

CLAIMS

1. A system, comprising:
 - a hardware processor; and
 - a non-transitory machine-readable storage medium encoded with instructions executable by the hardware processor to perform a method comprising:
 - receiving, at a first one of a plurality of first electronic devices anchored along a transportation pathway, a first wireless signal transmitted by a second electronic device attached to a vehicle traveling along the transportation pathway;
 - responsive to receiving the first wireless signal, transmitting, from the first one of the first electronic devices, a second wireless signal, wherein the second electronic device determines a location of the vehicle along the transportation pathway according to the second wireless signal;
 - receiving, at the first one of the first electronic devices, a third wireless signal transmitted by a second electronic device, wherein the third wireless signal identifies the determined location of the vehicle; and
 - transmitting, from the first one of the first electronic devices, a fourth wireless signal, wherein the fourth wireless signal identifies the determined location of the vehicle, wherein other ones of the first electronic devices wirelessly relay fifth wireless signals along the transportation pathway, wherein the fifth wireless signals identify the determined location of the vehicle.

2. The system of claim 1, wherein:

the first, second, third, fourth, and fifth wireless signals are impulse-radio ultra-wideband (IR-UWB) signals.

3. The system of claim 1, wherein:

the second wireless signal identifies a location of the first electronic device.

4. The system of claim 1, further comprising:

determining, at the first one of the first electronic devices, based on the first wireless signal, a distance between the first and second electronic devices; and

identifying the determined distance between the first and second electronic devices in the second wireless signal, wherein the second electronic device determines the location of the vehicle along the transportation pathway based on the distance between the first and second electronic devices.

5. The system of claim 1, wherein:

the first one of the first electronic devices is anchored to a wall near the transportation pathway; and

the second electronic device determines the location of the vehicle along the transportation pathway according to the second wireless signal and a location of the wall.

6. The system of claim 1, wherein:

the transportation pathway comprises a plurality of tracks; and

the second electronic device determines the track on which the vehicle is located according to the second wireless signal.

7. The system of claim 1, wherein:

first other ones of the first electronic devices wirelessly relay the fifth wireless signals along the transportation pathway in a first direction; and

second other ones of the first electronic devices wirelessly relay the fifth wireless signals along the transportation pathway in a second direction.

8. A non-transitory machine-readable storage medium encoded with instructions executable by a hardware processor of a computing component, the machine-readable storage medium comprising instructions to cause the hardware processor to perform a method comprising:

receiving, at a first one of a plurality of first electronic devices anchored along a transportation pathway, a first wireless signal transmitted by a second electronic device attached to a vehicle traveling along the transportation pathway;

responsive to receiving the first wireless signal, transmitting, from the first one of the first electronic devices, a second wireless signal, wherein the second electronic device determines a location of the vehicle along the transportation pathway according to the second wireless signal;

receiving, at the first one of the first electronic devices, a third wireless signal transmitted by a second electronic device, wherein the third wireless signal identifies the determined location of the vehicle; and

transmitting, from the first one of the first electronic devices, a fourth wireless signal, wherein the fourth wireless signal identifies the determined location of the

vehicle, wherein other ones of the first electronic devices wirelessly relay fifth wireless signals along the transportation pathway, wherein the fifth wireless signals identify the determined location of the vehicle.

9. The non-transitory machine-readable storage medium of claim 8, wherein:

the first, second, third, fourth, and fifth wireless signals are impulse-radio ultra-wideband (IR-UWB) signals.

10. The non-transitory machine-readable storage medium of claim 8, wherein:

the second wireless signal identifies a location of the first one of the first electronic devices.

11. The non-transitory machine-readable storage medium of claim 8, further comprising:

determining, at the first one of the first electronic devices, based on the first wireless signal, a distance between the first and second electronic devices; and

identifying the determined distance between the first and second electronic devices in the second wireless signal, wherein the second electronic device determines the location of the vehicle along the transportation pathway based on the distance between the first and second electronic devices.

12. The non-transitory machine-readable storage medium of claim 8, wherein:

the first one of the first electronic devices is anchored to a wall near the transportation pathway; and

the second electronic device determines the location of the vehicle along the transportation pathway according to the second wireless signal and a location of the wall.

13. The non-transitory machine-readable storage medium of claim 8, wherein:

the transportation pathway comprises a plurality of tracks; and

the second electronic device determines the track on which the vehicle is located according to the second wireless signal.

14. The non-transitory machine-readable storage medium of claim 8, wherein:

first other ones of the first electronic devices wirelessly relay the fifth wireless signals along the transportation pathway in a first direction; and

second other ones of the first electronic devices wirelessly relay the fifth wireless signals along the transportation pathway in a second direction.

15. A computer-implemented method, comprising:

receiving, at a first one of a plurality of first electronic devices anchored along a transportation pathway, a first wireless signal transmitted by a second electronic device attached to a vehicle traveling along the transportation pathway;

responsive to receiving the first wireless signal, transmitting, from the first one of the first electronic devices, a second wireless signal, wherein the second

electronic device determines a location of the vehicle along the transportation pathway according to the second wireless signal;

receiving, at the first one of the first electronic devices, a third wireless signal transmitted by a second electronic device, wherein the third wireless signal identifies the determined location of the vehicle; and

transmitting, from the first one of the first electronic devices, a fourth wireless signal, wherein the fourth wireless signal identifies the determined location of the vehicle, wherein other ones of the first electronic devices wirelessly relay fifth wireless signals along the transportation pathway, wherein the fifth wireless signals identify the determined location of the vehicle.

16. The computer-implemented method of claim 15, wherein:

the first, second, third, fourth, and fifth wireless signals are impulse-radio ultra-wideband (IR-UWB) signals.

17. The computer-implemented method of claim 15, wherein:

the second wireless signal identifies a location of the first one of the first electronic devices.

18. The computer-implemented method of claim 15, further comprising:

determining, at the first one of the first electronic devices, based on the first wireless signal, a distance between the first and second electronic devices; and

identifying the determined distance between the first and second electronic devices in the second wireless signal, wherein the second electronic device

determines the location of the vehicle along the transportation pathway based on the distance between the first and second electronic devices.

19. The computer-implemented method of claim 15, wherein:

the first one of the first electronic devices is anchored to a wall near the transportation pathway; and

the second electronic device determines the location of the vehicle along the transportation pathway according to the second wireless signal and a location of the wall.

20. The computer-implemented method of claim 15, wherein:

the transportation pathway comprises a plurality of tracks; and

the second electronic device determines the track on which the vehicle is located according to the second wireless signal.