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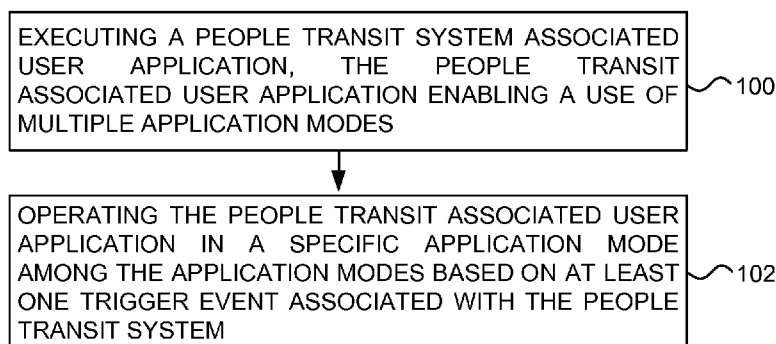


FIG. 1

(57) Abstract: According to an aspect, there is provided a computer-implemented method comprising: executing a people transit system associated user application, the people transit associated user application enabling a use of multiple operation modes; and operating the people transit associated user application in a specific operation mode among the operation modes based on at least one trigger event associated with the people transit system.



**A COMPUTER IMPLEMENTED METHOD AND AN APPARATUS
ASSOCIATED WITH A PEOPLE TRANSIT SYSTEM ASSOCIATED USER
APPLICATION**

BACKGROUND

5 People transit systems, for example, elevator systems
are becoming more and more intelligent and various
applications can be used in connection with the elevator
systems. As an example, in an elevator system that uses
destination calls a mobile application may be provided
10 with which a user is able to place a destination call.

In a people transit system, there may be also other
situations in which a mobile device executed application
could be used for providing some additional
15 functionality. The challenge may be that a user need to
separately install each of these applications to the
user's mobile device in order to enable the additional
functionality.

20 **SUMMARY**

According to a first aspect, there is provided a
computer-implemented method comprising executing a
people transit system associated user application, the
people transit associated user application enabling a
25 use of multiple operation modes; and operating the
people transit associated user application in a specific
operation mode among the operation modes based on at
least one trigger event associated with the people
transit system.

30

In an implementation form of the first aspect, the
method further comprises obtaining the at least one
trigger event from a source external to the people
transit system associated user application; and
35 activating the specific operation mode based on the at
least one trigger event.

In an implementation form of the first aspect, the trigger event comprises identification information associated with people transit system.

5

In an implementation form of the first aspect, the method further comprises causing transmission of the identification information; receiving status information associated with at least one entity identified by the identification information; and causing display of the status information.

10

In an implementation form of the first aspect, the method further comprises obtaining the at least one trigger event as an internal trigger of the people transit system associated user application; and activating the specific operation mode based on the at least one trigger event.

15

In an implementation form of the first aspect, the method further comprises requesting status information associated with at least one entity of the people transit system; receiving status information associated with at least one entity of the people transit system; and causing display of the status information.

20

25

In an implementation form of the first aspect, the method further comprises sending at least one command to a controller to control an entity of the people transit system.

30

In an implementation form of the first aspect, the at least one command comprises at least one of an empty call, open doors of an elevator, close doors of an elevator, a request for data associated with at least one elevator, and a request for data associated with at least landing floor.

35

In an implementation form of the first aspect, the operation modes comprise at least one of a fire mode, a guidance mode, a cleaning mode and a maintenance mode.

5

In an implementation form of the first aspect, the people transit system comprises at least one of an elevator system, an escalator system and an access system.

10

According to a second aspect, there is provided an apparatus comprising at least one processor and at least one memory including computer program code. The at least one memory and the computer program code are configured to, with the at least one processor, cause the apparatus to at least perform: executing a people transit system associated user application, the people transit associated user application enabling a use of multiple operation modes; and operating the people transit associated user application in a specific operation mode among the operation modes based on an operation state of at least one entity of the people transit system a computer-implemented method comprising executing a people transit system associated user application, the people transit associated user application enabling a use of multiple operation modes; and operating the people transit associated user application in a specific operation mode among the operation modes based on at least one trigger event associated with the people transit system.

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In an implementation form of the second aspect, the at least one memory and the computer program code are configured to, with the at least one processor, cause the apparatus to at least perform: obtaining the at least one trigger event from a source external to the people transit system associated user application; and

35

activating the specific operation mode based on the at least one trigger event.

