UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ASSA ABLOY Global Solutions, Inc., HID Global Corp.,

Petitioners,

v.

Urban Intel Inc.,

Patent Owner.

U.S. Patent No. 10,657,747

Case No. IPR2023-00816

PETITION FOR *INTER PARTES* REVIEW

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3. [13C] "c) a reservation server, in communication with the reservation interface and a network, to:" 70

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LIST OF EXHIBITS

Exhibit	Description
Ex-1001	U.S. Patent No. 10,657,747 (the '747 patent)
Ex-1002	Prosecution File History of U.S. Patent No. 10,657,747
Ex-1003	Declaration of Ben Bederson
Ex-1004	*Curriculum Vitae* of Ben Bederson
Ex-1005	WO 2008/076074 A1 to Knutsson et al. ("*Knutsson*")
Ex-1006	Jayant, N. et al., Broadband: Bringing Home the Bits (2002).
Ex-1007	Declaration of Ray Cruitt regarding public availability of Ex-1006.
Ex-1008	U.S. Patent Application Publication No. 2009/0219133 to Woodard et al. ("*Woodard*")
Ex-1009	Reserved
Ex-1010	Reserved
Ex-1011	Complaint, *Liberty Access Technologies Licensing LLC v. ASSA ABLOY AB*, 2:22-cv-00507, Dkt. 1 (E.D. Tex. Dec. 30, 2022).
Ex-1012	Reserved
Ex-1013	JP Patent Publication No. 2002/083087 to Inoue et al. ("*Inoue*")
Ex-1014	Translation of *Inoue* and Certificate of Translation
Ex-1015	Reserved
Ex-1016	U.S. Patent Application Publication No. 2008/0066167 A1 to Andri

Ex-1017	Complaint, *ASSA ABLOY Global Solutions, Inc. v. Liberty Access Technologies Licensing LLC*, 1:23-cv-00756, Dkt. 1 (N.D. Ill. Feb. 7, 2023).
Ex-1018	National Institute of Standards and Technology, An Introduction to Graphical User Interfaces and Their Use by CITIS (July 1992).
Ex-1019	Declaration of Ray Cruitt regarding public availability of Ex-1018.

I. PRELIMINARY STATEMENT

Petitioners request *inter partes* review of claims 1-14 of U.S. Patent No. 10,657,747 (Ex-1001), assigned to Urban Intel Inc. ("Urban").

The '747 patent describes receiving a reservation request on a reservation interface on a first device (laptop), issuing a reservation certificate based on the reservation request, and allowing a second device (smartphone) to activate an access device when the access device receives the reservation certificate from the second device. Ex-1001, 6:15-26. But this concept of reserving a room, issuing a reservation certificate to a smartphone, and unlocking a door using the smartphone was known in the art well before the '747 patent. It was, in fact, invented by a Petitioner.

The primary reference in this Petition, *Knutsson*, is owned by Petitioner ASSA ABLOY Global Solutions, Inc. directly or through its related entity, Phoniro AB. It discloses a lock device that includes a processor that controls a door lock, an interface for receiving temporary access defining data, creating a data object with the temporary access data, transmitting the data object to a phone with software applications, and activating the door lock based on verification of the temporary access data on the phone by the lock device—the exact process claimed by the '747 patent.

Alone or when combined in routine, predictable ways with the other secondary references herein, *Knutsson*—not considered by the USPTO during prosecution of the '747 patent—renders all claims of the '747 patent obvious.

II. STATEMENT OF PRECISE RELIEF REQUESTED

Petitioner respectfully requests review under 35 U.S.C. § 311 of claims 1-14 of the '747 patent over the following references and grounds.

Reference	Publication/Filing Date	Relevant Pre-AIA Prior Art Statute[1]
WO Publication WO2008/076074 A1 ("*Knutsson*")	Published June 26, 2008	35 U.S.C. § 102(b)
U.S. Patent No. 2009/0219133 A1 ("*Woodard*")	Published September 3, 2009	35 U.S.C. §§ 102(a), (e)
Japanese Patent Publication No. 2002/083087 to Inoue et al.	Published March 22, 2002	35 U.S.C. § 102(b)

Ground	References	Basis	Challenged Claim(s)
1	*Knutsson*	§ 103	1-5, 7-9, 12, 13
2	*Knutsson*, *Woodard*	§ 103	6

[1] Petitioners list a subset of statute sections for convenience, but Petitioners also rely on any applicable pre-AIA 35 U.S.C. § 102 statute section.

3	*Knutsson, Inoue*	§ 103	1-5, 7-14
4	*Knutsson, Woodard Inoue*	§ 103	6

III. OVERVIEW OF THE COMBINATIONS

The '747 patent was filed on July 12, 2018, and claims priority to U.S. Provisional Application No. 61/309,813, filed March 2, 2010. March 2, 2010 is thus the '747 patent's earliest possible priority date.

The '747 patent describes a smart phone or terminal to activate a door lock using a web site or server, and that a door lock receives a reservation certificate presented by the terminal through a communication module. Ex-1001, Abstract. Representative claim 1 of the '747 patent is listed below:

	Claim Limitation
1p	An access control system comprising:
1A	an access device comprising a communication module connected to a processor having control of a door lock;[2]
1B(i)	a secure reservation interface to receive a reservation request from a first device for a reservation at a given destination,

[2] All colors and emphases herein are added to cited figures and quotations unless otherwise stated.

1B(ii)	the reservation interface comprising one or more screens for receiving a selection of a location at the destination and an interval of the reservation;
1C(i)	a reservation server, in communication with the reservation interface and network, to:
1C(ii)	receive the reservation request for the destination, the reservation request including a selected location at the destination and an interval of the reservation;
1C(iii)	issue a reservation certificate describing the interval of the reservation based on the reservation request and the selected location;
1C(iv)	transmit, via the network from the reservation server to a second device distinct from the first device, the reservation certificate and a communication setting corresponding to the access device;
1D(i)	an application installed on the second device to receive the reservation certificate and the communication setting corresponding to the access device,
1D(ii)	wherein the application wirelessly transmits the reservation certificate to the access device using the communication setting upon receipt of a command to activate the door lock;
1E	wherein the access device receives the reservation certificate from the application based on use by the application of the communication setting, and the processor activates the door lock based on at least the receipt of the reservation certificate.

Knutsson, the primary Petitioner-owned reference relied upon, discloses that, based on a reservation, input using a graphical user interface, including a destination and a time interval, processors of access devices with communication modules that receive a reservation certificate including a communication setting from a server, by way of a key device with an application, determine whether to unlock a door lock, like those claimed by the '747 patent. Ex-1003, ¶40.

Knutsson discloses or renders obvious all limitations of the independent claims and many of the dependent claims of the '747 patent (**Grounds 1 & 3**). Ex-1003, ¶41. For example, *Knutsson* discloses "[a]n access control system" that includes an administration device, a server, that creates and sends a data object with the temporary access defining data to a key device to forward to the lock device to gain access. *Knutsson*, 10:13-21. *Knutsson* teaches that its "lock device 40 will be integrated with or coupled to a lock mechanism in the lockable door or garage port and in particular have a controllable lock actuator configured to unlock the lock mechanism upon detection and successful authorization of the key device 1." *Id.*, 10:24-28.

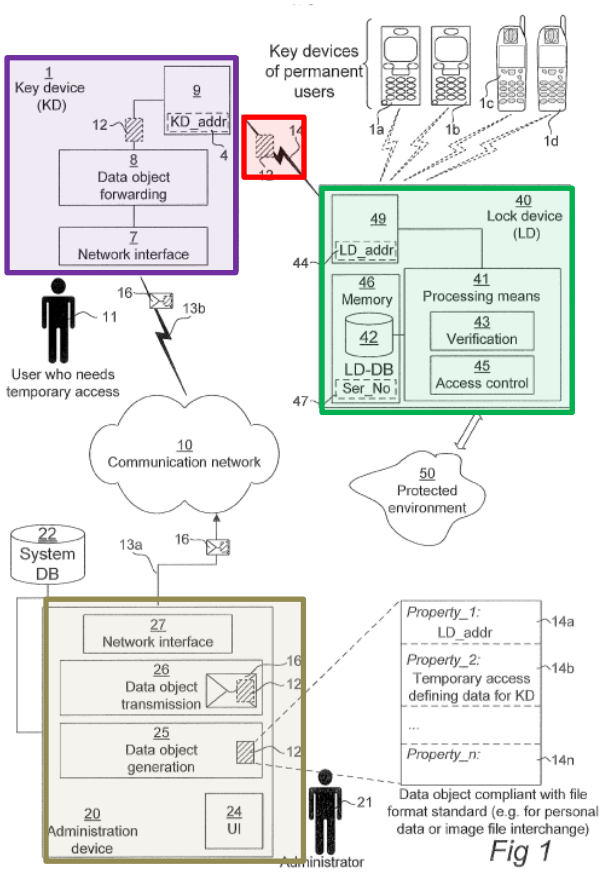


Fig 1

Knutsson, FIGS. 1, 3.

