

VISUAL MANAGEMENT METHOD AND VISUAL MANAGEMENT SYSTEM FOR CONSTRUCTION SUPPLY CHAIN

TECHNICAL FIELD

[0001] The present disclosure relates to the field of information management technology, and particularly to a visual management method and visual management system for a construction supply chain.

BACKGROUND

[0002] In traditional technologies, relevant management can be carried out on the supply chain. However, there are some problems in the management of relevant construction supply chains. For example, the management is macroscopic, which has poor implementability and operability, and is biased towards the procurement of supply chain materials. The management does not reflect the visibility of information at the execution level, especially the visibility of information at the planning level and the collaborative level, and does not involve the security of relevant information on the chain.

SUMMARY

[0003] The technical problem to be solved by the present disclosure is to provide a visual management method and a visual management system for a construction supply chain, aiming to achieve the correct and efficient transmission and sharing of key information on the construction supply chain among relevant entities.

[0004] The present disclosure is implemented as follows. A visual management method for a construction supply chain, which includes the following operations.

[0005] A target design result is obtained, and multiple stage plans are determined based on the target design result. The multiple stage plans include one or more of a construction plan, a production plan, and a transportation plan.

[0006] Execution status data of the multiple stage plans is obtained according to an automatic identification and data collection technology, and the multiple stage plans and the execution status data are displayed according to a preset display mode.

[0007] Adjustment operations for the multiple stage plans are obtained. Execution statistics data is generated based on the adjustment operations. The execution statistics

data is displayed.

- [0008]** Preferably, the visual management method further includes the following operations.
- [0009]** A target plan is obtained from the multiple stage plans.
- [0010]** Stage information of other stage plans is determined based on target information of the target plan.
- [0011]** Preferably, the target plan is the construction plan.
- [0012]** The stage information for other stage plans is determined based on the target information of the target plan, which includes the following operations.
- [0013]** A required quantity of a main construction material at different construction time nodes and a preset safe construction time threshold in the construction plan are obtained.
- [0014]** The required quantity of the main construction material, the construction time and the preset safe construction time threshold are taken as the target information to determine a production quantity, production time, production transportation time, and a preset safe production threshold of the main construction material in the production plan, and to determine a transportation quantity of the main construction material, transportation time of a construction material, and a preset safe transportation threshold in the transportation plan.
- [0015]** Preferably, the required quantity of the main construction material is counted according to at least one of a construction project, an individual unit, or a construction section.
- [0016]** Preferably, the execution status data of the multiple stage plans is obtained according to the automatic identification and data collection technology, which includes the following operations.
- [0017]** A respective work unit is determined for each stage plan of the multiple stage plans.
- [0018]** Respective execution information of each work unit in the stage plan is acquired according to the automatic identification and data collection technology to obtain the execution status data.
- [0019]** Preferably, respective execution information of each work unit in the stage plan is acquired according to the automatic identification and data collection technology to obtain the execution status data, which includes the following operations.
- [0020]** A respective identification device is obtained for each work unit.

- [0021]** Construction materials on site for the work unit are identified according to the identification device based on the automatic identification and data collection technology, and the execution information is determined based on identification information.
- [0022]** Preferably, the work unit includes a production unit, a logistics unit, and a construction unit. The construction materials on site for the work unit are identified according to the identification device based on the automatic identification and data collection technology, and the execution information is determined based on the identification information, which may include the following operations.
- [0023]** Identification marks on the construction materials are identified through the identification device. The identification marks on the construction materials are different.
- [0024]** On-site information of the work unit is determined based on the identification information of the identification device and the execution information of the work unit is determined based on the on-site information.
- [0025]** Preferably, the work unit includes the production unit, the logistics unit, and the construction unit. The on-site information of the work unit is determined based on the identification information of the identification device and the execution information of the work unit is determined based on the on-site information, which may include the following operations.
- [0026]** First identification information of the production unit is obtained by using the identification device. The first identification information includes one or more of production information, production quality inspection information, and collected inventory information. First execution information is determined according to the first identification information. The first execution information includes one or more of produced information, a difference between planned production and actual production, and a production execution rate; and/or
- [0027]** Second identification information of the logistics unit is obtained by using the identification device. The second identification information includes at least one of the in-transit transportation information and logistics quality inspection information. Second execution information is determined according to the second identification information. The second execution information includes one or more of the transported information, a difference between planned transportation and actual transportation, and a transportation execution rate; and/or
- [0028]** Third identification information of the construction unit is obtained by using the identification device. The third identification information includes one or more of

stacking information at a construction stockyard, construction installation information, and construction quality inspection information. Third execution information is determined according to the third identification information. The third execution information includes one or more of constructed information, a difference between planned construction and actual construction, and a construction execution rate.