5 In an implementation form of the second aspect, the trigger event comprises identification information associated with the people transit system.

10 In an implementation form of the second aspect, the at least one memory and the computer program code are configured to, with the at least one processor, cause the apparatus to at least perform: causing transmission of the identification information; receiving status information associated with at least one entity identified by the identification information; and
15 causing display of the status information.

In an implementation form of the second aspect, the at least one memory and the computer program code are configured to, with the at least one processor, cause
20 the apparatus to at least perform: obtaining the at least one trigger event as an internal trigger of the people transit system associated user application; and activating the specific operation mode based on the at least one trigger event.

25 In an implementation form of the second aspect, the at least one memory and the computer program code are configured to, with the at least one processor, cause the apparatus to at least perform: requesting status
30 information associated with at least one entity of the people transit system; receiving status information associated with at least one entity of the people transit system; and causing display of the status information.

35 In an implementation form of the second aspect, the at least one memory and the computer program code are

configured to, with the at least one processor, cause the apparatus to at least perform: sending at least one command to a controller to control an entity of the people transit system.

5

In an implementation form of the second aspect, the at least one command comprises at least one of an empty call, open doors of an elevator, close doors of an elevator, a request for data associated with at least one elevator, and a request for data associated with at least landing floor.

10

In an implementation form of the second aspect, the operation modes comprise at least one of a fire mode, a guidance mode, a cleaning mode and a maintenance mode.

15

In an implementation form of the second aspect, the people transit system comprises at least one of an elevator system, an escalator system and an access system.

20

According to a third aspect, there is provided a computer program comprising instructions which, when the program is executed by the at least one processor of the apparatus of the second aspect, cause to apparatus carry out the method of any the first aspect.

25

According to a fourth aspect, there is provided a computer-readable medium comprising a computer program comprising instructions which, when the program is executed by the at least one processor of the apparatus of the second aspect, cause to apparatus carry out the method of any the first aspect.

30

According to a fifth aspect, there is provided a people transit system comprising an apparatus of the second aspect.

35

In an implementation form of the fifth aspect, the people transit system comprises at least one of an elevator system, an escalator system and an access system.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are included to provide a further understanding of the invention and constitute a part of this specification, illustrate embodiments of the invention and together with the description help to explain the principles of the invention. In the drawings:

FIG. 1 illustrates a flow chart of a method for operating the people transit associated user application.

FIG. 2 illustrates a block diagram of an apparatus according to an example embodiment.

FIG. 3A illustrates an example environment for applying the people transit associated user application according an example embodiment.

FIG. 3B illustrates another example environment for applying the people transit associated user application according an example embodiment.

DETAILED DESCRIPTION

FIG. 1A illustrates a flow chart of a method for operating the people transit associated user application.

At 100 a people transit system associated user application is executed, the people transit associated user application enabling a use of multiple operation

modes. The application may be executed, for example, by a mobile device used by a user. In another example embodiment, the application may be provided as a cloud-based service to which the mobile device of the user is
5 connected to.

At 102 the people transit associated user application is operated in a specific operation mode among the operation modes based on at least one trigger event
10 associated with the people transit system. In other words, the people transit associated user application may have a plurality of different operation modes based on which it can operate. In an example embodiment, the plurality of operation modes may comprise, for example,
15 at least one of a fire mode, a guidance mode, a cleaning mode and a maintenance mode. It is evident that there modes represent only examples and other modes may also be applied. Each operation mode may provide an operation mode specific user interface with the application.

20 In an example embodiment, a trigger event may be obtained and the specific operation mode may be activated based the trigger event. In an example embodiment, the trigger event may comprise a user input.
25 The user may input, for example, his/her credentials or some identifier to the application. The trigger event may be obtained from a source external to the people transit system associated user application. In other words, for example, from a building manager, a building
30 management system, the people transit system, or a cloud service or node. Thus, the trigger event may refer, for example, to a fire alarm, a fault situation etc. In another example embodiment, the trigger event may be obtained as an internal trigger of the people transit
35 system associated user application. As illustrated already above, the user may input, for example, his/her

credentials or some identifier to the application to activate the specific operation mode.