Dependent claim 6 (**Grounds 2, 4**) requires generating a record when the door lock is activated. While *Knutsson* does not expressly disclose a generated record, *Woodard* does. Ex-1003, ¶42.

Certain dependent claims further require a first device with a reservation interface and that the reservation request includes a selected location at a given destination (claims 1-9, 12, 13, **Ground 3**) and/or selecting amenities (claims 6, 10, 11, 14, **Ground 3**). To the extent it is argued that *Knutsson* does not disclose a

reservation request of a specific location at a destination or selecting specific amenities, *Inoue* does. Ex-1003, ¶43.

IV. LEVEL OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art ("POSA") at the time of the purported invention would have had a Bachelor of Science degree in Computer Science or an equivalent field, with at least two years of academic or industry experience with wireless systems or comparable experience. Additional education could substitute for professional experience and vice versa. Ex-1003, ¶38.

V. CLAIM CONSTRUCTION

Only claim terms "in controversy" need be construed in IPR "and only to the extent necessary to resolve the controversy." *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citation omitted), *cert. denied*, 138 S. Ct. 1695 (2018). For the purposes of this IPR, the plain meaning of each claim term can be applied. Petitioner reserves the right to contend that any of the Challenged Claims are indefinite.

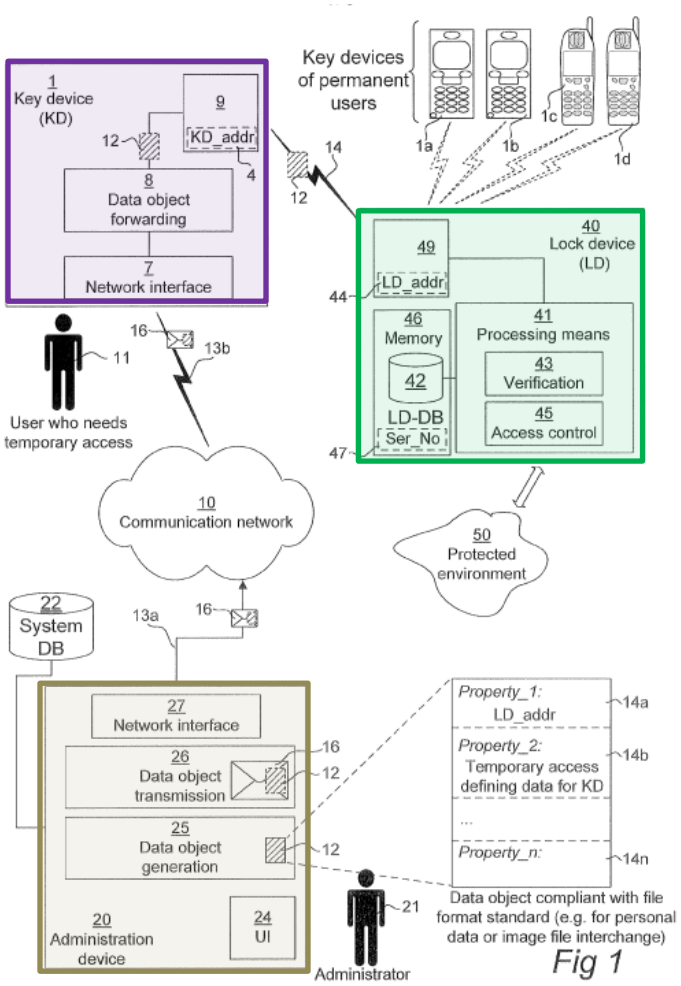
VI. GROUND 1: CLAIMS 1-5, 7-9, 12, AND 13 ARE RENDERED OBVIOUS BY *KNUTSSON*

A. Claim 1

Knutsson renders obvious claim 1. Ex-1003, ¶44.

1. **[1p]** "An **access control system** comprising:"

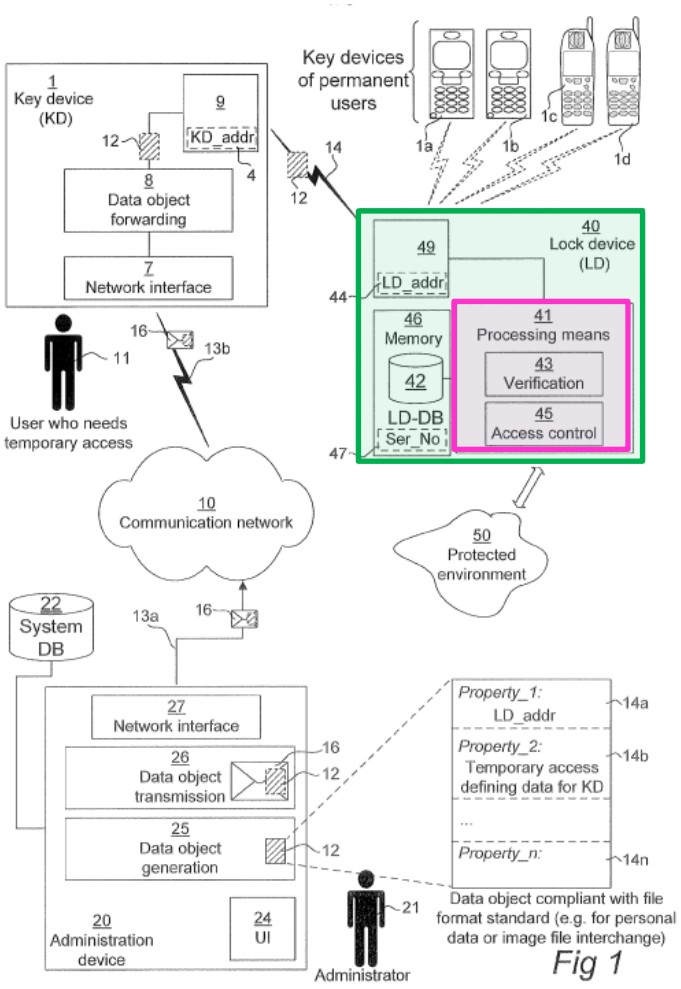
Knutsson renders obvious [1p] because *Knutsson* discloses "**[a]n access control system** … to provide temporary access for a wireless key device to **a lock device.**" *Knutsson*, Abstract. *Knutsson* discloses "Fig 1 is a schematic illustration of an access control system, including an administration device, a wireless key device and **a lock device**." *Id.*, 9:27-28; Ex-1003, ¶45.



Knutsson, FIG. 1.

2. **[1A]** "a) an **access device** comprising a **communication module** connected to a **processor** having control of **a door lock**;"

Knutsson renders obvious [1A] because *Knutsson*'s "lock device 40 has processing means 41" such as a CPU (processor) for controlling a door lock. *Knutsson*, 16:6-8, 17:11-13, 20:8-11; Ex-1003, ¶46.



Knutsson, FIG. 1.

Knutsson's "FIG. 3 is a schematic block diagram illustrating internal components and modules of a lock device." *Id.*, 9:31-32. *Knutsson*'s "CPU [313]

may be identical to … processing means 41." *Id.*, 17:11-13. *Knutsson* discloses "[t]he CPU 313 is programmed to read and execute program instructions stored in a memory 311 so as to perform a method for wireless automatic unlocking in response to the appearance and proper authentication of a key device." *Knutsson*, 17:9-11. *Knutsson*'s CPU 313 (processor) controls the door lock because *Knutsson* discloses that "[a]n actuator controller 307 is coupled to the lock actuator 308 and is adapted to provide a control signal 307b for engaging of disengaging the lock actuator 308" (*id.*, 17:4-6), and "CPU 313 … generates the control signal 307a to the actuator controller 307 … to cause unlocking of the lock … and allow[s] opening of the door … to the protected environment." *Id.*, 20:8-11; Ex-1003, ¶¶47-48.

