What is Claimed:

1. A computer-implemented method of localizing a trackee at a location and generating or updating a map of the location based on inertial sensor information, the method being implemented on a computer system that includes one or more physical processors programmed by one or more modules, the method comprising:

identifying, by a feature detection module, at least one sensor feature based on inertial sensor information that includes a plurality of measurements that measure a motion of the trackee at the location, the at least one sensor feature being identified based on a first subset of the plurality of measurements;

identifying, by the feature detection module, a structural feature of the location using only the at least one sensor feature;

determining, by a localization and mapping module, a location estimate that estimates a location of the trackee based on at least a second subset of the plurality of measurements that is the same as or different from the first subset of the plurality of measurements, wherein a position of the structural feature is determined based on the location estimate; and

generating or updating, by the localization and mapping module, a map of the location based on the structural feature.

2. The computer-implemented method of claim 1, the method further comprising:

recognizing, by the feature detection module, the at least one sensor feature based on at least a portion of a second plurality of measurements that was obtained in relation to a re-visit to the structural feature;

obtaining, by the localization and mapping module, the position of the structural feature;

determining, by the localization and mapping module, a second location estimate that estimates a location of the trackee based on at least a first subset of the second plurality of measurements; and

updating, by the localization and mapping module, the second location estimate based on the position of the structural feature.

3. The computer-implemented method of claim 1, the method further comprising:

generating, by a feature message module, a feature message that describes the structural feature, wherein generating or updating the map of the location comprises generating or updating, by the localization and mapping module, the map of the location based on information related to the structural feature conveyed by the feature message.

4. The computer-implemented method of claim 1, wherein correlating the at least one sensor feature with a structural feature of the location comprises:

determining, by the feature detection module, that at least a first portion of the plurality of measurements related to the motion indicates a path that is: (i) linear and horizontal within a threshold range, and (ii) does not change in elevation; and

correlating, by the feature detection module, the at least one sensor feature with a hallway of a building based on the indicated path.

5. The computer-implemented method of claim 1, wherein correlating the at least one sensor feature with a structural feature of the location comprises:

determining, by the feature detection module, that at least a first portion of the plurality of measurements related to the motion indicates a path that is: (i) vertical that changes in elevation, and (ii) includes no horizontal movements or horizontal movements below a threshold value; and

correlating, by the feature detection module, the at least one sensor feature with an elevator based on the indicated path.

6. The computer-implemented method of claim 1, wherein correlating the at least one sensor feature with a structural feature of the location comprises:

determining, by the feature detection module, that at least a first portion of the plurality of measurements related to the motion indicates a path that is: (i) vertical that changes in elevation, and (ii) includes horizontal movements above a threshold value; and

correlating, by the feature detection module, the at least one sensor feature with a stairwell based on the indicated path.

7. The computer-implemented method of claim 1, wherein correlating the at least one sensor feature with a structural feature of the location comprises:

determining, by the feature detection module, that at least a first portion of the plurality of measurements related to the motion indicates a first path that is: (i) linear and horizontal within a threshold range, and (ii) does not change in elevation;

correlating, by the feature detection module, the at least one sensor feature with a hallway of a building based on the indicated path, wherein the method further comprises:

determining, by the feature detection module, that at least a second portion of the plurality of measurements related to the motion indicates a second path that is: (i) vertical that changes in elevation, and (ii) includes no horizontal movements or horizontal movements below a threshold value;

correlating, by the feature detection module, the at least one sensor feature with an elevator based on the second path;

determining, by the feature detection module, that at least a first portion of the plurality of measurements related to the motion indicates a third path that is: (i) vertical that changes in elevation, and (ii) includes horizontal movements above a threshold value; and

correlating, by the feature detection module, the at least one sensor feature with a stairwell based on the third path.