In an example embodiment, the trigger event comprises
5 identification information associated with the people transit system. For example, the application may obtain the trigger event from an external source, for example, by reading a visual identifier, for example, a QR code or some other machine-readable code. The visual
10 identifier may act as the identification information associated with the people transit system. In some embodiments, the application may be configured to transmit the identification information, receive status information associated with at least one entity
15 identified by the identification information and display the status information. The status information may relate to a status of a single elevator system entity to a plurality of elevator system entities. As an example, the status information may provide the status
20 of all elevators of the elevator system. An entity may refer, for example, a single device or node, to a plurality of devices or nodes, a system, a component etc.

25 In another example embodiment, the application may be configured to request status information associated with at least one entity of the people transit system, receive status information associated with at least one entity of the people transit system and display the
30 status information. The request may be transmitted, for example, in response to activating the specific operation mode.

In another example embodiment, the application may be
35 configured to send at least one command to a controller to control an entity of the people transit system. The command or commands that are available for the specific

operation mode may vary between operation modes. For example, when performing maintenance operations, the user may be allowed to open or close doors a specific elevator with the application.

5

FIG. 2 illustrates a block diagram of an apparatus 200 according to an example embodiment. The apparatus 200 may be, for example, a mobile apparatus used by a user.

10 The apparatus 200 comprises one or more processors 202, and one or more memories 204 that comprise computer program code. The apparatus 200 may also include an input/output module (not shown in FIG. 2), and/or a communication interface 208. Although the apparatus 200
15 is depicted to include only one processor 202, the apparatus 200 may include more than one processor. In an example embodiment, the memory 204 is capable of storing instructions, such as an operating system and/or various applications. The memory 204 may store a people
20 transit associated user application that may be executed by the apparatus 200 to implement various features and embodiment discussed herein.

Furthermore, the processor 202 is capable of executing
25 the stored instructions. In an example embodiment, the processor 202 may be embodied as a multi-core processor, a single core processor, or a combination of one or more multi-core processors and one or more single core processors. For example, the processor 202 may be
30 embodied as one or more of various processing devices, such as a coprocessor, a microprocessor, a controller, a digital signal processor (DSP), a processing circuitry with or without an accompanying DSP, or various other processing devices including integrated circuits such
35 as, for example, an application specific integrated circuit (ASIC), a field programmable gate array (FPGA), a microcontroller unit (MCU), a hardware accelerator, a

special-purpose computer chip, or the like. In an example embodiment, the processor 202 may be configured to execute hard-coded functionality. In an example embodiment, the processor 202 is embodied as an executor
5 of software instructions, wherein the instructions may specifically configure the processor 202 to perform the algorithms and/or operations described herein when the instructions are executed.

10 The memory 204 may be embodied as one or more volatile memory devices, one or more non-volatile memory devices, and/or a combination of one or more volatile memory devices and non-volatile memory devices. For example, the memory 204 may be embodied as semiconductor memories
15 (such as mask ROM, PROM (programmable ROM), EPROM (erasable PROM), flash ROM, RAM (random access memory), etc.).

In an embodiment, the at least one memory 204 may store
20 program instructions 206 that, when executed by the at least one processor 202, cause the apparatus 200 to perform the functionality of the various embodiments discussed herein. Further, in an embodiment, at least one of the processor 202 and the memory 204 may
25 constitute means for implementing the discussed functionality.

FIG. 3A illustrates an example environment for applying the people transit associated user application according
30 an example embodiment. Although the example uses an elevator system, the principles of the solution may be applied, for example, in an escalator system or an access system.

35 A people transit system associated user application executed by a mobile device 304 may obtain an elevator identifier 306, for example, in a form of a QR code. The

QR code may be available for scanning close to each elevator 300A, 300B, 300C.

5 In an example embodiment, the user 302 using the mobile device 304 may be a fireman. The fireman may use the application in fireman operation mode. When the QR code or some other identification information associated with the elevator is read, the application may request, for example, floor and status information from a node 308, 10 for example, a cloud service node and/or from a node providing site based fireman services. The information provided to the application may also comprise, for example, fireman display information (for example, elevator current location and direction). In an example 15 embodiment, when the fireman enters the elevator 300C, the mobile device 304 may provide to the fireman a mobile COP panel and/or a fire information display, which may provide additional information related fire and evacuation services/status.