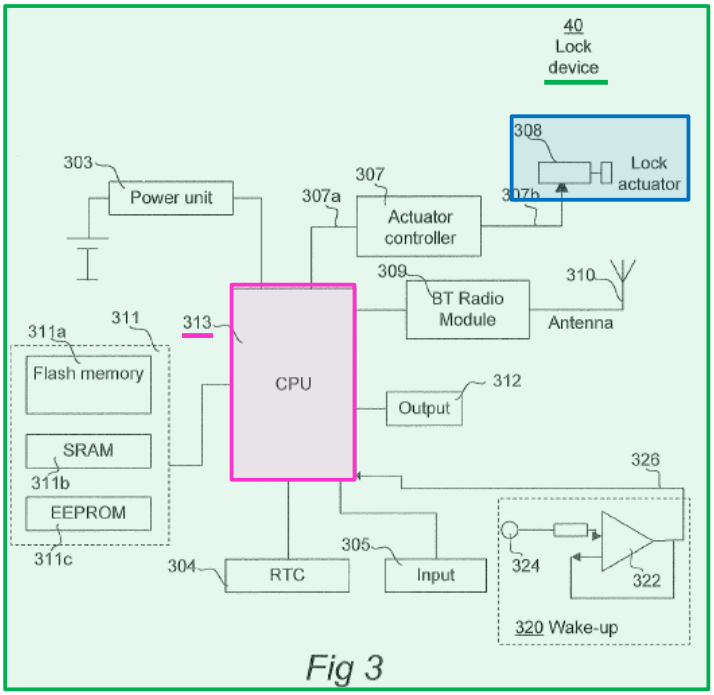
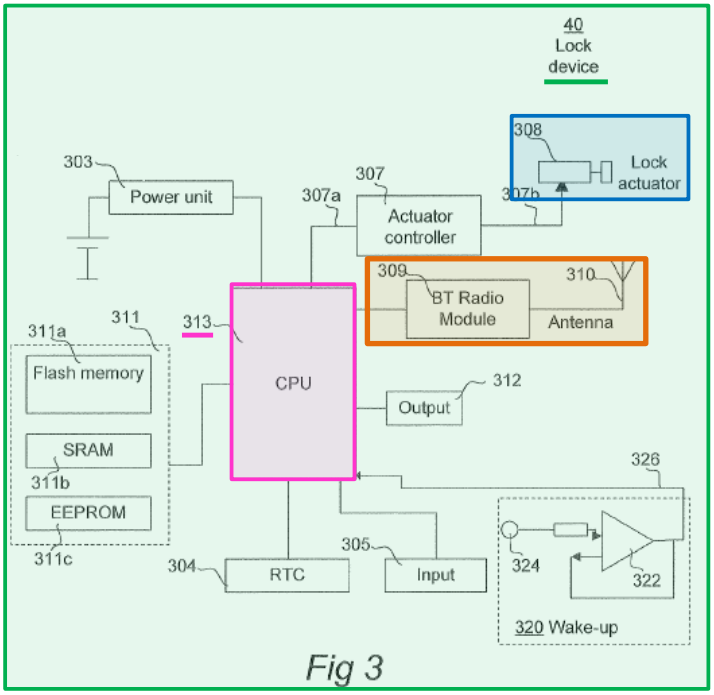


Fig 3

Knutsson, FIG. 3.

Knutsson's "communication means 49" corresponds to the claimed "communication module." *Knutsson*'s "lock device 40 has short-range wireless data communication means 49 in the form of a Bluetooth® transceiver," *id.*, 12:3-4, including "a Bluetooth® radio module 309 with an antenna 310." *Id.*, 17:18-20. Further, *Knutsson* discloses the lock device's processor is connected to its communication means because "the lock device compris[es]: short-range wireless data communication means … capable of receiving from said key device a data object which originates from said administration device … [and] processing means, associated with said short-range wireless data communication means." *Id.*, 7:10-12, FIG. 1; Ex-1003, ¶49. The processing means and short-range wireless data communication means are shown connected in figure 3 below.



Knutsson, FIG. 3.

3. **[1B(i)]** "b) **a secure reservation interface** to receive a **reservation request** from a **first device** for a reservation at a given destination,"

Knutsson renders obvious [1B(i)]. Ex-1003 ¶50. *Knutsson's* computer with a graphical user interface that is used to grant temporary access when requested corresponds to the claimed "a secure reservation interface to receive a reservation request from a first device for a reservation … the reservation interface comprising one or more screens." Ex-1003 ¶50. *Knutsson* discloses its "administration device 20 is a computer, such as a personal computer, workstation or server computer, having a user interface 24 in the form of input devices such as keyboard and mouse, an output device such as a display (e.g., liquid crystal display monitor or

cathode ray tube monitor), and an operating system with a graphical user interface (GUI)." *Knutsson*, 11:1-6. *Knutsson* discloses its administrative device 20 has "functionality for creating, packaging and transmitting the temporary access defining data for the key device 1 and its user 11 who is to get temporary access to the lock device 40." *Id.*, 11:16-20. The '747 patent states a user "can confirm the reservation 26, which initiates a reservation request to the server." Ex-1001, 8:14-16. Similar to the '747 patent, *Knutsson* discloses its administration device software includes "functionality [that] includes a data object generation module 25 which is configured to invite the administrator 21 to specify the temporary access defining data through interaction with the user interface 24." *Knutsson*, 11:20-23; Ex-1003, ¶¶50-51.

Knutsson's "user interface 24" corresponds to the claimed "secure reservation interface" because *Knutsson* discloses "the administrator 21 may control which users (or more specifically which key devices held by such users) that shall have access to the protected environment." *Knutsson*, 11:7-10. A POSA would have understood *Knutsson*'s control through an administrator of a graphical user interface ensures the security of the user interface. Ex-1003, ¶52. Further, *Knutsson*'s administrative device, including user interface 24, is a secure station because *Knutsson* discloses forwarding information from an administrative device to the lock device "in a secure manner," *Knutsson*, 1:24-26, and encrypting

communications of the administrative device, 6:13-17. Ex-1003, ¶52. A POSA would have found it obvious that administrator 21 would have control if the administrator used a password or through limits to physical access to control who could access administrative device 20 and that using a password was, at the time of the priority date of the '747 patent, a commonly-known and used technique for limiting access to secure information. Ex-1016, [0002]; Ex-1003, ¶52.

Knutsson's temporary access of a commercial or public premises corresponds to the claimed "a reservation at a given destination." Ex-1003, ¶53. *Knutsson* discloses its access system's purpose is "to grant the intended temporary access for the user 11 to the protected environment 50." *Knutsson*, 10:20-21. *Knutsson* explains its protected environment can be "a room, apartment, **commercial or public premises**, garage, cabinet, locker, etc, with a controllable physical access interface in the form of a lockable door, garage port, hatch, etc." *Id.*, 10:22-24. In other words, *Knutsson* discloses obtaining temporary access to a commercial or public premises, such as a hotel or storage facility. Ex-1003, ¶53.

Knutsson's display graphical user interface operable by keyboard/mouse corresponds to the claimed "one or more screens for receiving a selection of a location at the destination and an interval of the reservation." Ex-1003, ¶54. *Knutsson* discloses its administration device 20 has "a data object generation module 25 which is configured to invite the administrator 21 to specify the

temporary access defining data through interaction with the user interface 24." *Knutsson*, 11:20-23. "**The created data object 12** is [] assigned the data which is necessary for the lock device 40 to be able to **grant temporary access for the key device 1**," where "[t]his necessary data includes a communication identifier ('LD _ addr' in Fig 1) of the lock device 40." *Id.*, 11:32-35. The structure of data object 12 is shown below in FIGS. 4A-4B. Ex-1003, ¶54.

Structure of generated data object 12:

```
begin:vcard
fn:Temp access for <user 11> to <LD 40>.
uid:<Unique identifier for the generated vCard>
x-phoniro;LD_addr:<Bluetooth address of lock device 40>
x-phoniro;Name:<Name of user 11>
x-phoniro;Valid_from:<Start date, Start_time>
x-phoniro;Valid_until:<End date, End time>
x-phoniro;Max_usage:<Integer value for maximum No of
accesses available for user 11>
X-phoniro;Checksum:<Checksum to prevent manipulation>
end:vcard
```

14c 14d 14a 14e 14b 14f

Fig 4a

Example of generated data object 12:

```
begin:vcard
fn:Temp access for Olle to Elm Street 12.
uid:20061127-099045-99990F192713-0052
x-phoniro;LD_addr:0x0028lec3
x-phoniro;Name:Olle
x-phoniro;Valid_from:20061128,090000
x-phoniro;Valid_until:20061128,150000
x-phoniro;Max_usage:3
X-phoniro;Checksum:1EA450FFC76D8233
end:vcard
```

14c 14d 14a 14e 14b 14f

Fig 4b

Knutsson, FIGS. 4A-4B.