8. The computer-implemented method of claim 1, the method further comprising:

detecting, by a location transition module, a transition from inside a structure to outside the structure or outside the structure to inside the structure based on sensor information that indicates a difference between inside the structure and outside the structure; and

generating or updating, by the localization and mapping module, the map of the location based on the transition.

9. The computer-implemented method of claim 1, the method further comprising:

identifying, by the feature detection module, at least one second sensor feature based on sensor information that is not inertial sensor information;

correlating, by the feature detection module, the at least one second sensor feature with a second structural feature of the location, wherein the second structural feature is the same as or

different from the structural feature, wherein generating the map comprises generating, by the localization and mapping module, the map based on the second structural feature.

10. The computer-implemented method of claim 9, wherein the structural feature and the second structural feature are the same feature such that at least two different types of sensors are used to identify the structural feature.

11. The computer-implemented method of claim 9, wherein the structural feature is different from the second structural feature such that different structural features are identified by respective different types of sensors.

12. The computer-implemented method of claim of claim 1, the method further comprising:

communicating, by the feature detection module, the sensor information to a remote device for further localization and mapping at the remote device.

13. A system for localizing a trackee at a location and generating or updating a map of the location based on inertial sensor information, the system comprising:

one or more processors configured to execute computer program modules, the computer program modules comprising:

a feature detection module programmed to:

identify at least one sensor feature based on inertial sensor information that includes a plurality of measurements that measure a motion of the trackee at the location, the at least one sensor feature being identified based on a first subset of the plurality of measurements;

identify a structural feature of the location using only the at least one sensor feature ; and

a localization and mapping module programmed to:

determine a location estimate that estimates a location of the trackee based on at least a second subset of the plurality of measurements that is the same as or different from the first subset of the plurality of measurements, wherein a position of the structural feature is determined based on the location estimate; and

generate or update a map of the location based on the structural feature.

14. The system of claim 13, wherein the feature detection module is further programmed to:

recognize the at least one sensor feature based on at least a portion of a second plurality of measurements that was obtained in relation to a re-visit to the structural feature, and wherein the localization and mapping module is further programmed to:

obtain the position of the structural feature;

determine a second location estimate that estimates a location of the trackee based on at least a first subset of the second plurality of measurements; and

update the second location estimate based on the position of the structural feature.

15. The system of claim 13, the computer program modules further comprising:

a feature message module programmed to generate a feature message that describes the structural feature, wherein the map of the location is generated based on information related to the structural feature conveyed by the feature message.

16. The system of claim 13, wherein the feature detection module is further programmed to:

determine that at least a first portion of the plurality of measurements related to the motion indicates a path that is: (i) linear and horizontal within a threshold range, and (ii) does not change in elevation; and

correlate the at least one sensor feature with a hallway of a building based on the indicated path.

17. The system of claim 13, wherein the feature detection module is further programmed to:

determine that at least a first portion of the plurality of measurements related to the motion indicates a path that is: (i) vertical that changes in elevation, and (ii) includes no horizontal movements or horizontal movements below a threshold value; and

correlate the at least one sensor feature with an elevator based on the indicated path.

18. The system of claim 13, wherein the feature detection module is further programmed to:

determine that at least a first portion of the plurality of measurements related to the motion indicates a path that is: (i) vertical that changes in elevation, and (ii) includes horizontal movements above a threshold value; and

correlate the at least one sensor feature with a stairwell based on the indicated path.

19. The system of claim 13, wherein the feature detection module is further programmed to:

determine that at least a first portion of the plurality of measurements related to the motion indicates a first path that is: (i) linear and horizontal within a threshold range, and (ii) does not change in elevation;

correlate the at least one sensor feature with a hallway of a building based on the indicated path, wherein the method further comprises:

determine that at least a second portion of the plurality of measurements related to the motion indicates a second path that is: (i) vertical that changes in elevation, and (ii) includes no horizontal movements or horizontal movements below a threshold value;

correlate the at least one sensor feature with an elevator based on the second path;

determine that at least a first portion of the plurality of measurements related to the motion indicates a third path that is: (i) vertical that changes in elevation, and (ii) includes horizontal movements above a threshold value; and

correlate the at least one sensor feature with a stairwell based on the third path.

