CLAIMS:

1. An unmanned transport system configured to transport a weight object by traveling on a virtual flow line designated from among virtual flow lines defined in a map of a field to a designated destination location, the unmanned transport system comprising:

an unmanned transport vehicle configured to travel unmanned according to a control signal;

one or more cameras configured to image the field on which the unmanned transport vehicle is to travel from above the field to generate a still image or video; and

an operation control means configured to generate the control signal for controlling such that the unmanned transport vehicle travels on the virtual flow line based on the still image or video, and

wherein the operation control means comprises:

a detecting portion configured to detect the unmanned transport vehicle from the still image or video;

a position grasping portion configured to grasp a position of the unmanned transport vehicle in the field without being based on a sensor equipped with the unmanned transport vehicle using a result of a detection by the detecting portion; and

a control portion configured to generate the control signal based on the position of the unmanned transport vehicle which the position grasping portion grasps.

2. The unmanned transport system according to claim 1, wherein the unmanned transport vehicle is a forklift vehicle configured to lift and transport the weight object placed on a pallet together with the pallet.

3. The unmanned transport system according to claim 1, wherein

the field is indoors, and

the one or more cameras are mounted on a ceiling or wall and configured to image the field from above.

4. The unmanned transport system according to claim 1, wherein the field is outdoors, and

the one or more cameras are mounted on an outdoor structure and configured to image the field from above.

5. The unmanned transport system according to claim 1, wherein

the operation control means further comprises an orientation grasping portion configured to grasp an orientation of the unmanned transport vehicle based on the still image or video, and

the control portion is configured to generate the control signal based also on the orientation grasped by the orientation grasping portion.

6. The unmanned transport system according to claim 1, wherein the unmanned transport vehicle is configured to perform an autonomous operation for loading or unloading of the weight object at the destination location.

7. The unmanned transport system according to claim 1, wherein

the detecting portion of the operation control means is configured to further detect an obstruction from the still image or video, and

the control portion of the operation control means is configured to further generate the control signal based also on a result of a detection by the detecting portion.

8. The unmanned transport system according to claim 7, wherein

the control portion of the operation control means is configured not to perform a control in order that the unmanned transport vehicle travels so as to deviate from the virtual flow line defined in the map and avoid the obstruction due to the detection of the obstruction.

9. The unmanned transport system according to claim 1, wherein

the unmanned transport vehicle includes a manipulating portion which a user is to manipulate in order to start traveling on the flow line, and

the control portion of the operation control means is configured to start generating the control signal in accordance with a manipulation to the manipulating portion.

10. The unmanned transport system according to claim 1, wherein

the unmanned transport system comprises a plurality of unmanned transport vehicles whose destination locations and virtual flow lines are designated respectively,

the detecting portion of the operation control means is configured to detect the plurality of unmanned transport vehicles from the still image or video,

the position grasping portion of the operation control means is configured to grasp respective positions of the plurality of unmanned transport vehicles in the field, and

the control portion of the operation control means is configured to generate the control signal for each of the plurality of unmanned transport vehicles based on the plurality of positions grasped by the position grasping portion.

11. The unmanned transport system according to claim 1, wherein

the unmanned transport system comprises a plurality of cameras whose fields of view are different from each other, and

the position grasping portion is configured to grasp the position of the unmanned transport vehicle in the field by integrating a plurality of still images or videos generated by the plurality of cameras.

12. The unmanned transport system according to claim 1, wherein the detecting portion is configured to detect the unmanned transport vehicle by using a neural network.

13. The unmanned transport system according to claim 1, wherein

the unmanned transport vehicle includes a predetermined mark on a top surface thereof, and

the detecting portion is configured to detect the unmanned transport vehicle by detecting the predetermined mark.

14. The unmanned transport system according to claim 1, wherein

the operation control means is configured to store a map of the field in which the flow line is defined, and

the position grasping portion is configured to grasp the position of the unmanned transport vehicle by mapping the unmanned transport vehicle detected by the detecting portion on the map.

15. The unmanned transport system according to claim 1, wherein

the unmanned transport system comprises a predetermined mark at a predetermined position in the field,

the detecting portion is configured to detect the predetermined mark, and

the position grasping portion is configured to grasp the position of the unmanned transport vehicle based on the predetermined mark which the detecting portion detects.

16. The unmanned transport system according to claim 1, wherein the detecting portion of the operation control means is configured to further detect the weight object being transported by the unmanned transport vehicle.

17. The unmanned transport system according to claim 1, wherein

the unmanned transport vehicle includes:

an in-vehicle detecting portion for detecting a surrounding obstruction; and

an emergency stop processing portion configured to perform an emergency stop processing of the unmanned transport vehicle based on a detection of the obstruction by the in-vehicle detecting portion.

18. The unmanned transport system according to claim 1, wherein

the unmanned transport system further comprises a derailment judging means configured to judge whether or not the unmanned transport vehicle deviates from the flow line, and

the operation control means is configured to generate the control signal so as to stop the unmanned transport vehicle or return the unmanned transport vehicle to the flow line when it is judged in the derailment judging means that the unmanned transport vehicle deviates from the flow line.

19. The unmanned transport system according to claim 18, wherein

the derailment judging means includes:

an in-vehicle camera equipped with the unmanned transport vehicle and configured to image surroundings around the unmanned transport vehicle to generate the still image or video; and

a judging portion configured to judge whether or not the unmanned transport vehicle deviates from the flow line based on the still image or video generated by the in-vehicle camera.

20. The unmanned transport system according to claim 18, wherein

the derailment judging means includes:

a receiving instrument configured to receive a positioning signal; and

a judging portion configured to judge whether or not the unmanned transport vehicle deviates from the flow line based on the positioning signal received by the receiving instrument.