

CARGO TERMINAL MANAGEMENT SYSTEM

BACKGROUND OF THE DISCLOSURE

1. Field of the Disclosure:

5 The present disclosure relates to management systems, and more particularly, to a cargo terminal management system.

2. Description of the Related Art:

As international economic cooperation becomes
10 increasingly intense, consumption, manufacturing, and transportation operations have gradually transcended national borders, forming an economic "global village." In turn, logistics transportation volume has grown significantly, and logistics companies require a system for efficiently arranging
15 cargo handling process.

The conventional cargo transportation practice is carried out as follows.

Freight forwarders submit reservation requests to the cargo terminal managers via phone, fax, or email, and the managers
20 respond in the same manner. Alternatively, freight forwarders

confirm the availability of warehouse with the managers using the aforementioned communication methods, and the managers accordingly reply.

When drivers of logistics companies transport goods to the dock, they have to personally reach the cargo terminal office to register their information and confirm information including their identity, vehicle, and cargo quantities with the office security, so as to complete the check-in process.

Dispatchers have to constantly verify the availability of the warehouse with the warehouse staff before allowing trucks to proceed to the warehouse.

Accordingly, it is clear that such approach is not only time-consuming and labor-intensive, but also fails to accurately track the warehouse availability, affecting the overall loading and unloading efficiency.

SUMMARY OF THE DISCLOSURE

The present disclosure aims at providing a cargo terminal management system, which enables logistics companies to effectively arrange the cargo handling process.

The aforementioned objective does not preclude the existence of other objectives. Any objectives derivable from the specification, claims, or drawings, based on the common knowledge of those skilled in the field of the disclosure are also
5 included within the scope of the objectives of the present disclosure.

For achieving the aforementioned objectives, the present disclosure provides a cargo terminal management system disposed on a server coupled with a terminal device, which runs
10 the cargo terminal management system, the cargo terminal management system comprising:

a carrier module providing access to registration of a reservation information, the carrier module configured to generate a reservation certificate based on the reservation
15 information;

a management module coupled with the carrier module, the management module having a management information corresponding to the reservation information, the management information being displayed on the terminal device; and

20 an onsite module coupled with the carrier module and the

management module; when the reservation certificate is input into the onsite module, the onsite module generates a check-in information displayed on the terminal device, and the onsite module transmits the check-in information to the management
5 module.

With such configuration, the present disclosure achieves following advantages.

The operational efficiency is improved. The present disclosure applies various modules for reservation operations,
10 not only simplifying the reservation process, but also achieving an efficient resources allocation, such as docks, personnel, and equipment, thereby enhancing operational efficiency and reducing workload of staff. Also, during the check-in process, the present disclosure reduces the waiting time of the driver,
15 preventing congestion of trucks and further improving the overall operational efficiency.

Error rate is lowered. With a timely management, the present disclosure efficiently allows a quick understanding of docks' reservation status, vacant areas, and operation progress,
20 thereby preventing information gaps between different units

and reducing occurrence of errors.

Operational safety is improved. The present disclosure helps reduce the movement of personnel at the dock required for the purposes of, for example, confirming the drivers' identity, verifying conditions of docks, and confirming the warehouse entering and exiting conditions of trucks, so as to achieve a safer working environment and further protect the safety of employees.

10 **BRIEF DESCRIPTION OF THE DRAWINGS**

Fig. 1 is a block view of the cargo terminal management system in accordance with an embodiment of the present disclosure, illustrating the relationship between each element.

Fig. 2 is a schematic view of the operation of the management module, illustrating the management information in accordance with an embodiment of the present disclosure.

Fig. 3 is a schematic view of the operation of the onsite module, illustrating the check-in information in accordance with an embodiment of the present disclosure.

20 **Fig. 4** is a schematic view of the operation of the smart

monitoring module, illustrating the warehouse image information in accordance with an embodiment of the present disclosure.

Fig. 5 is another schematic view of the operation of the onsite module, illustrating the operation progress information in accordance with an embodiment of the present disclosure.

DETAILED DESCRIPTION OF THE DISCLOSURE

The aforementioned and further advantages and features of the present disclosure will be understood by reference to the description of the preferred embodiment in conjunction with the accompanying drawings where the components are illustrated based on a proportion for explanation but not subject to the actual component proportion.

Embodiments of the present disclosure are illustrated in detail along with the drawings. However, the technical features included by the present disclosure are not limited to certain embodiments hereby provided. Scope of the present disclosure shall be referred to the claims, which include all the possible replacements, modifications, and equivalent features.

Referring to **Fig. 1** to **Fig. 5**, an embodiment of the present disclosure provides a cargo terminal management system **100**, which is disposed on a server **1**.

Referring to **Fig. 1**, the server **1** is coupled with a terminal
5 device **2**. The terminal device **2** is configured to run the cargo terminal management system **100**. In the present disclosure, the terminal device **2** is allowed to be a computer, smart phone, or tablet computer, providing an operation access for a carrier, a manager, or a worker.

