Claims

1. A method, comprising:

obtaining, from an image sensor, image data representing an image of an environment appearing within a field of view of an imaging device that includes the image sensor, wherein an arranged plurality of barcodes appear in the image;

decoding a first subset of the plurality of barcodes from the image data, the first subset of the plurality of barcodes includes at least two barcodes;

determining, based upon location information associated with each of the decoded first subset of the plurality barcodes, one or more parameters representing a predicted arrangement of the plurality of barcodes in the image;

determining, based upon the one or more parameters, possible locations for respective ones of a second subset of the plurality of barcodes, wherein the second subset excludes the first subset;

attempting to decode the second subset of the plurality of barcodes from the image data in vicinities of the respective possible locations; and

transmitting, to a host, respective payload data associated with each of the first subset of the plurality of barcodes and decoded ones of the second subset of the plurality of barcodes.

2. The method of claim 1, wherein the plurality of barcodes are on respective ones of a plurality of objects in the environment, and wherein the possible locations represent possible locations of the plurality of objects.

3. The method of claim 1, wherein attempting to decode the second subset of the plurality of barcodes uses first a set of decoding parameters used to successfully decode one or more of the first subset of the plurality of barcodes.

4. The method of claim 1, further comprising:

using a first barcode decoding algorithm prioritized for speed over read rate to decode the first subset of the plurality of barcodes; and

using a second barcode decoding algorithm prioritized for read rate over speed to attempt to decode the second subset of the plurality of barcodes.

5. The method of claim 1, further comprising:

determining, based upon the location information associated with each of the decoded first subset of the plurality of barcodes and second location information associated with each successfully decoded barcode of the second subset of the plurality of barcodes, second one or more parameters representing a second predicted arrangement of the plurality of barcodes in the image;

determining, based upon the second one or more parameters, estimated second possible locations for respective ones of a third subset of the plurality of barcodes; and

attempting to decode the third subset of the plurality of barcodes from the image data in vicinities of the second possible locations.

6. The method of claim 1, further comprising:

identifying a subset of the possible locations at which a barcode was not successfully decoded; and

processing image data associated with each of the subset of the possible locations to confirm that a barcode is not present at or near the subset of the respective estimated locations.

7. The method of claim 6, wherein processing the image data associated with each of the subset of the possible locations to confirm that a barcode is not present comprises:

attempting to decode a barcode using image data further away from each of the subset of the possible locations with a substantially exhaustive set of barcode decoding parameters.

8. The method of claim 1, wherein the arrangement is based upon a rectangular grid.

9. The method of claim 1, wherein the arrangement is based upon a rectangular grid, and wherein determining, based upon the location information, the one or more parameters comprises:

determining, based upon the location information, a logical rectangular bounding box that logically encompasses the plurality of barcodes;

projecting logical lines from centers of the decoded first subset of the plurality of barcodes, the logical lines projected to be substantially perpendicular to edges of the logical rectangular bounding box; and

determining the one or more parameters to represent intersections of the logical lines.

10. The method of claim 1, wherein the one or more parameters represent possible locations of the plurality of barcodes in the arrangement, and wherein determining the possible locations for respective ones of the second subset of the plurality of barcodes comprises:

identifying a subset of the possible locations that excludes locations associated with the decoded first subset of the plurality of barcodes; and

determining the possible locations to represent the locations of the subset of possible locations.

11. The method of claim 1, wherein the arrangement is based upon a rectangular grid, and wherein determining, based upon the location information, the one or more parameters comprises:

determining, based upon a number of the plurality of barcodes and the location information, one or more dimensions of the grid;

subdividing the grid, based upon the number of the plurality of barcodes, to identify vertices of the grid; and

determining the one or more parameters to represent locations of the vertices.

12. An apparatus, comprising:

an interface to receive, from an image sensor, image data representing an image of an environment appearing within a field of view of the image sensor, wherein an arranged plurality of barcodes appear in the image;

a barcode decoder configured to:

decode a first subset of the plurality of barcodes from the image data, the first subset of the plurality of barcodes includes at least two barcodes;

determine, based upon location information associated with each of the decoded first subset of the plurality of barcodes, one or more parameters representing a predicted arrangement of the plurality of barcodes in the image;

determine, based upon the one or more parameters, possible locations for respective ones of a second subset of the plurality of barcodes, wherein the second subset excludes the first subset; and

attempt to decode the second subset of the plurality of barcodes from the image data in vicinities of the respective possible locations; and

a communication interface configured to transmit, to a host, respective payload data associated with each of the first subset of the plurality of barcodes and decoded ones of the second subset of the plurality of barcodes.

13. The apparatus of claim 12, wherein the plurality of barcodes are on respective ones of a plurality of objects in the environment, and wherein the possible locations represent possible locations of the plurality of objects.

14. The apparatus of claim 12, wherein the barcode decoder is configured to:

use a first barcode decoding algorithm prioritized for speed over read rate to decode the first subset of the plurality of barcodes; and

use a second barcode decoding algorithm prioritized for read rate over speed to attempt to decode the second subset of the plurality of barcodes.

15. The apparatus of claim 12, wherein the arrangement is based upon a rectangular grid.

16. The apparatus of claim 12, wherein the arrangement is based upon a rectangular grid, and wherein the barcode decoder is configured to determine, based upon the location information, the one or more parameters by:

determining, based upon the location information, a logical rectangular bounding box that logically encompasses the plurality of barcodes; and

projecting logical lines from centers of the decoded first subset of the plurality of barcodes, the logical lines projected to be substantially perpendicular to edges of the logical rectangular bounding box; and

determining the one or more parameters to represent intersections of the logical lines.

17. A non-transitory, computer-readable, storage medium storing computer-readable instructions that, when executed by one or more processors, cause a barcode decoder to:

obtain, from an image sensor, imaging data representing an image of an environment appearing within a field of view of the image sensor, wherein an arranged plurality of barcodes appear in the image;

decode a first subset of the plurality of barcodes from the image data, the first subset of the

plurality of barcodes includes at least two barcodes;

determine, based upon location information associated with each of the decoded first subset of the plurality of barcodes, one or more parameters representing a predicted arrangement of the plurality of barcodes in the image;

determine, based upon the one or more parameters, possible locations for respective ones of a second subset of the plurality of barcodes, wherein the second subset excludes the first subset;

attempt to decode the second subset of the plurality of barcodes from the image data in vicinities of the respective possible locations; and

transmit, to a host, respective payload data associated with each of the first subset of the plurality of barcodes and decoded ones of the second subset of the plurality of barcodes.

18. The storage medium of claim 17, wherein the plurality of barcodes are on respective ones of a plurality of objects in the environment, and wherein the possible locations represent possible locations of the plurality of objects.

19. The storage medium of claim 17, wherein the instructions, when executed by one or more processors, cause the barcode decoder to:

use a first barcode decoding algorithm prioritized for speed over read rate to decode the first subset of the plurality of barcodes; and

use a second barcode decoding algorithm prioritized for read rate over speed to attempt to decode the second subset of the plurality of barcodes.

20. The storage medium of claim 17, wherein the arrangement is based upon a rectangular grid, and wherein the instructions, when executed by one or more processors, cause the barcode decoder to determine, based upon the location information, the one or more parameters by:

determining, based upon the location information, a logical rectangular bounding box that logically encompasses the plurality of barcodes;

projecting logical lines from centers of the decoded first subset of the plurality of barcodes, the logical lines projected to be substantially perpendicular to edges of the logical rectangular bounding box; and

determining the one or more parameters to represent intersections of the logical lines.