20. The system of claim 13, the computer program modules further comprising:

a location transition module programmed to detect a transition from inside a structure to outside the structure or outside the structure to inside the structure based on sensor information that indicates a difference between inside the structure and outside the structure, wherein the map of the location is generated based further on the transition.

21. The system of claim 14, wherein the feature detection module is further programmed to:

identify at least one second sensor feature based on sensor information that is not inertial sensor information;

correlate the at least one second sensor feature with a second structural feature of the location, wherein the second structural feature is the same as or different from structural feature, wherein the map is generated based on the second structural feature.

22. The system of claim 21, wherein the structural feature and the second structural feature are the same feature such that at least types of sensors are used to identify the structural feature.

23. The system of claim 21, wherein the structural feature is different from the second structural feature such that different structural features are identified by respective different types of sensors.

24. The system of claim of claim 13, wherein the feature detection module is further configured to communicate the sensor information to a remote device for further localization and mapping at the remote device.

25. A computer readable storage media comprising executable code for localizing a trackee at a location and generating or updating a map of the location based on inertial sensor information, the computer executable code, when executed by one or more processors, causing the one or more processors to:

identify at least one sensor feature based on inertial sensor information that includes a plurality of measurements that measure a motion of the trackee at the location, the at least one sensor feature being identified based on a first subset of the plurality of measurements;

identify a structural feature of the location using only the at least one sensor feature;

determine a location estimate that estimates a location of the trackee based on at least a second subset of the plurality of measurements that is the same as or different from the first subset of the plurality of measurements, wherein a position of the structural feature is determined based on the location estimate; and

generate or update a map of the location based on the structural feature.

~~What is Claimed:~~

1. A computer-implemented method of localizing a trackee at a location and generating or updating a map of the location based on inertial sensor information, the method being implemented on a computer system that includes one or more physical processors programmed by one or more modules, the method comprising:

identifying, by a feature detection module, at least one sensor feature based on inertial sensor information that includes a plurality of measurements that measure a motion of the trackee at the location, the at least one sensor feature being identified based on a first subset of the plurality of measurements;

correlating, by the feature detection module, the at least one sensor feature with a structural feature of the location;

determining, by a localization and mapping module, a location estimate that estimates a location of the trackee based on at least a second subset of the plurality of measurements that is the same as or different from the first subset of the plurality of measurements, wherein a position of the structural feature is determined based on the location estimate; and

generating or updating, by the localization and mapping module, a map of the location based on the structural feature.

2. The computer-implemented method of claim 1, the method further comprising:

recognizing, by the feature detection module, the at least one sensor feature based on at least a portion of a second plurality of measurements that was obtained in relation to a re-visit to the structural feature;

obtaining, by the localization and mapping module, the position of the structural feature;

determining, by the localization and mapping module, a second location estimate that estimates a location of the trackee based on at least a first subset of the second plurality of measurements; and

updating, by the localization and mapping module, the second location estimate based on the position of the structural feature.

3. The computer-implemented method of claim 1, the method further comprising:

generating, by a feature message module, a feature message that describes the structural feature, wherein generating or updating the map of the location comprises generating or

~~updating, by the localization and mapping module, the map of the location based on information~~ related to the structural feature conveyed by the feature message.

4. The computer-implemented method of claim 1, wherein correlating the at least one sensor feature with a structural feature of the location comprises:

determining, by the feature detection module, that at least a first portion of the plurality of measurements related to the motion indicates a path that is: (i) linear and horizontal within a threshold range, and (ii) does not change in elevation; and

correlating, by the feature detection module, the at least one sensor feature with a hallway of a building based on the indicated path.

