

5 **Technical Field**

Background Art

Known in the art techniques for locating a guided vehicle, e.g. a train, on a railway network are notably based on balises. The latter are typically installed each at a given position between the pair of rails of a track so that when the guided vehicle is moving on said track, it successively passes over the different balises, wherein each balise is configured for communicating with the guided vehicle when the latter passes over it. Different data might be communicated by the balise to the passing guided vehicle, notably the location of the balise, which is then used by the guided vehicle for determining its own position within the railway network. The balises are further used to perform a Prove Clear Ahead (PCA) process, ensuring for instance that a next track section is clear of any other guided vehicle, and enabling the guided vehicle to enter a full supervision mode, which can only be launched if all track and guided vehicle data required for supervising the guided vehicle are available to a control system in charge of ensuring a safe motion of the guided vehicle on the railway network. However, one problematic is related to the very first determination of the location of the guided vehicle, typically occurring when the position of a guided vehicle on the railway network is lost or has to be reinitialized, or when a guided vehicle enters for the first time a track area and has not yet been localized, i.e. its position is not yet known. In such a case, one has to wait until the guided vehicle passes over two different balises for determining with certainty the position of the guided vehicle and its

direction of travel, which enables then to launch the full supervision mode. Only after that, said control system is able to locate with certainty the guided vehicle on the railway network. As long said two balises have not been passed over, the guided vehicle location is not considered as determined, and it has to be moved under the supervision and responsibility of the guided vehicle driver, notably in on-sight mode. This driving in on sight mode is always risky, given that the guided vehicle is not yet identified and localized on the railway network by said control system until it passes two balises.

There is therefore still a need to improve the localization of guided vehicles on a railway network, notably to complete said localization in a quicker manner.

Summary of Invention

An objective of the present invention is to propose a method and a system for locating an unlocated guided vehicle on a track of a railway network that are simple, easy to implement or install, and that offer flexibility with respect to guided vehicle or track configurations.

This objective is achieved by the measures taken in accordance with the independent claims.

Further advantageous embodiments are proposed by the dependent claims.

More precisely, the present invention concerns notably a system for locating an unlocated guided vehicle moving on a track of a railway network, said system comprising:

- a positioning system configured for being installed on-board the unlocated guided vehicle, said positioning system being configured for acquiring a first position information configured for providing information about a first position occupied by said unlocated guided vehicle on the railway network;
- a control system, said control system comprising a register for registering each located guided vehicle of said railway network via an identifier assigned to the located guided vehicle, and for monitoring its current position and its current direction of travel, the control system being further configured for determining a current position and a current travel direction of the unlocated guided vehicle, and for registering in said register the unlocated guided vehicle as a newly located guided vehicle on said railway network;

characterized in that

- the positioning system is configured for acquiring said first position information directly from a located guided vehicle moving on a neighboring track with respect to said track on which the unlocated guided vehicle is moving and called hereafter the first

neighboring guided vehicle or FN guided vehicle, the positioning system being further configured for using said first position information for determining said current position and current travel direction of the unlocated guided vehicle.

5 The present invention also concerns a method for locating an unlocated guided vehicle moving on a track of a railway network, the method comprising:

- acquiring, by a positioning system, a first position information configured for providing information about a first position occupied by said unlocated guided vehicle on the railway network;
- 10 - sending, by said positioning system, said first position information a control system configured for registering located guided vehicles in a register, wherein, for each located guided vehicle, a current position, a current travel direction, and an identifier are registered in said register;
- determining, by said control system a current position of the unlocated guided vehicle on the railway network and a current travel direction; and
- 15 - registering, by the control system and in its register, the unlocated guided vehicle as a newly located guided vehicle;

the method being characterized in that

- said first position information is directly acquired from a located guided vehicle, called
- 20 hereafter the FN guided vehicle, moving on a neighboring track with respect to said track, and using said first position information for determining said current position and current travel direction of the unlocated guided vehicle.