4. [1B(ii)] "the reservation interface comprising one or more screens for receiving **a selection of a location** at the destination and **an interval of the reservation**;"

Knutsson renders obvious [1B(ii)]. Ex-1003 ¶55. *Knutsson*'s graphical user interface corresponds to the claimed "reservation interface comprising one or more screens" because the graphical user interface is a visual way of allowing inputs in a computer. Ex-1003 ¶55. The '747 patent's specification refers to a "screen" or "screens" in the context of allowing inputs into an application. Ex-1001, 7:1-2, 7:42-43, 7:50-60, 8:6-14, 8:25-37, 8:42-60. Similarly, *Knutsson*'s graphical user interface (GUI) allows the administrator to specify the temporary access data. Moreover, a GUI comprises software components that give users "the ability to interact with their systems and application programs in a graphical and consistent manner," for example allowing "a user to input commands into a system through the use of menus or by pointing to icons that picture commands." Ex-1018, 6; Ex-1019 (date declaration of Ex. 1018); Ex-1003 ¶55. A POSA thus would have found it obvious that *Knutsson*'s graphical user interface corresponds to the "one or more screens." Ex-1003, ¶55.

Knutsson's selected physical access interface or lock device corresponds to the claimed "a selection of a location at the destination." Ex-1003 ¶56. For example, *Knutsson* discloses that its "lock device 40 will be integrated with or coupled to a lock mechanism in the lockable door or garage port and in particular

have a controllable lock actuator configured to unlock the lock mechanism upon detection and successful authorization of the key device 1, based on the temporary access defining data." *Knutsson*, 10:24-30. *Knutsson* discloses a protected environment that corresponds to the claimed "destination." For example, *Knutsson*'s lock device, located at the protected environment, corresponds to the claimed "location" because it has a physical location, as part of a door or, alternatively, a Bluetooth address which reflects a wireless location corresponding to a physical location of the lock device. Ex-1003, ¶56. *Knutsson* discloses the administration device 20 controls which users "have access to the protected environment of the lock device 40." *Knutsson*, 13:1-2. For example, each lock device has a "unique Bluetooth communication address which is assigned to every Bluetooth transceiver chip in conjunction with the manufacture thereof or later." *Id.*, 8:4-8; Ex-1003, ¶56.

Knutsson's time frames correspond to the claimed "interval of the reservation." Ex-1003 ¶57. For example, *Knutsson* discloses "[i]n the disclosed embodiment of Figs 4a and 4b, the temporary access defining data assigned to the second vCard property 14b includes temporal data which defines **one or more time frames during which access is permitted** for the key device 1 to the protected environment 50." *Knutsson*, 12:21-26. "[S]uch temporal data is specified in a calendar data format, for instance in the form of one of more dates and/or

times which define **start and end points** for **permitted temporary access**." *Id.*, 6:1-6, 12:24-26; FIGS. 5-6. Figures 4a-4b show that the "the temporary access defining data assigned to the second vCard property 14b includes temporal data." *Id.*, 12:21-24; Ex-1003, ¶57.

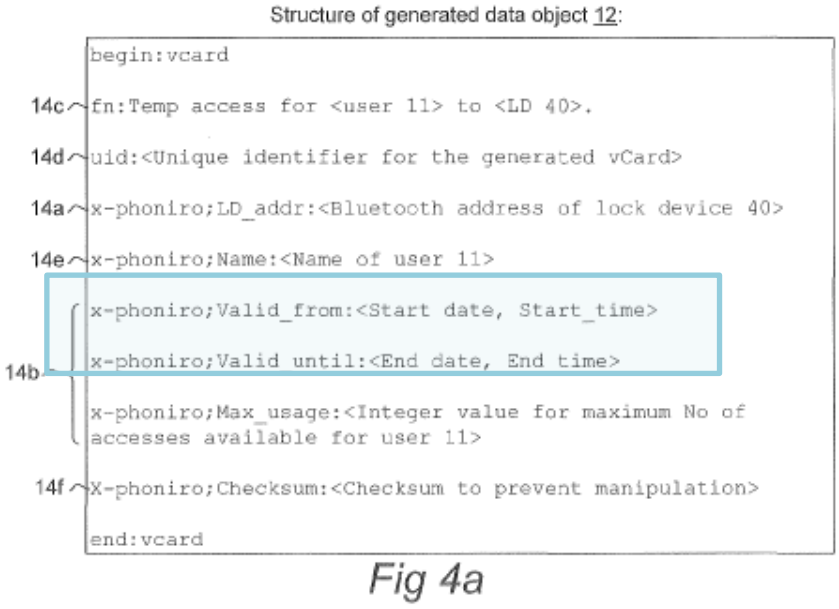


Fig 4a

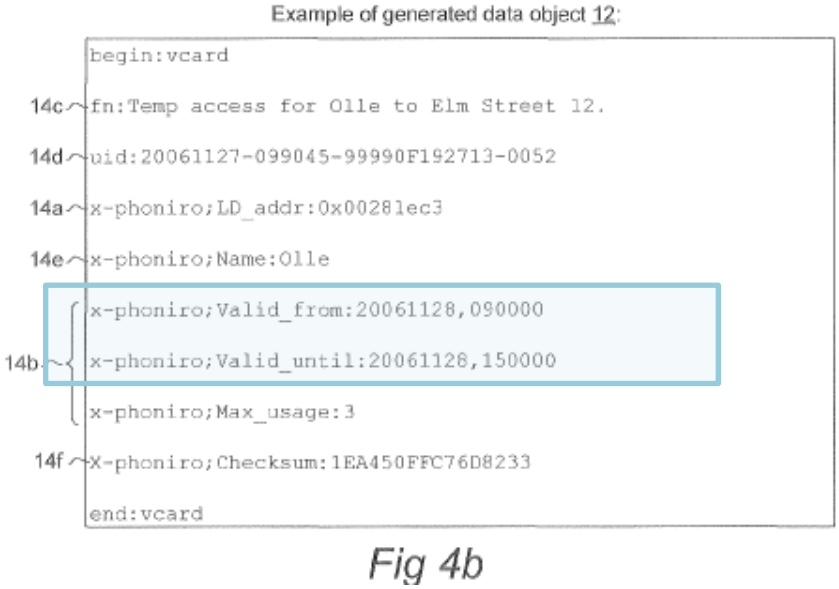


Fig 4b

Knutsson, FIGS. 4A-4B.

Knutsson's data object 12 specifying start and end times of temporary access is an "interval of a reservation" because an interval is defined by a starting point and an end point. Ex-1003 ¶58. By providing start and end times, an interval is presented by *Knutsson*'s graphical user interface. Dr. Bederson also opines that "[t]he interval can be calculated by subtracting the start time from the end time, such that interval = end time - start time. This would have been obvious to a POSA because it is simple to calculate and useful because given any two of start time, end time, or interval, the third can be calculated using the formula above." Ex-1003, ¶58.

5. [1C(i)] "c) **a reservation server,** in communication with the reservation interface and a network, to:"

Knutsson renders obvious [1C(i)]. Ex-1003, ¶59. *Knutsson*'s "administrative device 20" corresponds to the claimed "reservation server," because *Knutsson* discloses its "administration device **may advantageously be a server computer** or a mobile terminal." *Knutsson*, 5:11-12; Ex-1003, ¶59. The '747 Patent equates a "reservation server" and a server, assigning both to patent numeral "15." Ex-1001, 3:62-3:66, 4:15-21, 7:33-36; Ex-1003, ¶59.

Administration device 20 is a reservation server computer "having a user interface 24 in the form of input devices such as keyboard and mouse, [and] an output device such as a display … and an operating system with a graphical user

interface." *Id.*, 11:1-5. Because the server computer 20 receives inputs from the user interface 24 when the temporary access defining data is specified, the server is in communication with the user interface 24. *Knutsson*'s administrative server computer 20 also has a network interface 27 that "communicat[es]" the data object 12 "to the key device 1 over a communication **network** 10." *Id.*, 13:3-6. *Knutsson* displays administrative device 20 in FIG. 1. Ex-1003, ¶59.