5. The computer-implemented method of claim 1, wherein correlating the at least one sensor feature with a structural feature of the location comprises:

determining, by the feature detection module, that at least a first portion of the plurality of measurements related to the motion indicates a path that is: (i) vertical that changes in elevation, and (ii) includes no horizontal movements or horizontal movements below a threshold value; and

correlating, by the feature detection module, the at least one sensor feature with an elevator based on the indicated path.

6. The computer-implemented method of claim 1, wherein correlating the at least one sensor feature with a structural feature of the location comprises:

determining, by the feature detection module, that at least a first portion of the plurality of measurements related to the motion indicates a path that is: (i) vertical that changes in elevation, and (ii) includes horizontal movements above a threshold value; and

correlating, by the feature detection module, the at least one sensor feature with a stairwell based on the indicated path.

7. The computer-implemented method of claim 1, wherein correlating the at least one sensor feature with a structural feature of the location comprises:

determining, by the feature detection module, that at least a first portion of the plurality ~~of measurements related to the motion indicates a first path that is: (i) linear and horizontal~~

~~within a threshold range, and (ii) does not change in elevation;~~

correlating, by the feature detection module, the at least one sensor feature with a hallway of a building based on the indicated path, wherein the method further comprises:

determining, by the feature detection module, that at least a second portion of the plurality of measurements related to the motion indicates a second path that is: (i) vertical that changes in elevation, and (ii) includes no horizontal movements or horizontal movements below a threshold value;

correlating, by the feature detection module, the at least one sensor feature with an elevator based on the second path;

determining, by the feature detection module, that at least a first portion of the plurality of measurements related to the motion indicates a third path that is: (i) vertical that changes in elevation, and (ii) includes horizontal movements above a threshold value; and

correlating, by the feature detection module, the at least one sensor feature with a stairwell based on the third path.

8. The computer-implemented method of claim 1, the method further comprising:

detecting, by a location transition module, a transition from inside a structure to outside the structure or outside the structure to inside the structure based on sensor information that indicates a difference between inside the structure and outside the structure; and

generating or updating, by the localization and mapping module, the map of the location based on the transition.

9. The computer-implemented method of claim 1, the method further comprising:

identifying, by the feature detection module, at least one second sensor feature based on sensor information that is not inertial sensor information;

correlating, by the feature detection module, the at least one second sensor feature with a second structural feature of the location, wherein the second structural feature is the same as or different from the structural feature, wherein generating the map comprises generating, by the ~~localization and mapping module, the map based on the second structural feature.~~

~~10. The computer-implemented method of claim 9, wherein the structural feature and the second structural feature are the same feature such that at least two different types of sensors are used to identify the structural feature.~~

11. The computer-implemented method of claim 9, wherein the structural feature is different from the second structural feature such that different structural features are identified by respective different types of sensors.

12. The computer-implemented method of claim of claim 1, the method further comprising:

communicating, by the feature detection module, the sensor information to a remote device for further localization and mapping at the remote device.

13. A system for localizing a trackee at a location and generating or updating a map of the location based on inertial sensor information, the system comprising:

one or more processors configured to execute computer program modules, the computer program modules comprising:

a feature detection module programmed to:

identify at least one sensor feature based on inertial sensor information that includes a plurality of measurements that measure a motion of the trackee at the location, the at least one sensor feature being identified based on a first subset of the plurality of measurements;

correlate the at least one sensor feature with a structural feature of the location; and

a localization and mapping module programmed to:

determine a location estimate that estimates a location of the trackee based on at least a second subset of the plurality of measurements that is the same as or different from the first subset of the plurality of measurements, wherein a position of the structural feature is determined based on the location estimate; and

generate or update a map of the location based on the structural feature.

