances containing effective ingredients to a target, the system comprising:
means for selecting a type and a size of the shelled portions, based on the mission parameters and the physical data;
means for conveying the shelled portions to a delivery point based on the mission parameters and the physical data; and
means for ballistically delivering the shelled portions towards the target,
wherein the shelled portions comprise fluids or granular substances covered by shells that provide the shelled portions a ballistic coefficient that is higher than a ballistic coefficient of similar portions without the shells,
wherein the shelled portions are homogenous in size, shape and weight, and
wherein the shelled portions weigh each approximately 100 to 300 grams.

16. The system according to claim 15, further comprising means for deriving the physical data associated with a scene which includes the target.

17. The system according to claim 15, further comprising means for obtaining mission parameters containing at least one of: a required type of effective ingredients, the required density of the effective ingredients at the target, and a desired distribution footprint of the shelled portions at the target.

18. The system according to claim 15, further comprising means for optical targeting the delivering of the shelled portions towards the target so that the impact area for the shelled portions at any given time is predicted.

19. The system according to claim 15, wherein the shelled portions comprise a shell that is made of a bio-degradable or a compostable material.

20. The system according to claim 15, wherein the shelled portions comprise a shell that is configured to break or open prior to impact with the target so as to release at least some of the effective ingredients prior to the impact with the target.

21. The system according to claim 15, wherein the shelled portions contain two or more substances that are arranged to interact upon hitting the target or prior to the hitting due to rotational forces.

22. The system according to claim 15, wherein the shelled portions contain two or more substances, wherein one of the two or more substances is arranged to generate a gaseous substance or foam upon impact at the target or prior to the impact.

23. The system according to claim 15, wherein the means for conveying and the means of delivering are implemented by an aerial vehicle.

24. The system according to claim 23, wherein the means for selection is located on the aerial vehicle and wherein the selecting is carried out during flight.

25. The system according to claim 23, further comprising a dispenser that comprises a plurality of shelled portions of various sizes and types, wherein the dispenser is loaded on the aerial vehicle.

26. The system according to claim 25, wherein the dispenser is arranged to fit a plurality of types of aerial vehicles.

27. The system according to claim 15, further comprising a dispenser that comprises a conveyer and a container which contains the shelled portions and wherein the dispenser is configure to accelerate the container along the conveyer and then bring the container to a complete and sudden stop so as to force the shelled portions ballistically out of the container.

28. The system according to claim 15, wherein each one of the shelled portions includes holes going through the shell and tilted fins located at one end of the shell designed such that during the ballistic delivery, the shelled portions rotate around their longitudinal axis at an increasing angular speed which results in the fluid exiting the shelled portion.

CLAIMS

What is claimed is:

1. A computer implemented method of delivering over the air, shelled portions of fluids or granular substances containing effective ingredients, to a target, the method comprising:

selecting a type and a size of the shelled portions containing the required effective ingredients, based on mission parameters and physical data of a scene containing the target;

conveying the shelled portions to a delivery point, based on the mission parameters and the physical data; and

ballistically delivering the shelled portions towards the target,

wherein the shelled portions comprise fluids or granular substances covered by shells that provide the shelled portions a ballistic coefficient that is significantly higher than a ballistic coefficient of similar portions without the shells.

2. The method according to claim 1, further comprising deriving physical data associated with the scene which includes the target from one or more sources, wherein at least some of the sources are independent of each other.

3. The method according to claim 1, further comprising obtaining mission parameters containing at least one of: a required type of effective ingredients, a required density of the effective substance at the target, and a desired distribution footprint of the shelled portions at the target.

4. The method according to claim 1, further comprising targeting the delivering of the shelled portions towards the target using optical targeting means that predicts impact area for the shelled portions at any given time.

5. The method according to claim 1, wherein the selecting and the ballistically delivering are carried out in view of avoiding harmful impact of the shelled portions in a case of human or object presence near or at the target.

6. The method according to claim 1, wherein the shelled portions comprise a shell that is made of bio-degradable or compostable materials.