[0029] Embodiments of the present disclosure also provide a visual management system for a construction supply chain, which includes an identification mark, an identification device and a visual management terminal.

[0030] The identification mark is set on a construction material and has a unique identification code.

[0031] The identification device is configured to identify the identification mark.

[0032] The visual management terminal is connected to the identification device. The visual management terminal includes a memory, a processor, and a computer program stored on the memory and running on the processor, which, when executed by the processor, implements operations of the above-mentioned visual management method.

[0033] Preferably, the identification mark includes one or more of a RFID tag or a QR code tag.

[0034] The present disclosure, compared to prior art, has the following beneficial effects: according to the embodiments of the present, a target design result is obtained, and multiple stage plans are determined based on the target design result. The multiple stage plans include a construction plan, a production plan, and a transportation plan, and the like. Then execution status data of the multiple stage plans is obtained according to an automatic identification and data collection technology, and the multiple stage plans and the execution status data corresponding to the multiple stage plans are displayed. Finally, adjustment operations for the multiple stage plans are obtained. Execution statistics data is generated based on the adjustment operations. The execution statistics data is displayed. Embodiments of the present disclosure determine the stage plans by obtaining the target design result, and display the execution status data of the stage plans through automatic identification and data collection technology to realize visual management. After receiving the adjustments to relevant stage plans from the operator, relevant information can be correctly, efficiently, and timely conveyed to the relevant entities and data can be displayed, thereby implementing information sharing between different entities.

BRIEF DESCRIPTION OF THE DRAWINGS

[0035] FIG. 1 is a flowchart of a visual management method for a construction supply chain according to an embodiment of the present disclosure.

[0036] FIG. 2 is a structural diagram of a visual management system for a construction supply chain according to an embodiment of the present disclosure.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0037] In order to make the purpose, technical solution, and advantages of the present disclosure clearer, explanations of the present disclosure will be illustrated in detail below in conjunction with the accompanying drawings and embodiments. It should be understood that the specific embodiments described herein are only intended to explain the present disclosure, rather than to limit the present disclosure.

[0038] Supply chain visualization originates from manufacturing, but there are significant differences between a manufacturing supply chain and a construction supply chain, including different types of demand, different production characteristics, different production processes, different supply chain structures, and different collaborative relationships. The visualization of the construction supply chain also has different definitions.

[0039] In the present disclosure, the visual management of the construction supply chain refers to the trackability or traceability of the actual construction throughout the entire process of a construction project, spanning from the producer and logistics provider to the destination. The visual management of the construction supply chain includes the status of key events and milestones that occur throughout the entire process of production, inventory, logistics, and construction, as well as the main information, execution information, collaborative change information, and quality inspection information of related plans. The visual management of the construction supply chain provided in the present disclosure is mainly reflected in the timely, visible, and collaborative provision of relevant data, that is, the availability of correct data by all participants in the supply chain at appropriate time (push/pull/mix), and the setting of the scope and degree of visualization for the participants according to their permissions. In the embodiments of the present disclosure, Automatic Identification and Data Capture techniques (AIDC) are used to achieve the visual management for the construction supply chain, which is specifically achieved through technologies including identification coding, data carriers (barcodes, QR codes, Radio Frequency Identification (RFID), etc.), identification/parsing, and the like.

[0040] FIG. 1 illustrates a visual management method for a construction supply chain according to an embodiment of the present disclosure, which includes the following operations.

[0041] At S101, a target design result is obtained, and multiple stage plans are determined based on the target design result. The multiple stage plans include one or more of a construction plan, a production plan, and a transportation plan.

[0042] Specifically, in this operation, in order to achieve the synchronization and consistency among the multiple stage plans, it is necessary to determine a target plan (i.e., obtain the target plan from the multiple stage plans), and determine stage information of other stage plans based on target information of the target plan.