25 **Description of Embodiments**

The present invention proposes a new concept wherein an unlocated guided vehicle is able to acquire from a neighboring guided vehicle that is already registered as a located guided vehicle, a first position information that is then used by said control system for determining the current

30 position and current travel direction of the guided vehicle. In particular, the positioning system is configured for acquiring said first position information from the FN guided vehicle when they pass or cross each other, notably when a distance separating the unlocated guided vehicle from the FN guided vehicle is smaller than a predefined communication distance. The positioning system is further configured for registering the time, called hereafter the FN time, at which said

35 first position information has been acquired from the FN guided vehicle. Said FN time corresponds notably to the time at which the unlocated guided vehicle passes or crosses said FN guided vehicle. According to the present invention, said first position information comprises

at least the identifier of the FN guided vehicle, called hereafter the FN identifier. Preferentially, the positioning system is further configured for acquiring a track identification data information configured for enabling an identification, by said control system, of the track on which said unlocated guided vehicle is currently moving at the FN time, and for acquiring a travel direction information configured for enabling a determination, by said control system, of the current travel direction of the unlocated guided vehicle on said track. According to the present invention, the positioning system is configured for determining said first position from the FN time, the identifier of the FN guided vehicle, and said track identification data.

- 10 After having determined the current position and current travel direction of the unlocated guided vehicle, the latter is considered by the control system as a newly located guided vehicle, and said control system assigned then an identifier to the newly located guided vehicle, and communicates said identifier to the positioning system which is configured for automatically emitting said identifier at least when the newly located guided vehicle crosses or passes
- 15 another unlocated guided vehicle. Typically, the positioning system according to the invention comprises a communication system with a radio antenna that enables a direct remote exchange of data with other guided vehicles, like said FN guided vehicle. In particular, each positioning system might use a Bluetooth Low Energy (BLE) communication technique for sending or emitting the identifier of the guided vehicle within which it is installed and for receiving the
- 20 identifier of an already located guided vehicle. In particular, the system according to the invention comprises another positioning system, called the FN positioning system, which is configured for being installed on-board the FN guided vehicle and configured for emitting said FN identifier when the FN guided vehicle passes or crosses the unlocated guided vehicle. Preferentially, each located guided vehicle that is registered in said register comprises such a
- 25 positioning system enabling to emit the identifier when the guided vehicle is located in the register and to acquire an identifier of an already located guided vehicle when the guided vehicle in which the positioning system is installed is not yet located on the railway network. Preferentially, once the unlocated guided vehicle became a newly located guided vehicle, its positioning system might further report to said control system the identifier of any located guided
- 30 vehicle it crosses or passes together with said first position information for enabling the control system to double check the position of each located guided vehicle.

- According to the present invention, the control system is preferentially configured for using the FN identifier for identifying said FN guided vehicle in its register and finding, from located guided
- 35 vehicle data stored in said register, its position at the FN time – called hereafter the FN position, wherein said FN position is used by the control system for assigning to said first position a position on the track identified by said track identification data and located within an area

defined around the FN position. For instance, said position located within said area is a position located on said track identified from the track identification data and that is the nearest position to the FN position. The control system further assigns then to said current position the currently determined first position. Of course, other ways of determining said current position of the unlocated guided vehicle from said first position information and said track identification information might be envisaged. In particular, said track identification information and/or said travel direction information is/are comprised in said first position information, or acquired from a balise, or from a driver of the unlocated guided vehicle, or from a camera system of the positioning system.