7. The method according to claim 1, wherein the shelled portions comprise a shell that is configured to break prior to impact with the target so as to release at least some of the effective ingredients prior to the impact with the target.

8. The method according to claim 1, wherein the shelled portions contain two or more substances that are arranged to interact upon hitting the target or prior to the hitting due to rotational forces.

9. The method according to claim 1, wherein the shelled portions contain two or more substances, and wherein one of the two or more substances is arranged to generate a gaseous substance or foam upon impact at target or prior to the impact.

10. The method according to claim 1, wherein the ballistically delivering is carried out by an aerial vehicle.

11. The method according to claim 10, wherein the selecting is carried out during flight of the aerial vehicle.

12. The method according to claim 10, wherein the conveying is preceded by loading the aerial vehicles with the selected shelled portions using a dispenser that is arranged to fit into a plurality of types of aerial vehicles.

13. The method according to claim 1, wherein the ballistically delivering of the shelled portions is carried out using a dispenser that comprises a conveyer and a container that contains the shelled portions and wherein the dispenser is configured to accelerate the container along the conveyer and then bring the container to a complete and sudden stop so as to force the shelled portions ballistically out of the container.

14. The method according to claim 1, wherein each one of the shelled portions includes holes going through the shell and tilted fins located at one end of the shell designed such that during the ballistic delivery, the shelled portions rotate around their longitudinal axis at an increasing angular speed which results in the fluid exiting the shelled portion.

15. A system for delivering over the air, shelled portions of fluids or granular substances containing effective ingredients to a target, the system comprising:

means for selecting a type and a size of the shelled portions, based on the mission parameters and the physical data;

means for conveying the shelled portions to a delivery point based on the mission parameters and the physical data; and

means for ballistically delivering the shelled portions towards the target,

wherein the shelled portions comprise fluids or granular substances covered by shells that provide the shelled portions a ballistic coefficient that is significantly higher than a ballistic coefficient of similar portions without the shells.

16. The system according to claim 15, further comprising means for deriving the physical data associated with a scene which includes the target.

17. The system according to claim 15, further comprising means for obtaining mission parameters containing at least one of: a required type of effective ingredients, the required density of the effective ingredients at the target, and a desired distribution footprint of the shelled portions at the target.

18. The system according to claim 15, further comprising means for optical targeting the delivering of the shelled portions towards the target so that the impact area for the shelled portions at any given time is predicted.

19. The system according to claim 15, wherein the shelled portions comprise a shell that is made of a bio-degradable or a compostable material.

20. The system according to claim 15, wherein the shelled portions comprise a shell that is configured to break or open prior to impact with the target so as to release at least some of the effective ingredients prior to the impact with the target.

21. The system according to claim 15, wherein the shelled portions contain two or more substances that are arranged to interact upon hitting the target or prior to the hitting due to rotational forces.

22. The system according to claim 15, wherein the shelled portions contain two or more substances, wherein one of the two or more substances is arranged to generate a gaseous substance or foam upon impact at the target or prior to the impact.

23. The system according to claim 15, wherein the means for conveying and the means of delivering are implemented by an aerial vehicle.

24. The system according to claim 23, wherein the means for selection is located on the aerial vehicle and wherein the selecting is carried out during flight.

25. The system according to claim 15, further comprising a dispenser that comprises a plurality of shelled portions of various sizes and types, wherein the dispenser is loaded on the aerial vehicle.

26. The system according to claim 25, wherein the dispenser is arranged to fit a plurality of types of aerial vehicles.

27. The system according to claim 15, further comprising a dispenser that comprises a conveyer and a container which contains the shelled portions and wherein the dispenser is configure to accelerate the container along the conveyer and then bring the container to a complete and sudden stop so as to force the shelled portions ballistically out of the container.

28. The system according to claim 1, wherein each one of the shelled portions includes holes going through the shell and tilted fins located at one end of the shell designed such that during the ballistic delivery, the shelled portions rotate around their longitudinal axis at an increasing angular speed which results in the fluid exiting the shelled portion.

5