CLAIMS

1. A mobile robot comprising:

a mobile base;

a turntable operatively coupled to the mobile base, the turntable configured to rotate about a first axis;

an arm operatively coupled to a first location on the turntable; and

a perception mast operatively coupled to a second location on the turntable, the perception mast configured to rotate about a second axis parallel to the first axis, wherein the first axis is spatially separate from the second axis, and the perception mast includes disposed thereon, a first perception module and a second perception module arranged between the first perception module and the turntable.

2. The mobile robot of claim 1, further comprising:

control circuitry configured to control a rotation of the perception mast based, at least in part, on a rotation of the turntable and a distance between the first location and the second location.

3. The mobile robot of claim 1, wherein each of the first perception module and second perception module includes a two-dimensional (2D) color camera, a depth sensor and at least one light source.

4. The mobile robot of claim 3, wherein the depth sensor comprises a time-of-flight (TOF) camera.

5. The mobile robot of claim 3, wherein the depth sensor comprises a stereoscopic camera.

6. The mobile robot of claim 3, wherein the 2D camera comprises a red-green-blue (RGB) monocular camera.

7. The mobile robot of claim 1, wherein the first perception module and a second perception module are arranged along a same side of the perception mast.

8. The mobile robot of claim 7, wherein the first and second perception modules are arranged to maximize a distance between the first and second perception modules along the same side of the perception mast.

9. The mobile robot of claim 7, wherein a field of view of the first perception module and a field of view of the second perception module do not overlap.

10. The mobile robot of claim 7, wherein the perception mast includes a plurality of sides including a first side as the same side on which the first and second perception modules are arranged, and wherein the perception mast further includes disposed thereon, a third perception module arranged on a side of the perception mast other than the first side.

11. The mobile robot of claim 2, wherein the control circuitry is further configured to control an operation of the arm based, at least in part, on an output of the first perception module and/or the second perception module.

12. The mobile robot of claim 1, wherein the second location is at an outer edge of the turntable.

13. The mobile robot of claim 1, further comprising:

control circuitry configured to simultaneously control rotation of the perception mast and rotation of the turntable in opposite directions.

14. The mobile robot of claim 1, wherein the perception mast further includes disposed thereon, at least one antenna configured to receive signals from a system external to the mobile robot.

15. The mobile robot of claim 1, wherein the perception mast further includes a scanner configured to scan an identifier tag attached to an object in the environment of the mobile robot.

16. The mobile robot of claim 1, further comprising:

control circuitry configured to control operation of the first perception module and the second perception module to capture one or more images as the mobile robot is in motion.

17. The mobile robot of claim 16, wherein the control circuitry is further configured to control an operation of the mobile robot based, at least in part, on the one or more images captured by the first perception module and/or the second perception module as the mobile robot is in motion.

18. The mobile robot of claim 17, wherein the operation of the mobile robot includes a direction of travel of the mobile robot.

19. The mobile robot of claim 1, further comprising at least one camera disposed on the arm.

20. The mobile robot of claim 1, wherein the first perception module is oriented relative to the perception mast at a first angle and the second perception module is oriented relative to the perception mast at a second angle, wherein the first angle and the second angle are different.

21. A method of capturing one or more images by a mobile robot, the method comprising:

controlling, during rotation of a turntable of the mobile robot in a first direction, a rotation of a perception mast in a second direction opposite the first direction, the perception mast being operatively coupled to the turntable, the perception mast configured to rotate about a first axis parallel to a second axis about which the turntable is configured to rotate, wherein the first axis is spatially separate from the second axis, and the perception mast includes disposed thereon a plurality of perception modules; and

capturing, by the plurality of perception modules, one or more images during rotation of the turntable and the perception mast.

22. The method of claim 21, wherein capturing the one or more images comprises capturing the one or more images during movement of a mobile base to which the turntable is operatively coupled.