[0043] In some embodiments, the target plan is the construction plan. The stage information for other stage plans is determined based on the target information of the target plan, which includes the following operations. A required quantity of a main construction material at different construction time nodes and a preset safe construction time threshold in the construction plan are obtained. The required quantity of the main construction material, the construction time and the preset safe construction time threshold are taken as the target information to determine a production quantity, production time, production transportation time, and a preset safe production threshold of the main construction material in the production plan, and to determine a transportation quantity of the main construction material, transportation time of a construction material, and a preset safe transportation threshold in the transportation plan.

[0044] The required quantity of the main construction material is counted according to at least one of a construction project, an individual unit, or a construction section.

[0045] At S102, execution status data of the multiple stage plans is obtained according to an automatic identification and data collection technology, and the multiple stage plans and the execution status data are displayed according to a preset display mode.

[0046] In this step, the execution status data of the multiple stage plans is obtained according to the automatic identification and data collection technology, which includes the following operations. A respective work unit is determined for each stage plan of the multiple stage plans. Respective execution information of each work unit in the stage plan is acquired according to the automatic identification and data collection technology to obtain the execution status data.

[0047] In some embodiments, information is identified through the identification devices set in different work units, which specifically includes the following operations.

A respective identification device is obtained for each work unit. Construction materials on site for the work unit are identified according to the identification device based on the automatic identification and data collection technology, and the execution information is determined based on identification information. The identification device can identify the construction materials on site for each work unit to obtain relevant information. In some embodiments, the construction materials on site for each work unit are identified according to the identification device based on the automatic identification and data collection technology, and the execution information is determined based on the identification information, which may include the following operations. Identification marks on the construction materials are identified through the identification device. The identification marks on the construction materials are different. On-site information of each work unit is determined based on the identification information of the identification device and the execution information of each work unit is determined based on the on-site information.

[0048] In the specific implementation process of the embodiments of the present disclosure, the work unit includes the production unit, the logistics unit, and the construction unit. The on-site information of the work unit is determined based on the identification information of the identification device and the execution information of the work unit is determined based on the on-site information, which may include one or more of the following operations.

[0049] First, first identification information of the production unit is obtained by using the identification device. The first identification information includes one or more of production information, production quality inspection information, and collected inventory information. First execution information is determined according to the first identification information. The first execution information includes one or more of produced information, a difference between planned production and actual production, and a production execution rate.

[0050] Second, second identification information of the logistics unit is obtained by using the identification device. The second identification information includes at least one of the in-transit transportation information and logistics quality inspection information. Second execution information is determined according to the second identification information. The second execution information includes one or more of the transported information, a difference between planned transportation and actual transportation, and a transportation execution rate.

[0051] Third, third identification information of the construction unit is obtained by using the identification device. The third identification information includes one or more of stacking information at a construction stockyard, construction installation information, and construction quality inspection information. Third execution information is determined according to the third identification information. The third execution information includes one or more of constructed information, a difference between planned construction and actual construction, and a construction execution rate.

[0052] At S103, adjustment operations for the multiple stage plans are obtained. Execution statistics data is generated based on the adjustment operations. The execution statistics data is displayed.

[0053] In this operation, the relevant executing entities can make adjustments based on the displayed stage plan and execution status data. The visual management system for the construction supply chain can, upon receiving the adjustment operation, display the relevant data adjusted according to the adjustment operation thereby achieving the information exchange between different entities. It should be noted that in this operation, the execution status data is the actual construction data obtained during the construction process, and changes with the progress of the construction, while the statistical data of execution will be adjusted with the adjustment of statistical caliber.

[0054] In further, in the embodiments of the present disclosure, after a change in the operator or the stage plan of related section, or after making relevant adjustments, the process may return to operation at S102 to obtain the execution status data of multiple stage plans based on the automatic identification and data collection technology.

[0055] The visual management method for a construction supply chain provided in the embodiments of the present disclosure will be described in detail below:

[0056] In traditional technologies, the key information involved in the construction supply chain cannot be correctly and efficiently transmitted and shared among relevant entities in the chain, especially the information at the planning level and change information, leading to poor coordination among participants, significant bullwhip effect, high total construction cost, low delivery rate, and prolonged construction period.

[0057] In the embodiments of the present disclosure, the design department provides a design result, which includes CAD drawings or BIM models, etc. Each relevant unit forms the construction plan, production plan, and transportation plan based on the design results. In the embodiments of the present disclosure, the construction plan is taken as the target plan, and other plans are driven by the construction plan to carry out relevant

operations. Relevant departments formulate relevant plans in following manners.