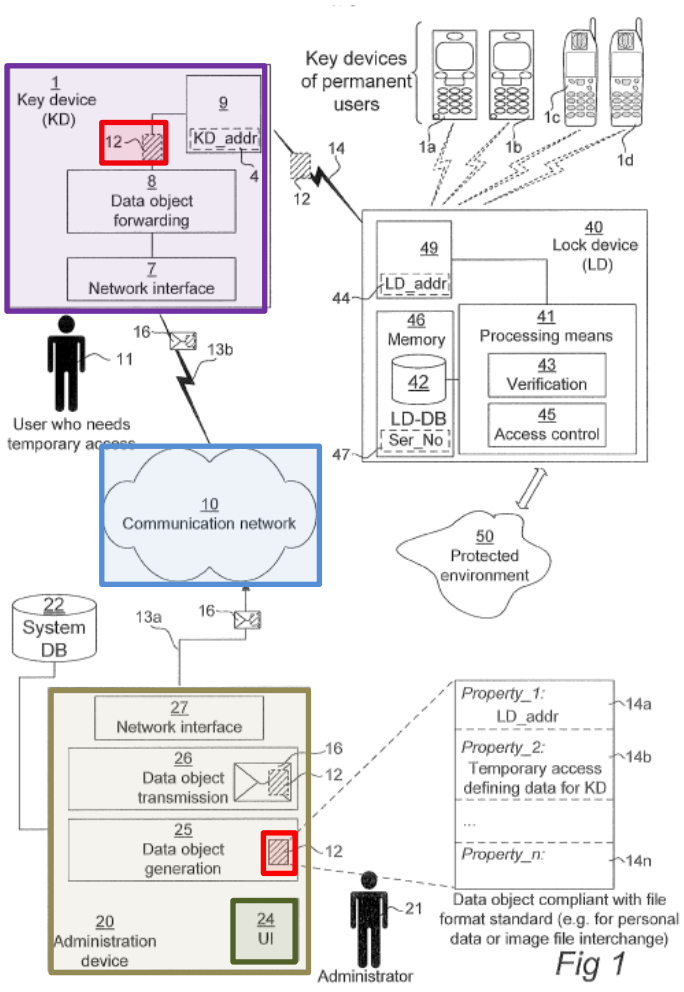


Fig 1

Knutsson, FIG. 1.

6. [1C(ii)] "receive the reservation request for the destination, the reservation request including **a selected location** at the destination and **an interval of the reservation**;"

Knutsson renders obvious [1C(ii)]. Ex-1003, ¶61. *Knutsson*'s "user interface 24" corresponds to the claimed "one or more screens for receiving a selection of a location at the destination and an interval of the reservation." Ex-1003, ¶62. *Knutsson* discloses "functionality for creating, packaging and transmitting the temporary access defining data for the key device 1 and its user 11 who is to get temporary access to the lock device 40." *Knutsson*, 11:16-20. Further, "this functionality includes a data object generation module 25 which is configured to invite **the administrator 21 to specify the temporary access defining data** through interaction with the user interface 24." *Id.*, 11:20-23; Ex-1003, ¶62.

Knutsson's lockable door corresponds to the claimed "a selected location at the destination." Ex-1003, ¶63. For example, *Knutsson* discloses that "lock device 40 will be integrated with or coupled to a lock mechanism in the lockable door or garage port and in particular have a controllable lock actuator configured to unlock the lock mechanism upon detection and successful authorization of the key device 1, based on the temporary access defining data." *Knutsson*, 10:24-30. *Knutsson* discloses the administration device 20 controls which users "have access to the protected environment of the lock device 40." *Id.*, 13:1-2. *Knutsson*'s lock device placement corresponds to the claimed "location" because it has a physical location,

as part of a door. Ex-1003, ¶63. *Knutsson* discloses that these locations are at destinations, giving examples of physical places such as "Elm Street 12." *Knutsson*, FIGS. 4A, 4B. Similarly, the '747 Patent discloses locations such as car charger or "parking location[s]" that could "be entered … from a map," *e.g.*, at a street address. Ex-1001, 5:17-20; Ex-1003, ¶63. The '747 Patent makes clear that "[t]he destination may be an actual … location," confirming that disclosing the location also discloses the destination. Ex-1001, 7:57-49; Ex-1003, ¶63. *Knutsson* similarly discloses a lock device located at a protected environment such as a room (location) that is found at a destination (street address). Ex-1003, ¶63 (citing *Knutsson*, 10:22-24). Just like the '747 Patent, *Knutsson*'s lock device location such as a public premises can be the destination. *Id.*

As discussed above, *Knutsson*'s time frames correspond to the claimed "interval of the reservation." For example, *Knutsson* discloses "[i]n the disclosed embodiment of Figs 4a and 4b, the temporary access defining data assigned to the second vCard property 14b includes temporal data which defines **one or more time frames during which access is permitted** for the key device 1 to the protected environment 50." *Knutsson*, 12:21-26. An interval is defined by a starting point and an end point. Ex-1003, ¶64. By providing start and end times, an interval is presented by *Knutsson*'s key device (portable terminal), *Knutsson*, 12:21-26, as confirmed by *Knutsson*'s CPU 313 determining whether the current

time, which the CPU 313 has access to, falls within a "time-slot." *Id.*, 17:21-22, 20:4-7, 20:14. As discussed above, Dr. Bederson explains "[t]he duration can be calculated by subtracting the start time from the end time, such that duration = end time - start time. This would have been obvious to a POSA because it is simple to calculate and useful because given any two of start time, end time, or duration, the third can be calculated using the formula above." Ex-1003, ¶64.

7. **[1C(iii)]** "**issue a reservation certificate** describing the interval of the reservation based on the reservation request and the selected location; and"

Knutsson renders obvious [1C(iii)]. Ex-1003, ¶65. *Knutsson* renders obvious this limitation because *Knutsson*'s administration device 20 includes "[t]he data object generation module 25 [that] is configured to create a data object 12." *Knutsson*, 11:24-26; Ex-1003, ¶65.

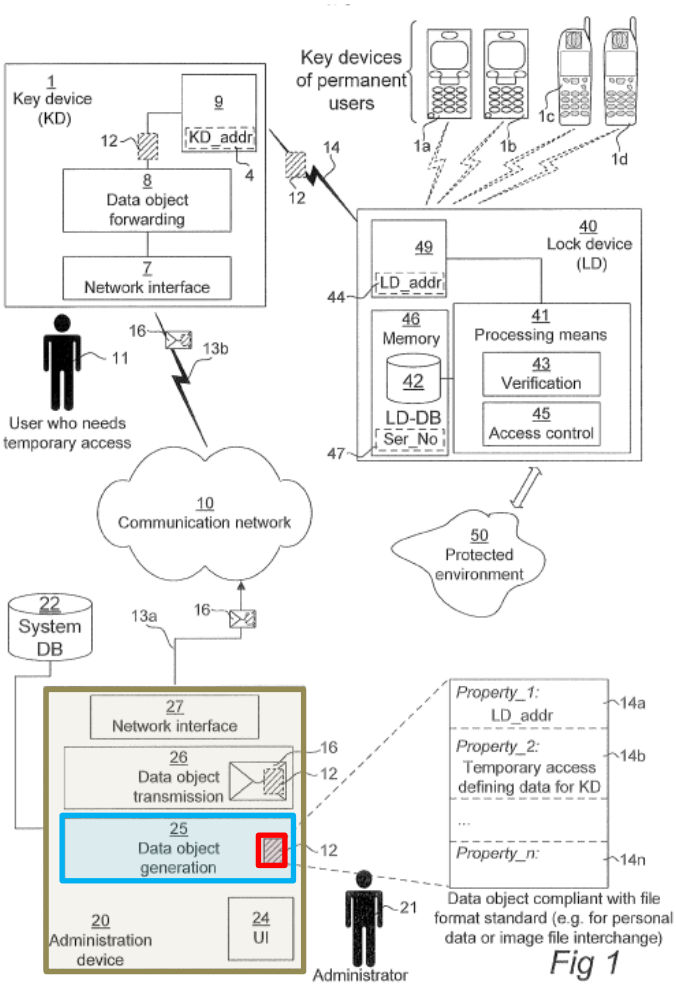


Fig 1

Knutsson, FIG. 1.

As discussed above, temporary access defining data of data object 12 is specified to include start and end times and lock device information that corresponds to a physical lock device including the lock device in 14c and the Bluetooth address of the lock device in 14a. *Knutsson*, 8:4-8, 12:8-11, 12:21-24, 14:12-17. As illustrated below, *Knutsson*'s data object 12 thus includes start and end times and the location, described as both a name of a physical place such as

"Elm Street 12" or "LD 40," and a Bluetooth address. *Knutsson*, FIGS. 4A-4B; Ex-1003, ¶66.