20

In another example embodiment of FIG. 3A, the application may operate in a cleaning operation mode. Again, the application executed by the mobile device 304 may obtain the elevator identifier 306, for example, in 25 a form of a QR code. The QR code may be available for scanning close to each elevator 300A, 300B, 300C. The application may transmit the elevator identifier 306 to the node 308, and the application may start operating in the cleaning operation mode. In another example 30 embodiment, the cleaning operation mode may be activated by the user 302, for example, in response to providing a password or other identification information with the application. In the cleaning operation mode, the application may be configured to create an empty car call, and the elevator car may be removed from service 35 for cleaning. In an example embodiment, when operating the application in the cleaning operation mode, the user

302 may be able to send a command or commands to an elevator system node, for example, an elevator controller, to open and/or close doors.

5 In another example embodiment of FIG. 3A, the application may operate in a maintenance operation mode. Again, the application executed by the mobile device 304 may obtain the elevator identifier 306, for example, in a form of a QR code. The QR code may be available for
10 scanning close to each elevator 300A, 300B, 300C. The application may transmit the elevator identifier 306 to the node 308, and the application may start operating in the maintenance operation mode. In another example embodiment, the maintenance operation mode may be
15 activated by the user 302, for example, in response to providing a password or other identification information with the application. In the maintenance operation mode, the application may be configured to create an empty car call, and the elevator car may be removed from service
20 for maintenance. In an example embodiment, when operating the application in the cleaning operation mode, the user 302 may be able to send a command or commands to an elevator system node, for example, an elevator controller, to open and/or close doors.

25 FIG. 3B illustrates another example environment for applying the people transit associated user application according an example embodiment. The application executed by the mobile device 304 may operate in a
30 guidance operation mode. The guidance operation mode may be activated by the user 302, for example, in response to providing a password, a voice command or other identification information with the application. In the guidance operation mode, visual and/or voice guidance
35 information may be provided for visually impaired persons. Further, in the guidance operation mode, the application may establish a connection with a node, for

example, a cloud service node to enable provision of the guidance information to the user 302. The cloud service node 314 may be connected to a node 312 providing local services. The node 312 may further be connected to at least one camera 310 providing a live feed or still images about the proximity of elevators 318A, 318B. The nodes 312, 314 may further be connected to an elevator controller 316.

The node 312 may be configured to identify (for example, based on information provided by the camera 310) that the user 302 has exceeded a certain threshold location 320. In response to the identification, the application operating in the guidance operation mode may be used to provide guidance information to the user to reach an the elevator 318A. In an example embodiment, the user 302 may have already earlier given a destination call with the mobile device 304. When the user then reaches the threshold location 320, the mobile device 302 may be configured to start providing guidance information towards the elevator 318A allocated for the destination call.

At least one of the examples and embodiments disclosed above may enable a solution in which a single people transit system associated user application may be operated in multiple operation modes depending, for example, on the user or the usage situation. The operation mode may be activated by a user using the application or by an external trigger event obtained by the application.

Example embodiments may be implemented in software, hardware, application logic or a combination of software, hardware and application logic. The example embodiments can store information relating to various methods described herein. This information can be stored

in one or more memories, such as a hard disk, optical disk, magneto-optical disk, RAM, and the like. One or more databases can store the information used to implement the example embodiments. The databases can be
5 organized using data structures (e.g., records, tables, arrays, fields, graphs, trees, lists, and the like) included in one or more memories or storage devices listed herein. The methods described with respect to the example embodiments can include appropriate data
10 structures for storing data collected and/or generated by the methods of the devices and subsystems of the example embodiments in one or more databases.

The components of the example embodiments may include
15 computer readable medium or memories for holding instructions programmed according to the teachings and for holding data structures, tables, records, and/or other data described herein. In an example embodiment, the application logic, software or an instruction set
20 is maintained on any one of various conventional computer-readable media. In the context of this document, a "computer-readable medium" may be any media or means that can contain, store, communicate, propagate or transport the instructions for use by or in
25 connection with an instruction execution system, apparatus, or device, such as a computer. A computer-readable medium may include a computer-readable storage medium that may be any media or means that can contain or store the instructions for use by or in connection
30 with an instruction execution system, apparatus, or device, such as a computer. A computer readable medium can include any suitable medium that participates in providing instructions to a processor for execution. Such a medium can take many forms, including but not
35 limited to, non-volatile media, volatile media, transmission media, and the like.