14. The system of claim 13, wherein the feature detection module is further programmed to:

recognize the at least one sensor feature based on at least a portion of a second plurality of measurements that was obtained in relation to a re-visit to the structural feature, and wherein ~~the localization and mapping module is further programmed to:~~

~~obtain the position of the structural feature;~~

determine a second location estimate that estimates a location of the trackee based on at least a first subset of the second plurality of measurements; and

update the second location estimate based on the position of the structural feature.

15. The system of claim 13, the computer program modules further comprising:

a feature message module programmed to generate a feature message that describes the structural feature, wherein the map of the location is generated based on information related to the structural feature conveyed by the feature message.

16. The system of claim 13, wherein the feature detection module is further programmed to:

determine that at least a first portion of the plurality of measurements related to the motion indicates a path that is: (i) linear and horizontal within a threshold range, and (ii) does not change in elevation; and

correlate the at least one sensor feature with a hallway of a building based on the indicated path.

17. The system of claim 13, wherein the feature detection module is further programmed to:

determine that at least a first portion of the plurality of measurements related to the motion indicates a path that is: (i) vertical that changes in elevation, and (ii) includes no horizontal movements or horizontal movements below a threshold value; and

correlate the at least one sensor feature with an elevator based on the indicated path.

18. The system of claim 13, wherein the feature detection module is further programmed to:

determine that at least a first portion of the plurality of measurements related to the motion indicates a path that is: (i) vertical that changes in elevation, and (ii) includes horizontal movements above a threshold value; and

correlate the at least one sensor feature with a stairwell based on the indicated path.

19. The system of claim 13, wherein the feature detection module is further programmed to:

determine that at least a first portion of the plurality of measurements related to the motion indicates a first path that is: (i) linear and horizontal within a threshold range, and (ii) ~~does not change in elevation;~~

correlate the at least one sensor feature with a hallway of a building based on the indicated path, wherein the method further comprises:

determine that at least a second portion of the plurality of measurements related to the motion indicates a second path that is: (i) vertical that changes in elevation, and (ii) includes no horizontal movements or horizontal movements below a threshold value;

correlate the at least one sensor feature with an elevator based on the second path;

determine that at least a first portion of the plurality of measurements related to the motion indicates a third path that is: (i) vertical that changes in elevation, and (ii) includes horizontal movements above a threshold value; and

correlate the at least one sensor feature with a stairwell based on the third path.

20. The system of claim 13, the computer program modules further comprising:

a location transition module programmed to detect a transition from inside a structure to outside the structure or outside the structure to inside the structure based on sensor information that indicates a difference between inside the structure and outside the structure, wherein the map of the location is generated based further on the transition.

21. The system of claim 14, wherein the feature detection module is further programmed to:

identify at least one second sensor feature based on sensor information that is not inertial sensor information;

correlate the at least one second sensor feature with a second structural feature of the location, wherein the second structural feature is the same as or different from structural feature, wherein the map is generated based on the second structural feature.

22. The system of claim 21, wherein the structural feature and the second structural feature are the same feature such that at least types of sensors are used to identify the structural feature.

23. The system of claim 21, wherein the structural feature is different from the second structural feature such that different structural features are identified by respective different types of sensors.

~~24. The system of claim of claim 13, wherein the feature detection module is further~~ configured to communicate the sensor information to a remote device for further localization and mapping at the remote device.

25. A computer readable storage media comprising executable code for localizing a trackee at a location and generating or updating a map of the location based on inertial sensor information, the computer executable code, when executed by one or more processors, causing the one or more processors to:

identify at least one sensor feature based on inertial sensor information that includes a plurality of measurements that measure a motion of the trackee at the location, the at least one sensor feature being identified based on a first subset of the plurality of measurements;

correlate the at least one sensor feature with a structural feature of the location;

determine a location estimate that estimates a location of the trackee based on at least a second subset of the plurality of measurements that is the same as or different from the first subset of the plurality of measurements, wherein a position of the structural feature is determined based on the location estimate; and

~~generate or update a map of the location based on the structural feature.~~