Indeed, according to a preferred embodiment of the invention, the positioning system may comprise a camera system configured for acquiring said track identification information and said travel direction information throughout images acquired by said camera system. The latter is preferentially configured for being installed on-board said unlocated guided vehicle and for acquiring images of a front and/or rear scene with respect to the motion of said unlocated guided vehicle (i.e. with respect to the front end or rear end of the unlocated guided vehicle), wherein each scene according to the invention (i.e. the front and/or rear scene) comprises a portion of the track on which the unlocated guided vehicle is moving and a surrounding environment of said portion, in order to enable an identification, in images of said scene, of any track and guided vehicle present in said scene. In this case, the track identification information and travel direction information are embedded in the images acquired by the positioning system, which are then sent by the latter, notably in real time, to the control system for further processing. For implementing said further processing, the control system preferentially comprises an algorithm configured for identifying, in the acquired images, tracks and guided vehicles in said scene. The control system uses then said identification of any track and guided vehicle appearing in the scene for determining (i) the track on which the unlocated guided vehicle is moving: for this, it uses said identification of the track on which the FN guided vehicle was moving at the FN time in said scene, and the current position of the FN guided vehicle stored in its register for the FN time, to determine, from a map of the railway network tracks (e.g. the algorithm is capable of matching said map of the railway network tracks with tracks appearing in said scene once knowing the FN position), said track on which the unlocated guided vehicle was moving at the FN time with respect to the track that was occupied by the FN guided vehicle; and (ii) said current direction of travel of the unlocated guided vehicle: for this, the algorithm is able to output, from the acquired images of the scene, a direction of motion/travel of said FN guided vehicle on said track with respect to the current motion of the unlocated guided vehicle (typically, either a same direction of travel, or an opposite direction of travel), and to deduct thus said current travel direction. As already explained, knowing the track

on which the unlocated guided vehicle was moving at the FN time and the FN position enables the control system to determine said first position, which is, in the present case, the same as the current position. This, completed by the information about the current travel direction that is determined by said algorithm from the images of the scene enables to fully locate the unlocated guided vehicle. Preferentially, the range of emission of the identifier is automatically varied by the positioning system in function of the speed of the located guided vehicle, wherein higher the speed, greater the range. This enables to smartly trigger an acquisition of images by the camera system of the positioning system of the unlocated guided vehicle to the very first reception of the FN identifier, and to automatically stop said acquisition of images once the FN identifier is not anymore received by the positioning system of the unlocated guided vehicle. This will spare memory and energy of the whole system according to the invention.

Preferentially, for acquiring said travel direction information, the positioning system according to the invention might be configured for acquiring a second position information configured for providing information about a second position occupied by said unlocated guided vehicle on the railway network. In particular, in case of an acquisition of said second position information, the control system might be configured for assigning to said current position the position, among said first position and said second position, which is reached the latest by the unlocated guided vehicle, and for defining said current travel direction as the direction followed by the unlocated guided vehicle when moving towards the current position. In particular, the positioning system might be configured for acquiring said second position information directly from another located guided vehicle, called hereafter the SN guided vehicle, moving on the same or another neighboring track with respect to said track on which the unlocated guided vehicle is currently moving. Preferentially, the positioning system is configured for acquiring said second position information from the SN guided vehicle when they pass or cross each other, and for registering the time, called hereafter the SN time, at which said second position information has been acquired from the SN guided vehicle, said second position information comprising the identifier of the SN guided vehicle, called hereafter the SN identifier, wherein the control system is configured for using said SN identifier and said track identification information for determining said second position of the unlocated guided vehicle occupied at the SN time on said track, and for using said first position and said second position for determining said current position and said current travel direction. Preferably, the system according to the invention comprises another positioning system, called the SN positioning system, configured for being installed on-board the SN guided vehicle and configured for emitting said SN identifier when the SN guided vehicle passes or crosses the unlocated guided vehicle. In particular, by equipping a set of guided vehicles or each guided vehicle that is designed for moving on said railway network with

a positioning system according to the invention, it enables the system according to the invention to efficiently locate each of said guided vehicles.

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Brief Description of the Drawing

Further aspects of the present invention will be better understood through the following drawings, wherein like numbers designate like objects:

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Fig. 1 schematic illustration of a preferred embodiment of a system according to the invention.

Fig. 2 flowchart of a preferred embodiment of a method according to the invention.