While there have been shown and described and pointed out fundamental novel features as applied to preferred embodiments thereof, it will be understood that various omissions and substitutions and changes in the form and details of the devices and methods described may be made by those skilled in the art without departing from the spirit of the disclosure. For example, it is expressly intended that all combinations of those elements and/or method steps which perform substantially the same function in substantially the same way to achieve the same results are within the scope of the disclosure. Moreover, it should be recognized that structures and/or elements and/or method steps shown and/or described in connection with any disclosed form or embodiments may be incorporated in any other disclosed or described or suggested form or embodiment as a general matter of design choice. Furthermore, in the claims means-plus-function clauses are intended to cover the structures described herein as performing the recited function and not only structural equivalents, but also equivalent structures.

The applicant hereby discloses in isolation each individual feature described herein and any combination of two or more such features, to the extent that such features or combinations are capable of being carried out based on the present specification as a whole, in the light of the common general knowledge of a person skilled in the art, irrespective of whether such features or combinations of features solve any problems disclosed herein, and without limitation to the scope of the claims. The applicant indicates that the disclosed aspects/embodiments may consist of any such individual feature or combination of features. In view of the foregoing description it will be evident to a person skilled in the art that various modifications may be made within the scope of the disclosure.

CLAIMS

1. A computer-implemented method comprising:
executing (100) a people transit system
associated user application, the people transit
5 associated user application enabling a use of multiple
operation modes; and
operating (102) the people transit system
associated user application in a specific operation mode
among the operation modes based on at least one trigger
10 event associated with the people transit system.
2. The method according to claim 1, further
comprising:
obtaining the at least one trigger event from
15 a source external to the people transit system
associated user application; and
activating the specific operation mode based
on the at least one trigger event.
- 20 3. The method according to claim 2, wherein the
trigger event comprises identification information
associated with the people transit system.
4. The method according to claim 3, further
25 comprising:
causing transmission of the identification
information;
receiving status information associated with
at least one entity identified by the identification
30 information; and
causing display of the status information.
5. The method according to claim 1, further
comprising:
35 obtaining the at least one trigger event as an
internal trigger of the people transit system associated
user application; and

activating the specific operation mode based on the at least one trigger event.

6. The method according to any of claims 1 - 5, further comprising:

requesting status information associated with at least one entity of the people transit system;
receiving status information associated with at least one entity of the people transit system; and
causing display of the status information.

7. The method according to any of claims 1 - 6, further comprising:

sending at least one command to a controller to control an entity of the people transit system.

8. The method according to claim 7, wherein the at least one command comprises at least one of an empty call, open doors of an elevator, close doors of an elevator, a request for data associated with at least one elevator, and a request for data associated with at least landing floor.

9. The method according to any of claims 1 - 8, wherein the operation modes comprise at least one of a fire mode, a guidance mode, a cleaning mode and a maintenance mode.

10. The method according to any of claims 1 - 9, wherein the people transit system comprises at least one of an elevator system, an escalator system and an access system.

11. An apparatus (200) comprising:
at least one processor (202); and
at least one memory (204) including computer program code;

the at least one memory (204) and the computer program code being configured to, with the at least one processor (202), cause the apparatus (200) to at least perform:

5 executing a people transit system associated user application, the people transit associated user application enabling a use of multiple operation modes; and

10 operating the people transit associated user application in a specific operation mode among the operation modes based on at least one trigger event associated with the people transit system.

12. The apparatus (200) according to claim 11,
15 wherein the at least one memory (204) and the computer program code being configured to, with the at least one processor (202), cause the apparatus (200) to at least perform:

20 obtaining the at least one trigger event from a source external to the people transit system associated user application; and

 activating the specific operation mode based on the at least one trigger event.

25 13. The apparatus (200) according to claim 12, wherein the trigger event comprises identification information associated with the people transit system.

14. The apparatus (200) according to claim 13,
30 the at least one memory (204) and the computer program code being configured to, with the at least one processor (202), cause the apparatus (200) to at least perform:

35 causing transmission of the identification information;

receiving status information associated with
at least one entity identified by the identification
information; and

5 causing display of the status information.

15 15. The apparatus (200) according to claim 11,
the at least one memory (204) and the computer program
code being configured to, with the at least one
processor (202), cause the apparatus (200) to at least
10 perform:

obtaining the at least one trigger event as an
internal trigger of the people transit system associated
user application; and

15 activating the specific operation mode based
on the at least one trigger event.