10 The cargo terminal management system **100** comprises a carrier module **10**, a management module **20**, and an onsite module **30**.

The carrier module **10** provides access to registration of a reservation information **11**. The reservation information **11** is
15 displayed on the terminal device **2**. The reservation information **11** includes a reserved date, time, location, license plate, operation type, carrier, contact person, and contact information. The carrier module **10** generates a reservation certificate based on the reservation information **11**. The reservation certificate is
20 allowed to be in a form of a serial number, barcode, or QR code.

The management module **20** is coupled with the carrier module **10**. Referring to **Fig. 1** and **Fig. 2**, the management module **20** comprises a management information **21** corresponding to the reservation information **11**. The management information **21** comprises but is not limited to the content in the reservation information **11**. The management information **21** further comprises a reservation order number, related order number, document type, and dock status. The management information **21** is displayed on the terminal device **2** for the manager to monitor.

In the present disclosure, the management module **20** is also used to set the reservation information **11**, such as the maximum reservable time period, the maximum reservable days, the definition of lateness, and the definition of no-show.

The onsite module **30** is coupled with the carrier module **10** and the management module **20**. When the reservation certificate is input into the onsite module **30**, the onsite module **30** generates a check-in information **31**. Referring to **Fig. 3**, the check-in information **31** is displayed on the terminal device **2**, which is allowed to be a work type, reservation order number,

reservation time interval, reservation time duration, driver name, and check-in vehicle number, allowing the worker to monitor the process. The onsite module **30** transmits the check-in information **31** to the management module **20**. Accordingly,
5 the present disclosure is used by the manager and the worker for promptly understanding the dock conditions, and also preventing reservation contentions with carriers.

The cargo terminal management system **100** further comprises a smart monitoring module **40**. The smart monitoring
10 module **40** comprises a camera, which is disposed in a warehouse environment **3**.

The smart monitoring module **40** is coupled with the management module **20** and the onsite module **30**. Referring to **Fig. 4**, the smart monitoring module **40** captures an image of
15 the warehouse environment **3** to obtain a warehouse image information **41**. The warehouse image information **41** displays a cargo **4**. The smart monitoring module **40** carries out an identification operation according to the warehouse image information **41** and generates an occupied status information
20 **411** and an available status information **412**, allowing the

manager to understand the usage conditions of the warehouse. Therein, the occupied status information **411** and the available status information **412** are allowed to be presented separately or in combination.

5 Referring to **Fig. 4**, when the cargo **4** is placed in a storage area, the smart monitoring module **40** generates a red frame area on the warehouse image information **41**; in other words, the smart monitoring module **40** generates the occupied status information **411**. When there is no cargo **4** placed in the storage
10 area, the smart monitoring module **40** generates a green frame area on the warehouse image information **41**; in other words, the smart monitoring module **40** generates the available status information **412**.

The smart monitoring module **40** comprises a vacancy
15 notification unit **42**. The vacancy notification unit **42** periodically generates an assignment awaiting information based on the available status information **412**, and the assignment awaiting information is transmitted to the management module **20** and the onsite module **30**, allowing the
20 manager and the worker to understand the vacancy conditions

of the warehouse environment **3**.

The present disclosure does not exclude the combination with other broadcasting modules and notification units, providing information such as warehouse release, warehouse
5 overuse, dock suspension, carrier lateness, carrier no-show cancellation, same-day reservation cancellation of carrier, and pending dock contact, so as to enhance the technical features of the present disclosure.

In an embodiment of the present disclosure, the
10 management module **20** comprises an assignment unit **22**. When the management module **20** receives the check-in information **31**, the assignment unit **22** provides a dock assignment information according to the available status information **412** and transmits the dock assignment information to the carrier
15 module **10**. The carrier delivers the cargo **4** to the assigned dock according to the dock assignment information.

The management module **20** comprises an update unit **23**. When the carrier module **10** confirms the selection of the dock assignment information, the update unit **23** accordingly updates
20 the reservation information **11**. For example, when the driver of

the carrier completes the check-in process, the update unit **23** updates the reservation status of the dock, preventing the selected dock from being re-assigned to another carrier.

The reservation information **11** comprises an open
5 reservation information and a closed reservation information.

The open reservation information is used for non-designated user to make reservations for non-designated docks. The closed reservation information is only used for designated user to make reservations for designated docks. The management module **20**
10 comprises an authorization unit **24**. The authorization unit **24** is configured to set the reservation information **11** as either the open reservation information or the closed reservation information. Furthermore, the authorization unit **24** has a field interface for the manager to set up the configuration.

15 Referring to **Fig. 5**, the onsite module **30** comprises an operation overview unit **32**. The operation overview unit **32** generates an operation progress information **33** according to the reservation information **11** and the check-in information **31**, wherein the operation progress information **33** is allowed to be
20 a work type, operation status, estimated completion time, and

overuse, allowing the worker to track the operation progress.