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Fig. 3 schematic example of an implementation of the invention at a first time T1.

Fig. 4 schematic example of an implementation of the invention at a second time T2.

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Description of Examples

A preferred embodiment of a system 100 according to the invention is illustrated in Figure 1. Said system 100 comprises a positioning system 110 and a control system 120. The positioning system 110 is installed on-board an unlocated guided vehicle 1 configured for moving on a track 21 of a railway network and whose location with respect to said railway network has to be determined, and in particular its travel direction F. The control system 120 might be installed on-board the unlocated guided vehicle 1 or it can be a remote system. The control system 120 and the positioning system 110 are configured for communicating with each other, and comprise for this purpose known in the art communication means, notably wireless communication means like a radio communication system, or might be connected to each other by wires if the control system 120 is installed on-board. The positioning system 110 further comprises a communication system 111 for exchanging (sending to and/or receiving from) data with another guided vehicle, in particular with a communication system of a positioning system installed on-board said another guided vehicle. Preferentially, the communication system 111 of each positioning system according to the invention uses a BLE communication technique for communicating with another communication system according to the invention. This means that each guided vehicle equipped with a positioning system according to the invention may directly

communicate data to another guided vehicle equipped with such a positioning system. As explained in more detail when describing the method according to the invention, the exchanged data comprises at least an identifier of the located guided vehicle that is sent to any unlocated guided vehicle that is crossed or passed. Optionnally, any unlocated guided vehicle may send a request to any located guided vehicle that is crossed or passed for receiving the located guided vehicle identifier, in response of what, the located guided vehicle automatically sends its identifier. Preferentially, such a request is only sent as long as the unlocated guided vehicle is not yet registered as a located guided vehicle in a register of the control system 120.

- 10 The positioning system 110 may further comprise a camera system 112 for acquiring images of a scene upfront the guided vehicle 1, and/or a back scene of the guided vehicle 1, wherein each of said scenes shows a portion of track (respectively an upfront portion of track for the upfront scene and a back portion of track for the back scene) and a surrounding environment with respect to said portion of track so as to enable an acquisition of images of neighboring tracks and guided vehicles moving on said neighboring tracks.

- The control system 120 is in charge of registering each located guided vehicle in a register that enables to monitor and/or track each located guided vehicle on the railway network. In said register, each located guided vehicle is assigned an identifier by said control system 120. For each located guided vehicle identified by such an identifier, the control system 120 monitors its current position and current travel direction, and may store past data (i.e. past positions and travel directions) in a memory.

- The principles of the present invention for locating an unlocated guided vehicle will be described in more detail hereafter through the method of Figure 2, together with the illustrations provided in Figures 3 and 4.

- At step 201, the positioning systems 110 acquires a first position information configured for providing information about a first position occupied by said unlocated guided vehicle 1 on the railway network. According to the present invention, said first position information is directly acquired from a located guided vehicle, called hereafter the FN guided vehicle 2, that is moving on a neighboring track 22 with respect to said track 21 on which the unlocated guided vehicle 1 is moving. This is illustrated in Fig. 3 that is a schematic picture of the crossing of the two guided vehicles taken at a time T1, while Fig. 4 is a schematic picture of the crossing of the unlocated guided vehicle with another located guided vehicle, called the SN guided vehicle 3, taken at a time T2. The current travel direction F of the unlocated guided vehicle 1 might be opposite to the current travel direction G of the FN guided vehicle 2. In other cases, said current

travel direction F might be the same for both the unlocated and located guided vehicles, as illustrated in Fig. 4 with the current travel direction H of the SN guided vehicle 3.

Said first position information comprises an identifier of the FN guided vehicle 2. Preferentially, it
5 comprises also the FN time at which the identifier has been acquired. Preferentially, a positioning system of the FN guided vehicle is configured for sending said identifier to the positioning system of the unlocated guided vehicle 1, notably upon reception of a request from the latter. Typically, the positioning system of both the unlocated and FN guided vehicle comprises a communication system 111, notably a radio communication system using BLE
10 technology for their communication with one another.