16. The apparatus (200) according to any of
claims 11 - 15, the at least one memory (204) and the
computer program code being configured to, with the at
20 least one processor (202), cause the apparatus (200) to
at least perform:

requesting status information associated with
at least one entity of the people transit system;

25 receiving status information associated with
at least one entity of the people transit system; and
causing display of the status information.

17. The apparatus (200) according to any of
claims 11 - 16, the at least one memory (204) and the
30 computer program code being configured to, with the at
least one processor (202), cause the apparatus (200) to
at least perform:

sending at least one command to a controller
to control an entity of the people transit system.

35

18. The apparatus (200) according to claim 17,
wherein the at least one command comprises at least one

of an empty call, open doors of an elevator, close doors of an elevator, a request for data associated with at least one elevator, and a request for data associated with at least landing floor.

5

19. The apparatus (200) according to any of claims 11 - 18, wherein the operation modes comprise at least one of a fire mode, a guidance mode, a cleaning mode and a maintenance mode.

10

20. The apparatus (200) according to any of claims 11 - 19, wherein the people transit system comprises at least one of an elevator system, an escalator system and an access system.

15

21. A computer program comprising instructions which, when the program is executed by the at least one processor (202) of the apparatus (200) of claim 11, cause to apparatus (200) carry out the method of any of claims 1 - 10.

20

22. A computer-readable medium comprising a computer program comprising instructions which, when the program is executed by the at least one processor (202) of the apparatus (200) of claim 11, cause to apparatus (200) carry out the method of any of claims 1 - 10.

25

23. A people transit system comprising an apparatus of any of claims 11 - 20.

30

24. The people transit system according to claim 23, wherein the people transit system comprises at least one of an elevator system, an escalator system and an access system.