[0058] The construction units formulate a construction plan and further tally the quantity plan of important construction materials (prefabricated components, building curtain walls, equipment and pipelines, interior decoration components, etc.) produced in the factory according to different time periods and based on the construction plan. The statistics can be conducted according to a construction project, an individual unit, or a construction section, and a safe construction time threshold can be set.

[0059] The production unit formulates a production plan, which includes the production quantity, production time, transportation time, etc., of the construction materials corresponding to the construction project, the individual unit and the construction section involved in the construction plan, and sets a safe production threshold.

[0060] The logistics unit formulates a transportation plan, determines the transportation quantity and transportation time of the construction materials related to the construction project, the individual unit and the construction section involved in the construction plan, and sets a safe transportation threshold.

[0061] Relevant units collect and transmit relevant data based on AIDC technology during the work process. That is, during the work process, identification marks are attached to the construction materials (i.e. standardizing the identification codes of the construction materials including the prefabricated components, the building curtain walls, the equipment and pipelines, interior decoration components, etc.), and then bound with the construction materials using the RFID technology or the QR code technology. Scanning is performed by the identification devices (such as RFID reading devices or QR code reading devices), or automatic identification is performed by the identification devices installed in key logistics scenarios, so that the actual execution status data of relevant plans and quality inspection information related to construction materials are collected in an event-based manner. Finally, such data is timely uploaded through communication technology (e.g., 4G, 5G, or Wi-Fi, etc.) to the visual management terminal, which includes the software for the visual management for the construction supply chain. In the embodiments of the present disclosure, the collection and processing of relevant data are implemented through the identification marks, the identification device and the visual management terminal, which includes the following operations.

[0062] The production unit collects the production information, quality inspection information and the inventory (stacking) information, and carries out the statistics of the

produced information, a difference between planned production and actual production, and a production execution rate.

[0063] The logistics unit collects the in-transit transportation information and the quality inspection information, and carries out the statistics of the transported information, a difference between planned transportation and actual transportation, and a transportation execution rate.

[0064] The construction unit collects the stacking information at a construction stockyard, the construction installation information and the construction quality inspection information, and carries out statistics of the constructed information, a difference between planned construction and actual construction, and a construction execution rate.

[0065] The visual management terminal can display relevant data of each relevant unit in the relevant operation stage. Relevant work entities (such as the construction unit, production unit, and logistics unit mentioned above) obtain the planned information, actual execution information, and relevant threshold information of each participated work theme according to their relevant permission, and adjust the relevant plans on this basis to ensure the coordination between different plans. The adjustments can be made on the visual management terminal. In this embodiment, relevant adjustment operations include but are not limited to:

[0066] The construction supply chain is driven by the construction plan of the construction project, and the production plan and the transportation plan may be adjusted accordingly caused by changes in the construction plan. The construction plan may also be adjusted accordingly caused by the actual execution of the production plan and transportation plan not meeting expectations.

[0067] Each work entity may adjust the plan based on the actual execution situation and other factors, ensures the plan collaboration, and confirms whether the safe work thresholds of all parties are met. That is, the plan, the execution and the adjustment need to be adjusted with the threshold as the boundary, and the adjustments are dynamic.

[0068] Each work entity may collect quality inspection information and provide feedback to the visual management terminal of the construction supply chain, and set relevant permissions to enable other entities to access the information.

[0069] Through the above embodiments, in the specific implementation, the infrastructure cost and the construction period can be reduced by 10%, defects and accidents can be reduced by 20%, predictability of construction period and cost can be

improved by 20%, and labor productivity, output value, and profit margin can be increased by 10%. The visual management method for the construction supply chain provided in the embodiments of the present disclosure is to visualize the impact of the planning, execution, and adjustment of each work entity on the overall project schedule, as well as the overall defects of the project, thereby improving the efficient information exchange and timely adjustment. The visual management method for the construction supply chain provided in the embodiments of the present disclosure can be applied to the visual management of supply chain in the field of engineering construction, especially for engineering projects with a high degree of industrialization, or ultra large and complex international projects.