At step 202, the positioning system 110 sends said first position information to the control system. As explained earlier, the latter comprises a register for registering each located guided vehicle moving on said railway network with an identifier, and for further monitoring the current
15 position and current travel direction of each registered located guided vehicle.

At step 203, the control system 120 determines the current position of the unlocated guided vehicle on the railway network and its current travel direction from the received first position information. For this purpose, the control system 120 uses the identifier comprised in said first
20 position information for determining said FN position, i.e. the position of the FN guided vehicle at the time it crossed or passed the unlocated guided vehicle, i.e. at said FN time. As explained earlier, said FN time might be embedded in said first position information provided by the positioning system 110, or might be considered as the time at which the first position information is received by the control system 120 if said FN time is not comprised within the first
25 position information, notably in case the control system 120 is an on-board system.

Preferentially, the control system 120 stores the position of each located guided vehicle in function of the time, which enables an easy retrieval of any past position. Then, the control system 120 assigns to the guided vehicle 1 a position that is located on the track currently occupied by the unlocated guided vehicle 1 and within an area defined around the FN position,
30 preferentially, the position on said track that is the nearest to said FN position. Said assigned position corresponds to the first position, and in the present case, is also the current position of the unlocated guided vehicle 1. Alternatively, the first position information may comprise a current value of the range of communication of the communication system of the FN guided vehicle 2 and/or of the unlocated guided vehicle 1, wherein at least one of said current range
35 values (notably the one characterizing the communication system of the FN guided vehicle) is used by the control system 120 in the calculation of the first position from the knowledge of the FN position.

For determining on which track the unlocated guided vehicle 1 is currently moving, the control system 120 is configured for acquiring, from the positioning system, a track identification data. Said track identification data might be acquired by the positioning system 110 from a balise, or
 5 from an operator, or from the camera system 112, and sent together with the first position information to the control system 120. Preferentially, said track identification data is automatically acquired by the camera system 112 in the form of images of a scene that is at the front and/or rear of the unlocated guided vehicle 1 and which shows a portion of the track 21 comprising other tracks 22, 23 and other guided vehicles. An acquisition of said images
 10 preferentially starts at the reception of an identifier of a located guided vehicle, stops as soon as the FN guided vehicle is out of the communication range of the communication system 111 of the positioning system 110, and the acquired images are automatically sent in real time to the control system 120. The latter comprises then an algorithm configured for automatically determining the track on which the unlocated guided vehicle 1 is currently running by comparing
 15 or matching the acquired images to a map of the railway network tracks, focusing on the FN position on said map.

For determining the current travel direction of the unlocated guided vehicle, the control system 120 is configured for acquiring a travel direction information from the positioning system 110.
 20 Said positioning system 110 may acquire said travel direction information from one or several balises, from an operator, from the camera system 112, or by acquiring a second position information. Preferentially, said travel direction information is provided by the positioning system 110 to the control system 120 together with the first position information.

25 In particular, if the camera system 112 is used for acquiring said travel direction information, then the control system 120 is able to determine a current direction of travel of the unlocated guided vehicle 1 from said images, notably by comparing the direction of travel of the unlocated guided vehicle 1 and the direction of travel of the FN guided vehicle at said FN time. Known in the art image processing techniques might be used for this purpose.

30 Figure 4 illustrates an acquisition of said travel direction information from a second position information which is acquired from another located guided vehicle, i.e. said SN guided vehicle 3, moving on another track 23. The process used for acquiring the first position information from the FN guided vehicle 2 applies here mutatis mutandis when acquiring the second position
 35 information from the SN guided vehicle. However, in this case, i.e. if the second position information is used by the control system 120 for determining the current travel direction of the unlocated guided vehicle 1, then the control system 120 will automatically select, as current

position, the position among said first position and said second position, that has been reached the temporally the latest by the unlocated guided vehicle, the current travel direction being defined by the motion of the unlocated guided vehicle 1 towards said current position.