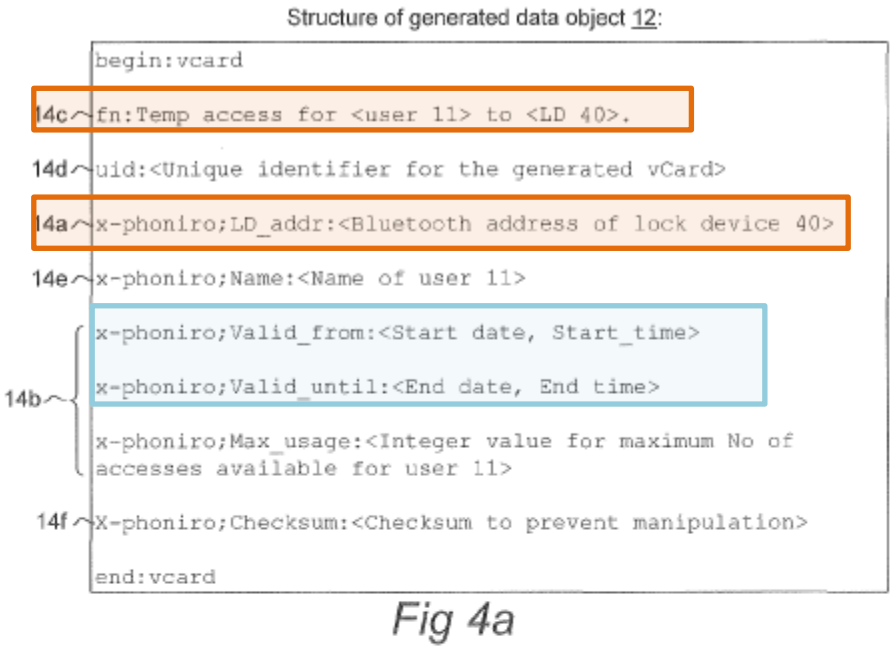


Fig 4a

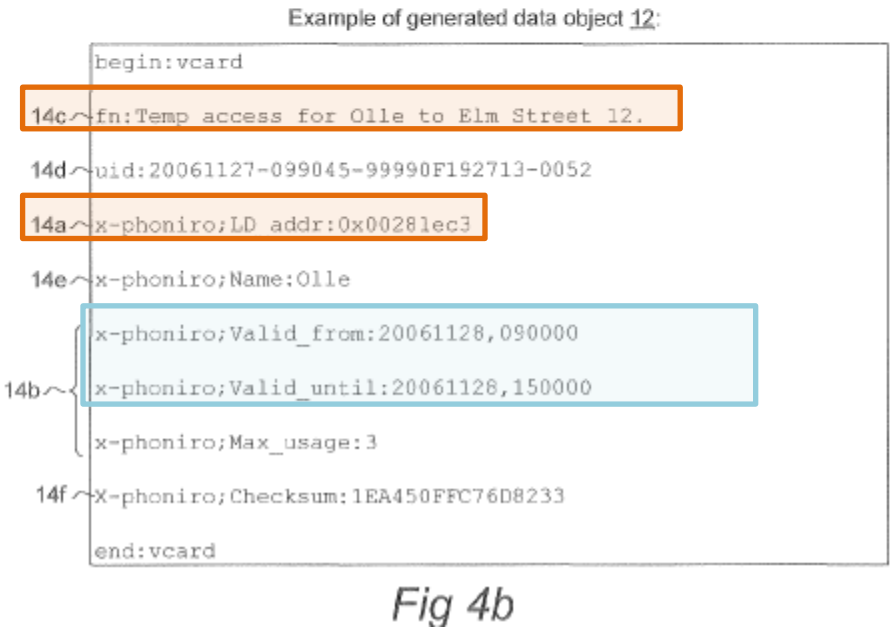


Fig 4b

Knutsson, FIGS. 4A-4B.

8. **[1C(iv)]** "transmit, via the network, **from the reservation server to a second device** distinct from the first device, the reservation certificate and a communication setting corresponding to the access device;"

Knutsson renders obvious [1C(iv)]. Ex-1003, ¶67. *Knutsson* renders obvious the claimed "transmit, via the network, from the reservation server to a second device distinct from the first device," because *Knutsson* discloses the digital message 16 from its **administration device 20** to the **key device 1** as attached to "data object 12 (vCard)." *Id.*; *Knutsson*, 13:3-9. And "[t]he key device also has data object forwarding functionality 8 capable of receiving the digital message 16." *Knutsson*, 13:31-34. The communication between administrative device 20 and key device 1 occurs over *Knutsson*'s "communication **network** 10." *Id.*, 13:3-6. Key device 1, a mobile phone, *id.*, 13:12-15, is different from administrative device 20. *Id.*, 5:11-12; Ex-1003, ¶68.

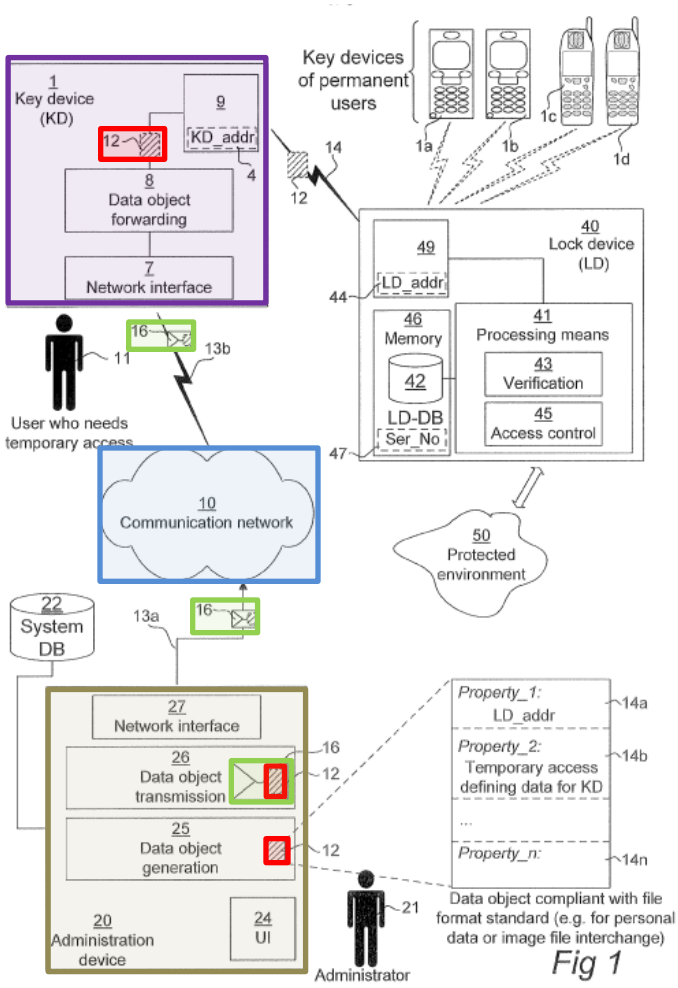


Fig 1

Knutsson, FIG. 1.

Thus, a POSA would have found it obvious that *Knutsson*'s administrative device 20, a server computer, would include "a user interface 24 in the form of input devices such as keyboard and mouse," *id.*, 11:1-5, and also that it is a server capable of interacting with a communicating device through a communications network 10 that is part of the Internet. *Id.*, 5:5-12, 13:15-16; Ex-1003, ¶68.

Knutsson renders obvious the claimed "reservation certificate and a communication setting corresponding to the access device" because *Knutsson*

discloses **data object 12** (reservation certificate) is assigned data "necessary for the lock device 40 to be able to **grant temporary access for the key device 1**," where "[t]his necessary data includes a **communication identifier** ('LD_addr' in Fig 1) of the lock device 40." *Knutsson*, 11:32-35; Ex-1003, ¶69. The '747 patent gives examples of communications settings "such as the network SSID, passcodes, IP addresses, **Bluetooth ID**, etc." Ex-1001, 4:65-66. *Knutsson* discloses the same example, teaching that "the communication identifier may … be the unique **Bluetooth communication address**," *i.e.*, its Bluetooth ID. *Knutsson*, 3:27-33. Thus, *Knutsson*'s communication identifier of its lock device thus corresponds to the claimed "communication setting corresponding to the access device." Ex-1003, ¶69.