In an embodiment of the present disclosure, the management module **20** comprise an assignment unit **22**. The assignment unit **22** provides access to adding the dock
5 assignment information, allowing the manager to timely distribute docks. The operation overview unit **32** generates the operation progress information **33** according to the dock assignment information.

The management module **20** comprises a reservation unit **25**.
10 The reservation unit **25** provides access to adding the reservation information **11**, allowing the manager to assist the carrier in reserving a dock. The operation overview unit **32** generates the operation progress information **33** according to the newly added reservation information **11**.

15 The management module **20** comprises a vendor management unit **26**. The vendor management unit **26** provides access to registration of a vendor information, allowing the manager to manage the vendor partner. The vendor information includes the vendor name, unified number, collaboration type,
20 and collaboration status.

With the foregoing configuration, advantages of the present disclosure will be illustrated below.

The operational efficiency is improved. The present disclosure uses various modules for reservation operations, not
5 only simplifying the reservation process, but also achieving an efficient resources allocation, such as docks, personnel, and equipment, thereby enhancing operational efficiency and reducing workload of staff. Also, the present disclosure reduces the waiting time of the driver, preventing congestion of trucks
10 caused by time waste of waiting.

The error rate is lowered. With a timely management, the present disclosure efficiently allows a quick understanding of docks' related information, thereby preventing information gaps between different units and reducing occurrence of errors.

15 The present disclosure intelligently monitors dock conditions. By generating the occupied status information **411** and the available status information **412** through the smart monitoring module **40**, the present disclosure enables the manager to understand the usage status of the warehouse,
20 thereby improving the management efficiency.

The operational safety is improved. The present disclosure helps reduce the movement of personnel at the dock, so as to achieve a safer working environment and further protect the safety of employees.

5 The aforementioned technical features does not preclude the existence of other technical features. Any technical features derivable from the specification, claims, or drawings, based on the common knowledge of those skilled in the field of the disclosure are also included within the scope of the technical
10 features of the present disclosure.

Although particular embodiments of the disclosure have been described in detail for purposes of illustration, various modifications and enhancements may be made without departing from the scope of the disclosure. Accordingly, the disclosure is
15 not to be limited except as by the appended claims.

What is claimed is:

1. A cargo terminal management system disposed on a server coupled with a terminal device, the terminal device running the cargo terminal management system, the cargo
5 terminal management system comprising:

a carrier module providing access to registration of a reservation information, the carrier module configured to generate a reservation certificate based on the reservation information;

10 a management module coupled with the carrier module, the management module having a management information corresponding to the reservation information, the management information being displayed on the terminal device; and

an onsite module coupled with the carrier module and the
15 management module; when the reservation certificate is input into the onsite module, the onsite module generates a check-in information displayed on the terminal device, and the onsite module transmits the check-in information to the management module.

20 2. The cargo terminal management system of claim 1,

further comprising a smart monitoring module, wherein the smart monitoring module is coupled with the management module and the onsite module; the smart monitoring module is configured to capture an image of a warehouse environment to
5 obtain a warehouse image information; the smart monitoring module carries out an identification operation according to the warehouse image information to generate an occupied status information and an available status information.

3. The cargo terminal management system of claim 2,
10 wherein the smart monitoring module comprises a vacancy notification unit; the vacancy notification unit periodically generates an assignment awaiting information based on the available status information and transmits the assignment awaiting information to the management module and the onsite
15 module.

4. The cargo terminal management system of claim 3,
wherein the management module comprises an assignment unit;
when the management module receives the check-in information,
the assignment unit provides a dock assignment information
20 according to the available status information and transmits the

dock assignment information to the carrier module.

5 5. The cargo terminal management system of claim 4,
wherein the management module comprises an update unit;
when the carrier module confirms selection of the dock
assignment information, the update unit updates the reservation
information.

10 6. The cargo terminal management system of claim 4,
wherein the reservation information includes an open
reservation information and a closed reservation information;
the management module comprises an authorization unit; the
authorization unit is configured to set the reservation
information as the open reservation information or the closed
reservation information.

15 7. The cargo terminal management system of claim 3,
wherein the onsite module comprises an operation overview unit;
the operation overview unit generates an operation progress
information according to the reservation information and the
check-in information.

20 8. The cargo terminal management system of claim 7,
wherein the management module comprises an assignment unit;

the assignment unit provides access to adding a dock assignment information, and the operation overview unit generates the operation progress information according to the dock assignment information.

5 9. The cargo terminal management system of claim 8, wherein the management module comprises a reservation unit provides access to adding the reservation information, and the operation overview unit generates the operation progress information according to the added reservation information.

10 10. The cargo terminal management system of claim 9, wherein the management module comprises a vendor management unit, and the vendor management unit provides access to registration of a vendor information.