5 At step 204, i.e. after having determined said current position and current travel direction, the control system 120 assigns an identifier to the unlocated guided vehicle 1 and registers the latter as a newly located guided vehicle in its register. Once registered, the current position and travel direction of the newly registered guided vehicle is monitored by the control system 120.

10 At step 205, the control system 120 communicates to the positioning system 110 of the newly located guided vehicle its identifier.

At step 206, the positioning system 110 of the newly located guided vehicle emits said identifier via its communication system 111, at least when it crosses or passes an unlocated guided
15 vehicle. For instance, it can continuously emit said identifier, or it can emit it upon request, for instance after reception of a request for receiving said identifier that has been sent by an unlocated guided vehicle.

To conclude, the present invention proposes a new way of locating an unlocated guided vehicle
20 on a track of a railway network, wherein position information is received from already located guided vehicles that are crossed or passed by the unlocated guided vehicle when moving on the railway network, which avoids having to pass over two balises, and enables a more efficient localization of unlocated guided vehicles.

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Claims

1. System (100) for locating an unlocated guided vehicle (1) moving on a track (21) of a railway network, said system (100) comprising:
 - 5 – a positioning system (110) configured for being installed on-board the unlocated guided vehicle (1), said positioning system (110) being configured for acquiring a first position information configured for providing information about a first position occupied by said unlocated guided vehicle (1) on the railway network;
 - 10 – a control system (120), said control system (120) comprising a register for registering each located guided vehicle of said railway network via an identifier assigned to the located guided vehicle, and for monitoring its current position and its current direction of travel, the control system (120) being further configured for determining a current position and a current travel direction of the unlocated guided vehicle (1), and for registering in said register the unlocated guided vehicle (1) as a newly located guided
15 vehicle on said railway network;
the system being characterized in that
 - 20 – the positioning system (110) is configured for acquiring said first position information directly from a located guided vehicle moving on a neighboring track with respect to said track and called hereafter the first neighboring guided vehicle or FN guided vehicle (2), the positioning system (110) being further configured for using said first position information for determining said current position and current travel direction of the unlocated guided vehicle (1).
2. System (100) according to claim 1, wherein the control system (120) is further configured
25 for assigning an identifier to the newly located guided vehicle, wherein the positioning system (110) is configured for automatically emitting said identifier at least when the newly located guided vehicle crosses or passes another unlocated guided vehicle (1).
3. System (100) according to claim 1 or 2, wherein the positioning system (110) is
30 configured for acquiring said first position information from the FN guided vehicle (2) when they pass or cross each other, and for registering the time, called hereafter the FN time, at which said first position information has been acquired from the FN guided vehicle (2), said first position information comprising the identifier of the FN guided vehicle (2), called hereafter the FN identifier, the positioning system (110) being further
35 configured for acquiring a track identification information configured for enabling an identification, by said control system (120), of the track on which said unlocated guided

vehicle (1) is currently moving, the positioning system (110) being further configured for acquiring a travel direction information configured for enabling a determination, by said control system (120), of the current travel direction of the unlocated guided vehicle (1) on said track, the positioning system (110) being configured for determining said first position from the FN time, the identifier of the FN guided vehicle (2), and said track identification data.

4. System (100) according to claim 3, wherein the control system (120) is configured for using the FN identifier for identifying said FN guided vehicle (2) in its register and finding its position at the FN time – called hereafter the FN position, wherein said FN position is used by the control system (120) for assigning to said first position a position on the track identified by said track identification data and located within an area defined around the FN position.

5. System (100) according to one of the claims 2 to 4, wherein said track identification information and/or said travel direction information is/are comprised in said first position information, or acquired from a balise, or from a driver of the unlocated guided vehicle (1), or from a camera system (112) of the positioning system (110).