[0070] As shown in FIG. 2, embodiments of the present disclosure also provides a visual management system for a construction supply chain, which includes an identification mark 201, an identification device 202 and a visual management terminal 203. The identification mark is set on a construction material and has a unique identification code. In the embodiments of the present disclosure, the identification mark refers to the identification code of the construction materials, and different categories of construction materials have different identification codes. The identification codes for these different categories of construction materials correspond to the relevant identification coding standards. In the embodiments of the present disclosure, the identity (identification code) of the construction material, which is similar to the identity card of construction material, is assigned through binding (through attachment, tagging, spraying, stamping, etc.) the data carriers to the construction materials. The data carrier, which is the carrier of the identification code, usually includes barcodes, QR codes, RFID (active), RFID (passive), or a combination thereof.

[0071] The identification device 202 is configured to identify the identification mark 201. In the embodiments of the present disclosure, the identification device 202 is configured to automatically read the identification codes of the construction materials. The identification device 202 includes both mobile identification devices and fixed identification devices. The visual management terminal 203 is connected to the identification device 202. The visual management terminal 203 includes a memory, a processor, and a computer program stored on the memory and running on the processor. When the processor executes the computer program, the various operations of the visual management method provided in any of the above embodiments are implemented. In some embodiments, the visual management terminal 203 includes a terminal with a

display function such as a laptop, a desktop computer, a mobile terminal, etc. The visual management terminal 203 is connected to the identification device 202 through wired or wireless means.

[0072] In the embodiments of the present disclosure, the visual management system can be implemented by combining the identification mark 201, the identification device 202, and the visual management terminal 203. In the specific usage process, the visual management system includes an application software installed on the identification device and a management system deployed on the cloud. The former mainly identifies and reads the identification codes based on the hardware functions of the identification device, while recording relevant business information at the time of the event, including the identification time, the identification location, the identification business information, the operators, etc. The cloud management system is used for storing, counting, and analyzing data related to the supply chain business events.

[0073] In some embodiments, the identification mark 201 includes a RFID tag, a QR code tag, or a hybrid tag of the RFID tag and the QR tag.

[0074] In several embodiments provided in the present disclosure, it should be understood that the disclosed methods and devices (or equipment, terminals) can be implemented in other ways. For example, the above described embodiments of the device are only illustrative. For example, the division of the device is only a logical function division and, in practical implementation, there may be other division modes. For example, multiple modules or components may be combined or integrated into another device, or some features may be ignored or not executed. On the other hand, the coupling, direct coupling or communication connection between each other shown or discussed may be indirect coupling or communication connection through some interfaces, devices or modules, and may be electrical, mechanical or other form.

[0075] The modules described as separate components may be or may not be physically separated, and the components displayed as modules may be or may not be physical modules. That is, they can be located in one place or distributed over multiple network modules. Some or all of the modules may be selected according to actual requirements to achieve the purpose of the embodiments.

[0076] In addition, various functional modules in various embodiments of the present disclosure may be integrated into one processing module, or various modules can exist physically alone, or two or more modules may be integrated into one module. The integrated modules mentioned above may be implemented in the form of hardware or

software functional modules.

[0077] If the integrated module is implemented in the form of a software functional module and sold or used as an independent product, the integrated module may be stored in a computer-readable storage medium. Based on such understanding, the technical solution of the present disclosure essentially or partially contributes to the prior art, or all or part of the technical solution may be embodied in the form of a software product. The software product is stored in a storage medium and includes several instructions for a computer device (which may be a personal computer, server, or network device, etc.) to perform all or part of the operations of the methods described in various embodiments of the present disclosure. The aforementioned storage media includes a U disk, a removable hard disk, a read-only memory (ROM), a random access memory (RAM), a magnetic disk or an optical disk, and other medium capable of storing program codes.

[0078] It should be noted that for sake of brevity, the aforementioned method embodiments are described as a combination of a series of actions. However, those skilled in the art should be aware that the present disclosure is not limited by the order of actions described, as certain operations may be performed in other orders or simultaneously according to the present disclosure. Secondly, those skilled in the art should also be aware that the embodiments described in the specification are all preferred embodiments, and the actions and modules involved are not definitely necessary for the present disclosure.

[0079] In the above embodiments, the description of each embodiment has its own emphasis, and parts that are not described in detail in an embodiment can refer to the relevant descriptions of other embodiments.

[0080] The visual management method and system for a construction supply chain provided in the present disclosure is described above, and those skilled in the art may make changes in the specific implementation and application scope based on the principles of the embodiments of the present disclosure. In summary, the content of the specification shall not be understood as a limitation to the present disclosure.