35

1/2

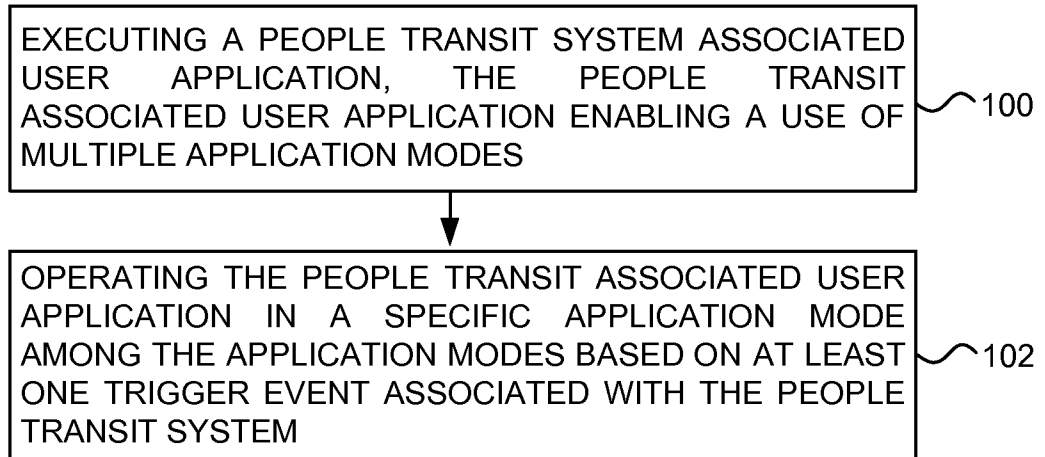


FIG. 1

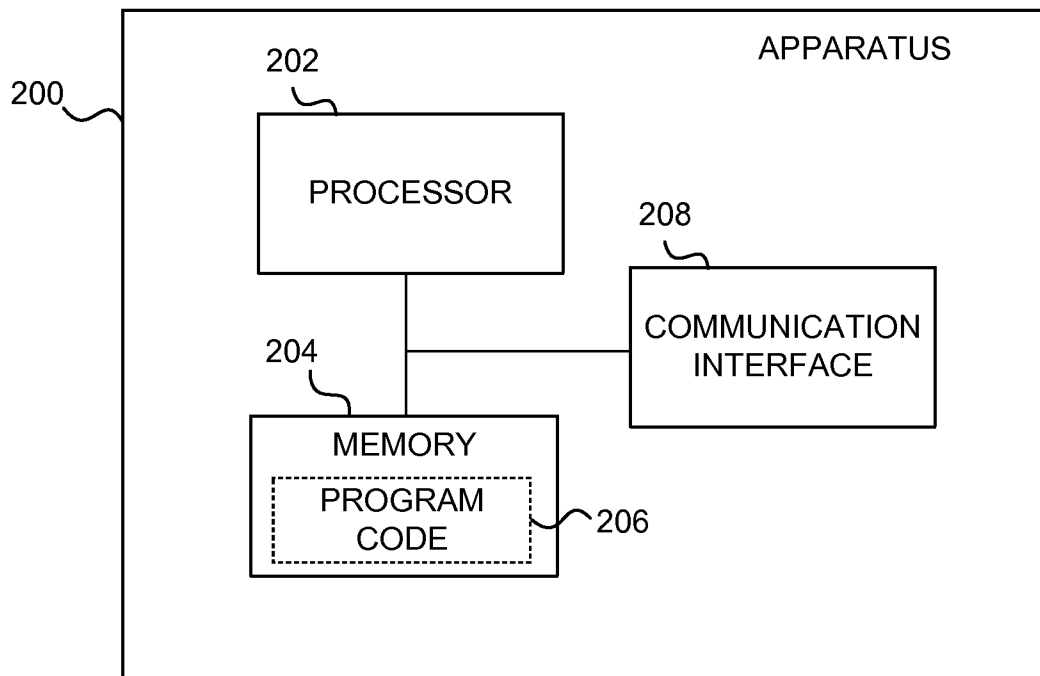


FIG. 2

2/2

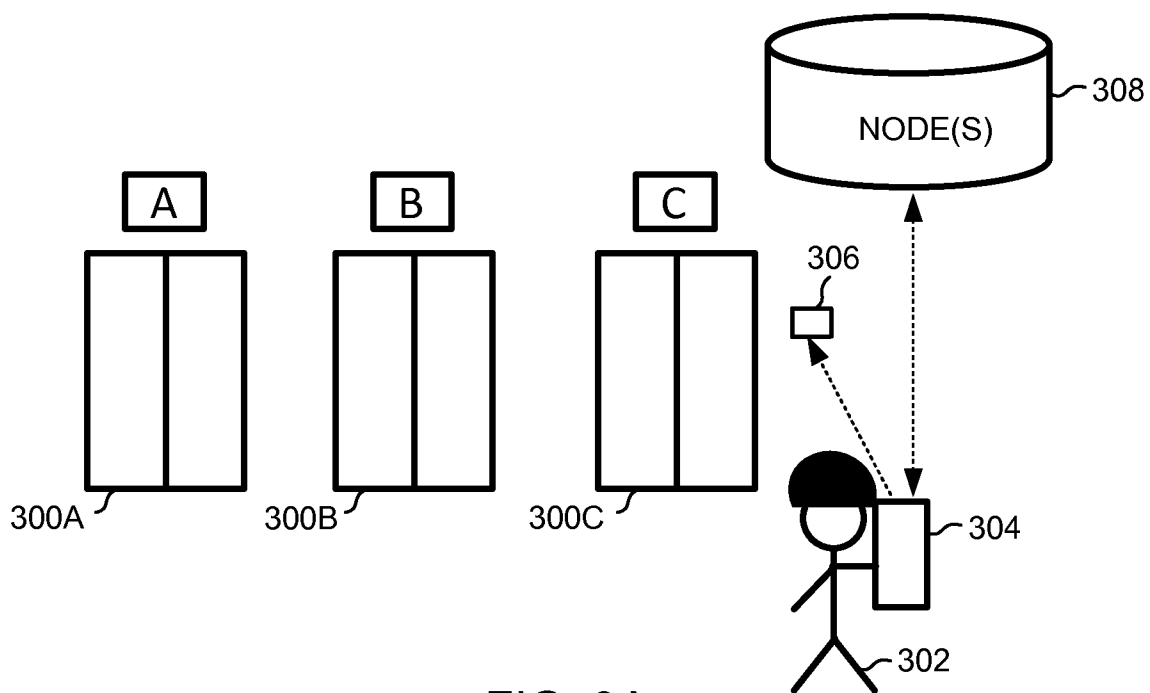


FIG. 3A

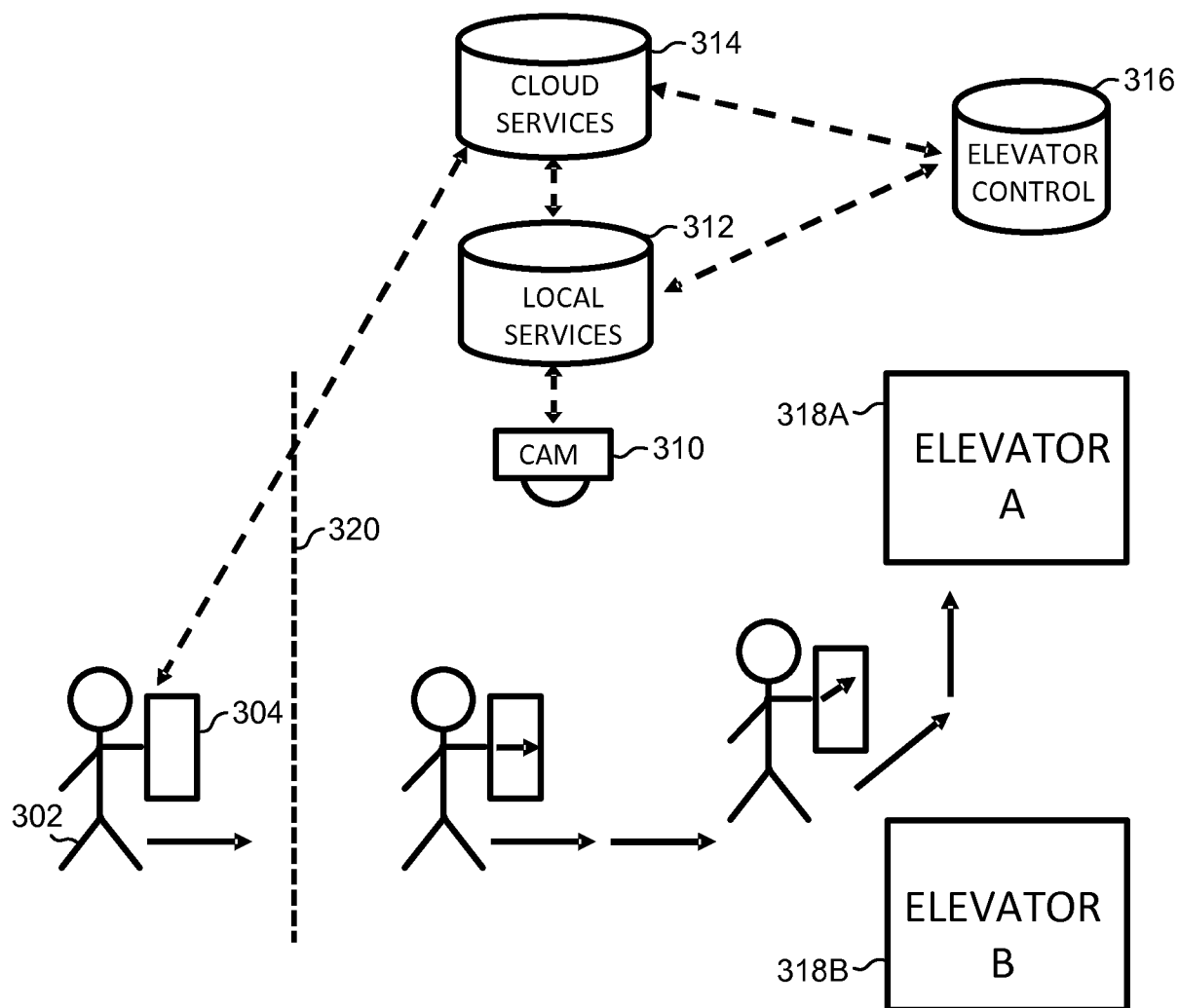


FIG. 3B

INTERNATIONAL SEARCH REPORT

International application No
PCT/FI2021/050201

A. CLASSIFICATION OF SUBJECT MATTER

INV. B66B1/46 B66B3/00 B66B5/00
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B66B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2001/022252 A1 (SCHUSTER KILIAN [CH]) 20 September 2001 (2001-09-20) paragraphs [0009], [0010], [0034], [0043], [0049], [0052]; figure 1 -----	1,2, 7-12, 17-21
X	US 2019/202657 A1 (LI KAI [CN] ET AL) 4 July 2019 (2019-07-04) paragraphs [0005], [0007], [0008], [0015] - [0018], [0020], [0021], [0047], [0085], [0087], [0094], [0095]; figures 5-7 -----	1-7, 10-17, 20-24

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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