CLAIMS:

What is claimed is:

1. A method of presenting retrieved storage units from a storage system to a working station in a sequenced manner, said method comprising:

(a) having a gridded three-dimensional structure comprising:

a gridded track layout occupying a two-dimensional area and on which storage/retrieval vehicles are conveyable in two directions over said two-dimensional area; and

a plurality of storage columns residing above or below the gridded track layout in spaced distribution within the two-dimensional area of said gridded track layout, each storage column comprising a plurality of storage locations arranged one over another and sized to accommodate placement and storage of storage units therein; and

a plurality of upright shafts residing above or below the gridded track layout in spaced distribution over the two dimensional area of said track layout, such that each of the storage columns is neighboured by a respective one of the upright shafts through which the storage locations of a corresponding storage column are accessible by the storage/retrieval vehicles to place and remove the storage units to and from said storage locations of each of said storage columns;

(b) having the storage/retrieval vehicles retrieve respective storage units designated for delivery to the working station from the storage locations; and

(c) within said gridded three-dimensional structure, orchestrating, by a computerized control system, sequenced delivery of retrieved storage units to an entrance spot of the working station by parking at least some of said storage/retrieval vehicles in the gridded three-dimensional structure at areas thereof of non-obstructive relation to the entrance spot of the working station and an exit spot of the working station, and thereby enabling storage/retrieval vehicles of a higher ranking in a determined delivery sequence to reach the entrance spot without interference by parked storage/retrieval vehicles and re-enter the gridded three-dimensional structure, from the exit spot of the working station, after delivery of respective storage units to the working station;

(d) triggering at least two movement sensors installed within said working station to detect movement of storage/retrieval vehicles into an access spot of the working station and departure of said storage/retrieval vehicles from said access spot and into the exit spot of said working station;

(e) positioning said two movement sensors within said working station such that said two movement sensors are not triggered by said storage/retrieval vehicles statically parked on said access spot.

2. The method of claim 1, wherein said areas of non-obstructive relation comprise parking spots located on the gridded track layout.

3. The method of claim 1 or 2, further comprising selecting said parking spots from unoccupied spots of the gridded track layout other than designated landing spots, launching spots, drop-down spots and climb-out spots at which the storage/retrieval vehicles transition between the gridded track layout and the upright shafts.

4. The method of claim 1, wherein the step of parking at least some of said storage/retrieval vehicles in the gridded three-dimensional structure comprises selecting a particular area to park at least one of the storage/retrieval vehicles from among vehicle-unoccupied areas located on an available least-distance travel path to the entrance spot of the working station, from a spot at which said at least one storage/retrieval vehicle arrived at said gridded track layout.

5. The method of claim 1, wherein the sequenced delivery is of non-matching sequence to at least one of:

(i) an assignment sequence in which the robotic storage/retrieval vehicles were tasked with retrieval of the respective storage units;

(ii) a retrieval sequence in which the respective storage units were retrieved by said storage/retrieval vehicles;

(iii) a landing sequence in which said storage/retrieval vehicles reached the gridded track layout;

(iv) an approach sequence in which said storage/retrieval vehicles reached a vicinity of the workstation.

6. The method of claim 5, wherein the sequenced delivery is of said non-matching sequence to at least two of said assignment, retrieval, landing and approach sequences.

7. The method of claim 5, wherein the sequenced delivery is of said non-matching sequence to at least three of said assignment, retrieval, landing and approach sequences.

8. The method of claim 5, wherein the sequenced delivery is of said non-

matching sequence to all of said assignment, retrieval, landing and approach sequences.

9. The method of claim 5, wherein the sequenced delivery is of said non-matching sequence to at least one of said assignment, retrieval, landing, and approach sequences.

10. A storage system, said storage system comprising:

a gridded three-dimensional structure, said gridded three-dimensional structure comprising:

a gridded track layout occupying a two-dimensional area and on which storage/retrieval vehicles are conveyable in two directions over said two-dimensional area; and

a plurality of storage columns residing above or below the gridded track layout in spaced distribution within the two-dimensional area of said track layout, each column comprising a plurality of storage locations arranged one over another and sized to accommodate placement and storage of storage units therein; and

a plurality of upright shafts residing above or below the gridded track layout in spaced distribution within the two dimensional area of said track layout, such that each of the storage columns is neighboured by a respective one of the upright shafts through which the storage locations of corresponding storage columns are accessible by the storage/retrieval vehicles to place and remove the storage units to and from said storage locations of each of said storage column;

at least one working station having an access spot that resides outside the two-dimensional area of the track, said access spot configured to receive the storage units delivered to an entrance spot of the working station, said working station further comprising:

at least two movement sensors installed within said working station and configured to detect movement of storage/retrieval vehicles into said access spot and departure of said storage/retrieval vehicles from said access spot and into an exit spot of said working station, and wherein said two movement sensors are positioned such that said two movement sensors are not triggered by said storage/retrieval vehicles statically parked on said access spot;

a computerized control system comprising at least one processor configured to organize sequenced delivery of a group of storage units from the three-dimensional gridded structure to the working station, said computerized control system configured to:

(a) generate and transmit signals to instruct a plurality of storage/retrieval vehicles to retrieve the storage units from respective storage locations; and

(b) generate and transmit signals to instruct the plurality of storage/retrieval vehicles to navigate the gridded three-dimensional structure in a manner orchestrating arrival of the storage/retrieval vehicles at the entrance spot of the working station in a particular sequence; and

(c) park at least some of said storage/retrieval vehicles in the gridded three-dimensional structure at areas thereof of non-obstructive relation to the entrance spot of the working station and the exit spot of the working station, and thereby enable storage/retrieval vehicles of a higher ranking in a determined delivery sequence to reach the entrance spot without interference by parked storage/retrieval vehicles and re-enter the gridded three-dimensional structure, from the exit spot of the working station, after delivery of respective storage units to the working station.

11. The system of claim 10, wherein the computerized control system is further configured to identify from among the storage/retrieval vehicles, a first storage/retrieval vehicle of a higher ranked sequence priority than a second storage/retrieval vehicle, said computerized control system further configured to generate and transmit signals instructing the second storage/retrieval vehicle to park itself in the gridded three-dimensional structure at a parking spot of non-obstructive relation to the entrance spot of the working station, while the first storage/retrieval vehicle is conveyed to said entrance spot of the working station.

12. The system of claim 10 or 11, wherein the computerized control system is configured to select said parking spot from among locations other than designated landing spots, launching spots, drop-down spots and climb-out spots at which the storage/retrieval vehicles transition between the gridded track layout and the upright shafts.

13. The system of claim 11, wherein the computerized control system is configured to select said parking spot from among vehicle-unoccupied areas located on an available least-distance travel path to the entrance spot from a spot at which said second storage/retrieval vehicle arrived at said gridded track layout.