CLAIMS:

1. A heads-up augmented reality (AR) display system wearable by a user in a rescue or combat mission comprising:

a processor module;

a battery module;

a trunking module disposed between the processor and battery modules to protect wires connecting the processor and battery modules; and

a host spectacle having two temple pieces and a front frame;

wherein the processor, battery and trunking modules have hooks to removeably attach the processor and battery modules onto separate temple pieces whilst the trunking module is removeably attachable onto the front frame of the host spectacle; and

wherein a forward distal end of the processor module is pivotably connected to a display or projection unit by a drop-in slot connector, so that the display/projection unit is pivotable about one axis so that the display/projection unit is adjustable between an extended position (for AR view) and a retracted position (for full reality view).

2. The AR heads-up display system according to claim 1, wherein the host spectacle is a ballistic protection eyewear, a prescription eyewear or a non-prescription eyewear.

3. A heads-up augmented reality (AR) display system wearable by a user in a rescue or combat mission comprising:

a processor module;

a battery module; and

a helmet with a Picatinny rail disposed on either exterior side of the helmet for mounting the processor module and the battery module;

wherein a forward distal end of the processor module is pivotably connected to a display or projection unit by a drop-in slot connector, so that the display/projection unit is pivotable about one axis so that the display/projection unit is adjustable between an extended position (for AR view) and a retracted position (for full reality view).

4. The AR heads-up display system according to any one of claim 1-3, wherein the processor module comprises an electronic processing unit, a barometer, a pedometer, a

nine-axis inertia measuring unit (IMU), a GPS unit, a wireless communication unit, a touch pad/track point and some select buttons.

5. The AR heads-up display system according to claim 4, wherein the barometer, the pedometer and IMU are housed in a separate wearable unit.

6. The AR heads-up display system according to any one of the preceding claims, wherein the projection unit comprises a body member and a transparent prism member, with the transparent prism member having an internal reflection surface on which a projection image is formed, and the body member comprises a micro-display unit, a camera/video unit, a light sensor and a thermal camera.

7. The AR heads-up display system according to any one of the claims 1-2 or 4-6, wherein the host spectacle is foldable with the AR heads-up display system attached thereon.

8. The AR heads-up display system according to any one of claims 6-7, wherein the electronic processing unit comprises a man-identification algorithm for detecting a humanoid face when viewing through the camera/video unit.

9. The AR heads-up display system according to claim 8, further comprising a tagging algorithm to allow a user to tag a detected humanoid, any object-of interest (OoI), place-of interest (PoI) or target.

10. The AR heads-up display system according to any one of the claims 4-9 is configured to connect wirelessly with a third party support device, which comprises:
(a) a forward equipment having a camera/video or remote detector mounted on an unmanned vehicle deployed ahead of the user;
(b) a laser finder for obtaining a distance and coordinates of a target position, and planting the target position onto a GPS map;
(c) an acoustic targeting system (ATS) for detecting a hostile target position and planting the target position onto a GPS map; or

(d) a health monitor and battery power sensor, which are disposed in a vest worn by the user.

11. The AR heads-up display system according to any one of claims 4-10, wherein the electronic processing unit generates a user interface showing at least the following view modes:
(a) default video AR view mode;
(b) night vision view mode;
(c) a forward equipment control of a forward unmanned vehicle;
(d) a GPS map view mode;
(e) an acoustic targeting system (ATS) view mode;
(f) an emergency hotkey messaging view mode; or
(g) user's health conditions and supplies/battery power supply level.

12. The AR heads-up display system according to any one of claims 4-11, wherein outdoor navigation is via GPS, and indoor navigation is traced from the last GPS position and direction by a horizontal distance moved and rate of horizontal movement via the pedometer, by an ascent or descent distance moved via the barometer, and by directional changes via the IMU.

13. The AR heads-up display system according to claim 12, wherein an emergency user situation is detected by lack of motion within a predetermined time period from the last known GPS coordinates or outputs from the pedometer, barometer or IMU.

14. The AR heads-up display system according to claim 13 is operable to switch to the default video mode to send live video of the surrounding to a command centre (in an emergency situation).

15. The AR heads-up display system according to claim 10, wherein the unmanned vehicle is a drone and a multi-modal controller allows the user to command the drone via voice control, gesture control or brain sensory control.

16. The AR heads-up display system according to claim 15, wherein the multi-modal controller comprises a command integration unit and a command priority weighting unit.

17. The AR heads-up display according to claim 11, wherein the night vision view activates both the camera unit and thermal camera, and an image fusion algorithm corrects the outputs of both the camera unit and thermal camera, and provides a thermal image with defined outlines to assist the user with low light condition.

18. An augmented reality heads-up display kit configurable for a user in a rescue or combat mission comprising:

a processor module;

a battery module;

a trunking module to protect wires connecting the processor and battery modules;

a host spectacle having two temple pieces and a front frame that supports two lenses, wherein the processor and battery modules have hooks to removeably snap onto separate temple pieces while the trunking module is removeably attachable onto the front frame; and

a display or projection unit being pivotably connected to a forward distal end of the processor module by a drop-in slot connector.

19. An augmented reality heads-up display kit configurable for a user in a rescue or combat mission comprising:

a processor module;

a battery module;

a display or projection unit being pivotably connected to a forward distal end of the processor module by a drop-in slot connector;

a helmet; and

a Picatinny rail for mounting on either exterior side of the helmet, and the Picatinny rail, in turn, for mounting the processor module and battery module.

20. A heads-up augmented reality (AR) assisted control system for an unmanned vehicle deployed in a rescue or combat mission, the control system comprising:

closed loop communication between the unmanned vehicle and an inertia measuring unit (IMU) configured in an associated heads-up AR system according to any one of claims 1-3, wherein movements of the IMU provide realtime inputs to associated actuators and sensors in the unmanned vehicle, whilst the associated actuators and sensors provide realtime feedback, so that positions and orientations of the unmanned vehicle are verifiable.

21. A heads-up augmented reality (AR) assisted control system for an unmanned vehicle deployed in a rescue or combat mission, the control system comprising:

closed loop communication between the unmanned vehicle and a multi-modal controller configured in an associated heads-up AR system according to any one of claims 1-3, wherein voice, gesture or brain sensory signals send autonomous commands to associated actuators and sensors in the unmanned vehicle, so that the associated actuators are activated to execute predefined, incremental motions, thereby allowing a user to maintain heads-up, eyes-out and hands-on readiness.

22. The control system according to claim 21, wherein the multi-modal controller is operable to perform command integration and command priority weightage on the voice, gesture and brain sensory signals.

23. The control system according to claim 22, wherein the command priority weightage allows the user to over-ride the signal mode of the multi-modal controller.