9. **[1D(i)]** "d) **an application** installed on the second device to receive the reservation certificate and the communication setting corresponding to the access device,"

Knutsson renders obvious [1D(i)]. Ex-1003, ¶70. *Knutsson*'s "software application" is the claimed "application." *Id.* *Knutsson* discloses that "**a mobile terminal** is used as the wireless key device." *Knutsson*, 5:15-17. *Knutsson* discloses "the mobile terminal" in FIG. 2 that includes "a graphical user interface 206 … which may be used by a user of the mobile terminal to **control the terminal's functionality** and get access to any of the telecommunications services referred to above, or to **any other software application** executing in the mobile

terminal." *Id.*, 13:25-28. *Knutsson* discloses that its mobile interface includes "a messaging application and a contacts application (or in the form of **a combined application** for messaging and contacts)" where its application "receives … and detects the attached vCard 12," shows properties of the vCard 12, allows storage of the vCard 12, and allows a command of sending the vCard 12. *Id.*, 14:6-17, 14:20-23; Ex-1003, ¶71.

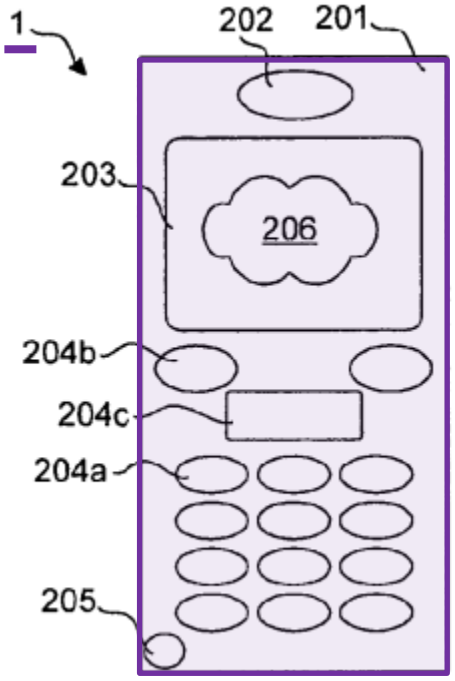


Fig 2

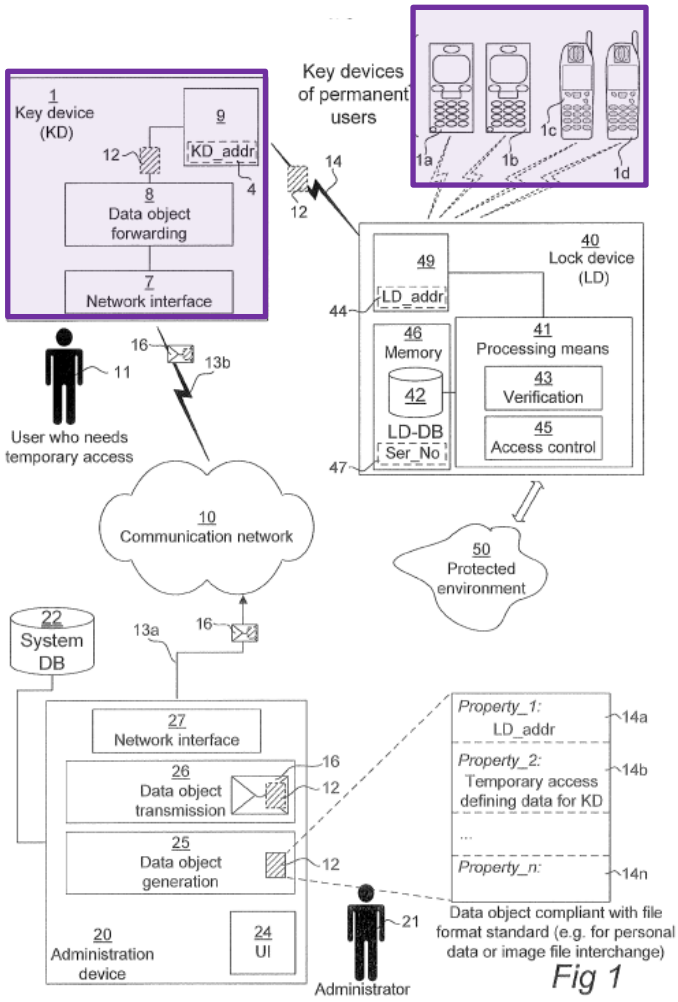


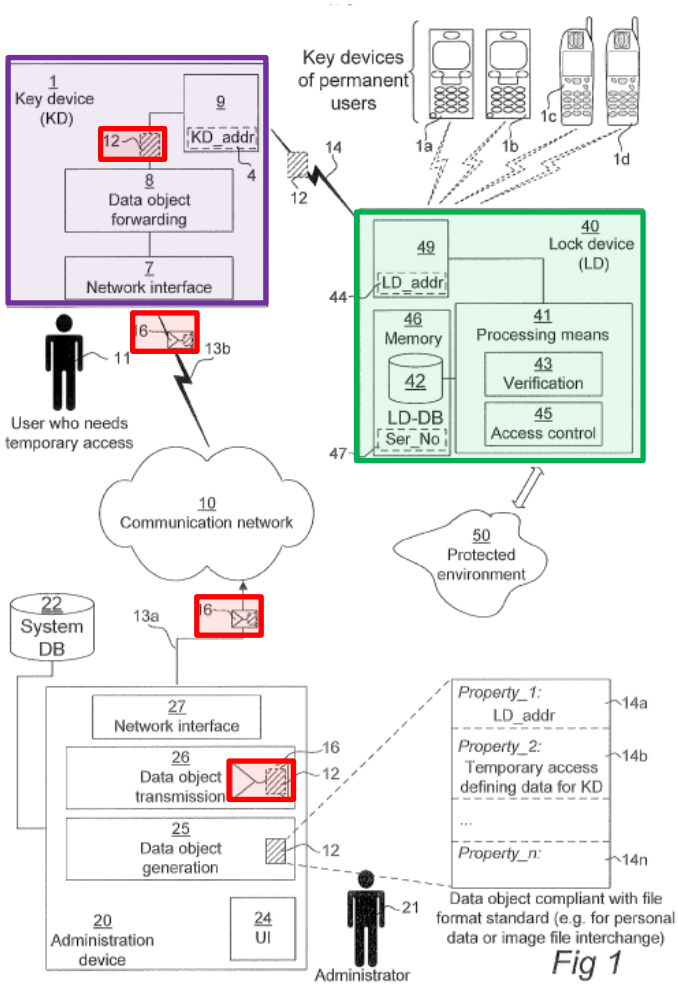
Fig 1

Knutsson, FIGS. 1, 2.

As discussed above, *Knutsson*'s key device is the claimed "second device." *Knutsson* discloses "the wireless key device is advantageously a mobile terminal, such as a mobile phone." *Id.*, 5:1-2. Indeed, *Knutsson*'s "key devices 1a-1d" are portrayed in Figure 1 (above) as mobile phones. *Id.*, FIG. 1; 10:30. Further, *Knutsson* discloses using "high-end mobile phones" that handle "their appropriate authentication via short-range wireless data communication (Bluetooth communication) with the lock device." *Id.*, 1:19-22, 2:26-29. *Knutsson*'s software

application is operable on its key device 1 and is thus "installed" on key device 1. *Id.*, 14:12-17, 14:20-23; Ex-1003, ¶72. A POSA would have found it obvious that software applications would regularly be installed on phones like *Knutsson*'s phones for the applications to be operable, and in particular *Knutsson*'s phones that have a processor capable of a wide range of functions and running applications (i.e., smartphones). Ex-1003, ¶72.

Knutsson renders obvious the claimed "an application installed on the second device to receive the reservation certificate and the communication setting corresponding to the access device" because *Knutsson*'s key device with applications receives data object 12 (reservation certificate) that includes the communication identifier (communication setting). Ex-1003, ¶73. For example, *Knutsson* discloses its key device is "capable of receiving the digital message 16" that includes data object 12. *Knutsson*, 13:6-9, 13:31-35; Ex-1003, ¶73.



Knutsson, FIG. 1.

As discussed above, *Knutsson* discloses "a graphical user interface 206 … which may be used by a user of the mobile terminal to **control the terminal's functionality.**" *Id.*, 13:25-28. The reception of data object 12 would have been one of the terminal's functions controlled by the key device's software application. *Id.*, 14:3-10; Ex-1003, ¶74.

10. [1D(ii)] "wherein **the application wirelessly transmits the reservation certificate to the access device** using the communication setting **upon receipt of a command** to activate the door lock; and"

Knutsson renders obvious [1D(ii)]. Ex-1003, ¶75. *Knutsson* renders obvious the claimed "wherein the application wirelessly transmits the reservation certificate to the access device using the communication setting" because *Knutsson* discloses the data object 12 is transmitted from key device 1 to lock device 40 through "short-range wireless data communication." *Knutsson*, 3:5, 3:27, 4:24-27, 7:6; Ex-1003, ¶75. *Knutsson* discloses "a wireless key device and a lock device of a type having a short-range wireless data communication means capable of short-range wireless data communication based on a communication identifier of said lock device." *Knutsson*, 5:25-27.

