task and prone to human error. Also, to watch over the operation of the cantilever, personnel often is positioned at relatively hazardous areas.

GENERAL DESCRIPTION

It is an object of the present invention to provide a method that obviates at least one of the above mentioned drawbacks. In particular, it is aimed to reduce the risk of moving a cantilever against a part of the platform or against an obstacle on the platform.

According to the invention, this object is achieved by providing a method according to claim 1.

Specifically, in accordance with an aspect of the disclosure, there is provided a method for monitoring movement of a cantilever structure of an offshore platform, such as a jack-up platform or a self-elevating vessel. The method can include:

- providing a boundary model containing boundary limiting information of positions of the cantilever structure, wherein the boundary limiting information comprises at least position information of boundary limiting elements, such as obstacles;
- providing, during movement of the cantilever, position information of the cantilever representing an actual position of the cantilever;
- determining, during movement of the cantilever, a difference between the cantilever position information and the boundary limiting information of the boundary model;
- providing an output signal when the determined difference exceeds a predefined threshold value.

By providing a boundary model containing boundary limiting information and by determining the actual position of the cantilever during movement, and comparing this position with the boundary model, the movement of the cantilever can be monitored. By determining a difference between the actual position and the boundary limiting information, the movement of the cantilever can be followed in relation to the boundary model. The boundary model preferably comprises boundary limiting information determined by the actuation system of the cantilever defining the extreme positions that the cantilever can be moved to, a so-called base outline or base map of the possible cantilever movement envelope. In addition, the boundary limiting information comprises information about positions of boundary limiting elements, such as obstacles. These obstacles can be permanent or temporary structures on the platform deck, e.g. adjacent or in the surroundings of the cantilever. The obstacles can also be permanent or temporary structures on or at the cantilever, e.g. a mobile or detachable crane or a secondary cantilever etc. All these obstacles can limit the operational envelope of the cantilever structure as collision may occur.

By providing such a boundary model in which such information is obtained, the operator now has an overview of the actual operational

results in an update of the boundary model, e.g. blocking a certain area and preventing the cantilever from entering this sector.

The control unit may be arranged to receive a signal from said tracking device, to identify the signal to locate the source and to react accordingly by updating the boundary model. Alternatively, a scanning or sensing device may be provided that is arranged to receive information from such tracking devices or to actively scan the environment to detect such tracking device. The scanning device may then provide the detected position information to the control unit to update the boundary model prior or during movement of the cantilever structure.

The invention further relates to a computer program product and to an offshore platform.

In accordance with an aspect of the disclosure, there is provided a system for monitoring movement of a cantilever structure of an offshore platform, such as a jack-up platform. The system can include:

- a control unit comprising a data processor with a memory containing a boundary model in computer readable and executable form containing a boundary model containing boundary limiting information of positions of the cantilever structure, wherein the boundary limiting information comprises at least position information of boundary limiting elements, such as obstacles; wherein the control unit is configured for receiving, during movement of the cantilever, position information of the cantilever representing an actual position of the cantilever; and determining, during movement of the cantilever, a difference between the cantilever position information and the boundary limiting information of the boundary model; further configured for generating an output information when the determined difference exceeds predefined threshold value;
- an output unit for receiving the output information to generate an output signal.

In accordance with an aspect of the disclosure, there is provided a control unit which can include a data processor with a memory containing a boundary model in computer readable and executable form containing a boundary model containing boundary limiting information of positions of the cantilever structure, wherein the boundary limiting information comprises at least position information of boundary limiting elements, such as obstacles; wherein the control unit is configured for receiving, during movement of the cantilever, position information of the cantilever representing an actual position of the cantilever; and determining, during movement of the cantilever, a difference between the cantilever position information and the boundary limiting information of the boundary model; further configured for generating an output information when the determined difference exceeds a predefined threshold value.

Particular elaborations and embodiments of the invention are set forth in the dependent claims.

Further features, effects and details of the invention appear from the detailed description and the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a schematic side view of an offshore platform with a first example of a cantilever structure according to the invention;

Fig. 2 is a schematic top plan view of the platform shown in Fig. 1; and

Fig. 3 shows an example of a boundary model;

Fig. 4 is flow chart of an example of a method according to the invention.