6. System (100) according to one of the claims 1 to 5, comprising another positioning system, called the FN positioning system, configured for being installed on-board the FN guided vehicle (2) and configured for emitting said FN identifier when the FN guided vehicle (2) passes or crosses the unlocated guided vehicle (1).

7. System (100) according to one of the claims 1-6, wherein, for acquiring said travel direction information, the positioning system (110) is configured for acquiring a second position information configured for providing information about a second position occupied by said unlocated guided vehicle (1) on the railway network.

8. System (100) according to claim 7, wherein, in case of acquiring said second position information, then the control system (120) is configured for assigning to said current position, the position, among said first position and said second position comprised in said second position information, which is reached the latest by the unlocated guided vehicle (1), and for defining said current travel direction as the direction followed by the unlocated guided vehicle (1) when moving towards the current position.

9. System (100) according to claim 7 or 8, wherein the positioning system (110) is configured for acquiring said second position information directly from another located guided vehicle, called hereafter the SN guided vehicle, moving on the same or another neighboring track with respect to said track on which the unlocated guided vehicle (1) is currently moving.
10. System (100) according to claim 9, wherein the positioning system (110) is configured for acquiring said second position information from the SN guided vehicle when they pass or cross each other, and for registering the time, called hereafter the SN time, at which said second position information has been acquired from the SN guided vehicle, said second position information comprising the identifier of the SN guided vehicle, called hereafter the SN identifier, wherein the control system (120) is configured for using said SN identifier and said track identification information for determining said second position of the unlocated guided vehicle (1) occupied at the SN time on said track, and for using said first position and said second position for determining said current position and said current travel direction.
11. System (100) according to claim 9 or 10, comprising another positioning system (110), called the SN positioning system (110), configured for being installed on-board the SN guided vehicle and configured for emitting said SN identifier when the SN guided vehicle passes or crosses the unlocated guided vehicle (1).
12. Method for locating an unlocated guided vehicle (1) moving on a track of a railway network, the method comprising:
- acquiring (201), by a positioning system (110), a first position information configured for providing information about a first position occupied by said unlocated guided vehicle (1) on the railway network;
 - sending (202), by said positioning system (110), said first position information a control system (120) configured for registering located guided vehicles in a register, wherein, for each located guided vehicle, a current position, a current travel direction, and an identifier are registered in said register;
 - determining (203), by said control system (120) a current position of the unlocated guided vehicle (1) on the railway network and a current travel direction; and
 - registering (204), by the control system (120) and in its register, the unlocated guided vehicle (1) as a newly located guided vehicle;

the method being characterized in that:

- said first position information is directly acquired from a located guided vehicle, called hereafter the FN guided vehicle (2), moving on a neighboring track with respect to said track, and using said first position information for determining said current position and current travel direction of the unlocated guided vehicle (1).

13. Method according to claim 12, comprising acquiring said first position information from the FN guided vehicle (2) when they pass or cross each other, and for registering the time, called hereafter the FN time, at which said first position information has been acquired from the FN guided vehicle (2), said first position information comprising the identifier of the FN guided vehicle (2), called hereafter the FN identifier, the method further comprising acquiring a track identification information configured for enabling an identification of the track on which said unlocated guided vehicle (1) is currently moving, and acquiring a travel direction information configured for enabling a determination of the current travel direction of the unlocated guided vehicle (1) on said track, the positioning system (110) being configured for determining said first position from the FN time, the identifier of the FN guided vehicle (2), and said track identification data.

14. Method according to claim 13, comprising using the FN identifier for identifying said FN guided vehicle (2) in the register of the control system (120) and finding its position at the FN time – called hereafter the FN position, wherein said FN position is used by the control system (120) for assigning to said first position a position on the track identified by said track identification data and located within an area defined around the FN position.

15. Method according to claim 13 or 14, comprising, for acquiring said travel direction information, acquiring a second position information configured for providing information about a second position occupied by said unlocated guided vehicle (1) on the railway network.