CLAIMS

1. A visual management method for a construction supply chain, comprising:

obtaining a target design result and determining a plurality of stage plans based on the target design result, wherein the plurality of stage plans comprise one or more of a construction plan, a production plan, and a transportation plan;

obtaining, according to an automatic identification and data collection technology, execution status data of the plurality of stage plans, and displaying the plurality of stage plans and the execution status data according to a preset display mode; and

obtaining adjustment operations for the plurality of stage plans, generating execution statistics data based on the adjustment operations, and displaying the execution statistics data.

2. The visual management method according to claim 1, wherein the visual management method further comprises:

obtaining a target plan from the plurality of stage plans; and

determining stage information of other stage plans based on target information of the target plan.

3. The visual management method according to claim 2, wherein the target plan is the construction plan;

wherein determining the stage information for other stage plans based on the target information of the target plan, comprises:

obtaining a required quantity of a main construction material at different construction time nodes and a preset safe construction time threshold in the construction plan; and

taking the required quantity of the main construction material and the preset safe construction time threshold as the target information to determine a production quantity, production time, production transportation time, and a preset safe production threshold of the main construction material in the production plan, and to determine a transportation quantity of the main construction material, transportation time of a construction material, and a preset safe transportation threshold in the transportation plan.

4. The visual management method according to claim 3, wherein the required quantity of the main construction material is counted according to at least one of a construction project, an individual unit, or a construction section.

5. The visual management method according to claim 1, wherein obtaining, according to the automatic identification and data collection technology, the execution status data of the plurality of stage plans comprises:

determining a respective work unit for each stage plan of the plurality of stage plans;
and

acquiring, according to the automatic identification and data collection technology, respective execution information of each work unit in the stage plan to obtain the execution status data.

6. The visual management method according to claim 5, wherein acquiring, according to the automatic identification and data collection technology, respective execution information of each work unit in the stage plan to obtain the execution status data comprises:

for each work unit, obtaining a respective identification device; and

identifying, according to the identification device, construction materials on site for the work unit based on the automatic identification and data collection technology, and determining the execution information based on identification information.

7. The visual management method according to claim 6, wherein the work unit comprises a production unit, a logistics unit, and a construction unit, wherein identifying, according to the identification device, the construction materials on site for the work unit based on the automatic identification and data collection technology, and determining the execution information based on the identification information comprises:

identifying identification marks on the construction materials through the identification device, wherein the identification marks on the construction materials are different; and

determining on-site information of the work unit based on the identification information of the identification device and determining the execution information of the work unit based on the on-site information.

8. The visual management method according to claim 7, wherein the work unit comprises the production unit, the logistics unit, and the construction unit, wherein determining the on-site information of the work unit based on the identification information of the identification device and determining the execution information of the work unit based on the on-site

information comprises:

obtaining first identification information of the production unit by using the identification device, wherein the first identification information comprises one or more of production information, production quality inspection information, and collected inventory information, and determining first execution information according to the first identification information, wherein the first execution information comprises one or more of produced information, a difference between planned production and actual production, and a production execution rate; and/or

obtaining second identification information of the logistics unit by using the identification device, wherein the second identification information comprises at least one of the in-transit transportation information and logistics quality inspection information, and determining second execution information according to the second identification information, wherein the second execution information comprises one or more of transported information, a difference between planned transportation and actual transportation, and a transportation execution rate; and/or

obtaining third identification information of the construction unit by using the identification device, wherein the third identification information comprises one or more of stacking information at a construction stockyard, construction installation information, and construction quality inspection information, and determining third execution information according to the third identification information, wherein the third execution information comprises one or more of constructed information, a difference between planned construction and actual construction, and a construction execution rate.

9. A visual management system for a construction supply chain, comprising:

an identification mark, wherein the identification mark is set on a construction material and has a unique identification code;

an identification device, configured to identify the identification mark; and

a visual management terminal connected to the identification device, wherein the visual management terminal comprises a memory, a processor, and a computer program stored on the memory and running on the processor, which, when executed by the processor, implements operations of the visual management method according to any one of claims 1 to 8.

10. The visual management system according to claim 9, wherein the identification mark

comprises one or more of a Radio Frequency Identification (RFID) tag or a QR code tag.