Claims

WHAT IS CLAIMED IS:

1. A method of automating an association of a plurality of devices in a battlefield simulation system, comprising:

providing the plurality of devices on a platform;

initiating a network polling mode of each of the plurality of devices;

detecting, using each of the plurality of devices, at least one other of the plurality of devices;

detecting, using ~~a~~an inertial measurement unit of the device of the plurality of devices, a movement of the device and the at least one other of the plurality of devices;

correlating the movement of the device to the movement of the at least one other of the plurality of devices;

determining that a device profile associated with the device correlates with a movement over time profile of the platform;

determining, by the device, that the device and the at least one other of the plurality of devices are on the same platform based on the movement and the correlation of the device profile with the movement over time profile;

authenticating the device by a processor of the device based on the determination; and

establishing a personal area network between the device and the at least one other of the plurality of devices based on the authentication and determination that the device and the at least one other of the plurality of devices are on the same platform.

2. The method of automating an association of a plurality of devices in a battlefield simulation system as recited in claim 1, wherein:

the platform comprises a vehicle; and

the movement comprises one or both of an acceleration or a deceleration.

3. The method of automating an association of a plurality of devices in a battlefield simulation system as recited in claim 1, further comprising:

determining that the personal area network includes one or more devices that are not on the platform; and

re-establishing the personal area network to include devices that are determined to be on the platform.

4. The method of automating an association of a plurality of devices in a battlefield simulation system as recited in claim 1, wherein:

the platform comprises a human body; and

the determination that the device and the at least one other of the plurality of devices are on the platform is based on the correlation.

5. The method of automating an association of a plurality of devices in a battlefield simulation system as recited in claim 1, wherein the personal area network comprises a hub and spoke network or a mesh network.

6. The method of automating an association of a plurality of devices in a battlefield simulation system as recited in claim 1, wherein the device profile comprises two or more of an orientation of the device, the movement, acceleration, and timing associated with the device.

7. The method of automating an association of a plurality of devices in a battlefield simulation system as recited in claim 1, further comprising:

initiating the network polling mode of each of the plurality of devices comprises at least one of the plurality of devices detecting a light source.

8. An automatic association system for connecting a plurality of devices in a network of a battlefield simulation environment, comprising:

the plurality of devices, wherein each of the plurality of devices comprises:

an inertial measurement unit;

a network interface; and

a processor configured to:

initiate, using the network interface, a network polling mode of a device of the plurality of devices;

detect, using the network interface of the device, at least one other device of the plurality of devices;

detect, using the inertial measurement unit a movement of the device;

correlate the movement of the device to a movement of the at least one other of the plurality of devices;

determine that a device profile associated with the device correlates with a movement over time profile of a platform;

authenticate the device based on the determination; and

establish, using the network interface, a personal area network between the device and the at least one other of the plurality of devices based on the authentication of the device.

9. The automatic association system for connecting a plurality of devices in a network of a battlefield simulation environment as recited in claim 8, wherein the personal area network between the device and the at least one other of the plurality of devices is established based on the determination that the device and the at least one other of the plurality of devices are associated with the platform.

10. The automatic association system for connecting a plurality of devices in a network of a battlefield simulation environment as recited in claim 8, wherein the inertial measurement unit comprises one or more of an accelerometer, a gyroscope, a magnetometer, or a pressure sensor.

11. The automatic association system for connecting a plurality of devices in a network of a battlefield simulation environment as recited in claim 8, wherein the platform is a body on which the plurality of devices are attached.

12. The automatic association system for connecting a plurality of devices in a network of a battlefield simulation environment as recited in claim 8, wherein the platform is a vehicle on which the plurality of devices are attached.

13. The automatic association system for connecting a plurality of devices in a network of a battlefield simulation environment as recited in claim 8, wherein the network polling includes searching for the plurality of devices using a received signal strength indicator (RSSI) ~~or precision ranging~~, Bluetooth, beacon, Bluetooth Low Energy (BLE), ZigBee, and/or infrared signals.

14. The automatic association system for connecting a plurality of devices in a network of a battlefield simulation environment as recited in claim 8, wherein the device profile comprises two or more of an orientation of the device, the movement, acceleration, and timing associated with the device.

15. A non-transitory computer-readable medium having instructions stored thereon, wherein the instructions, when executed by one or more processors of an automatic association system, cause the automatic association system to perform by the one or more processors configured to:

provide a plurality of devices on a platform;

initiate a network polling mode of each of the plurality of devices;

detect, using each of the plurality of devices, at least one other of the plurality of devices;

detect, using an inertial measurement unit of a device of the plurality of devices, a movement of the device and a movement of the at least one other of the plurality of devices;

correlate the movement of the device to the movement of the at least one other of the plurality of devices;

determine that a device profile associated with the device correlates with a movement over time profile of the platform;

authenticate by a processor of the device based on the determination; and

establish a personal area network between the device and the at least one other of the plurality of devices based on the authentication.

16. The non-transitory computer-readable medium of claim 15, wherein the the platform comprises a vehicle; and

the movement comprises one or both of an acceleration or a deceleration.

17. The non-transitory computer-readable medium of claim 15, wherein the device profile comprises two or more of an orientation of the device, the movement, acceleration, and timing associated with the device.

18. The non-transitory computer-readable medium of claim 15, wherein the personal area network between the device and the at least one other of the plurality of devices is established based on the determination that the device and the at least one other of the plurality of devices are associated with the platform.

19. The non-transitory computer-readable medium of claim 15, wherein the platform comprises a human body.

20. The non-transitory computer-readable medium of claim 15, wherein the network polling includes searching for the plurality of devices using a received signal strength indicator (RSSI) ~~or precision ranging~~, Bluetooth, beacon, Bluetooth low energy (BLE), ZigBee, and/or infrared signals.