Knutsson renders obvious the claimed "the application wirelessly transmits the reservation certificate to the access device … upon receipt of a command to activate the door lock" because *Knutsson* discloses "[w]hen the appropriate time comes to enter the protected environment 50, the user 11 will bring his wireless key device 1 to the correct lock device 40 and … [**b]y selecting an option like 'Send by Bluetooth®'**, in step 520, **the user 11 will cause the key device 1 to attempt to establish short-range data communication 14 with the lock device 40 in step 522 by making a Bluetooth® enquiry**," and the data object 12 is

"transmit[ted]" in step 526. *Knutsson*, 14:18-23, FIG. 5B. *Knutsson* illustrates this in figure 5B, below. Ex-1003, ¶76.

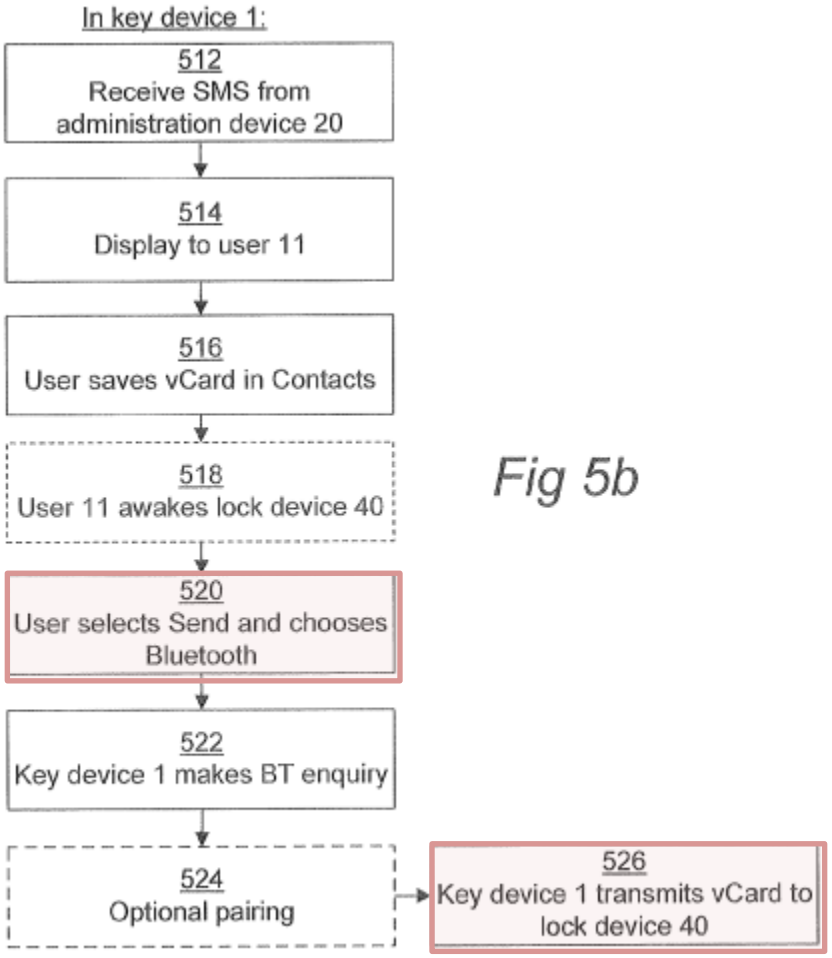


Fig 5b

Knutsson, FIG. 5B.

Knutsson's communication identifier is used as part of the communication from *Knutsson*'s key device 1 to lock device 40. *Id.*, 11:32-35. Alternatively, *Knutsson* uses its communication identifier in its communication from key device 1 to lock device 40 so that lock device 40 can verify the access data and open the

lock. *Id.*, 16:11-16. In both cases, *Knutsson*'s short-range data communication, caused by user 11, leads to "CPU 313 … perform[ing] a method for wireless automatic unlocking in response to the appearance and proper authentication of a key device." *Id.*, 17:9-11. As illustrated in *Knutsson*'s Figure 6, below, "[i]f the outcome of these checks is fully positive, as checked in step 632, the CPU 313 proceeds to step 634 and generates the control signal 307a to the actuator controller 307. As described above, this will cause unlocking of the lock." *Id.*, 20:7-11; Ex-1003, ¶77.

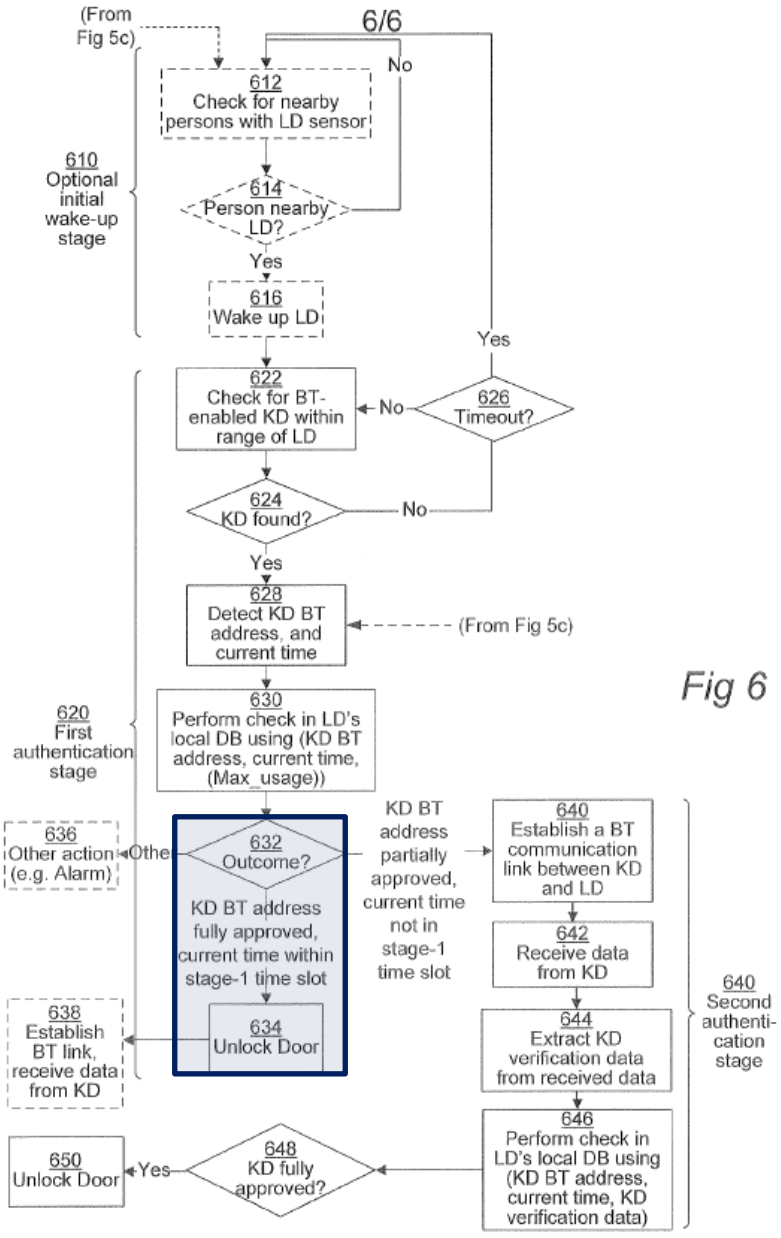


Fig 6

Knutsson, FIG. 6.

As discussed above in Section VI.A.9 for [1D(i)], *Knutsson* discloses "a graphical user interface 206 … which may be used by a user of the mobile terminal to **control the terminal's functionality.**" *Id.*, 13:25-28. The transmission of data

object 12 to *Knutsson*'s lock device would have been one of the terminal's functions controlled by the key device's software application. Ex-1003, ¶78. *Knutsson*'s software application on its key device 1 transmits the data object 12 to lock device 40 because *Knutsson*'s disclosed telecommunication capabilities of the key device 1 are controlled by the software application. *Id.*; *Knutsson*, 14:3-10.

> **11.** **[1E]** "e) wherein **the access device receives the reservation certificate** from the application based on use by the application of the communication setting, and **the processor activates the door lock** based on at least the receipt of the reservation certificate."

Knutsson renders obvious [1E]. Ex-1003, ¶79. *Knutsson* renders obvious "the access device receives the reservation certificate from the application based on use by the application of the communication setting," because its key device "forward[s] the attached vCard data object 12 through short-range wireless data communication means 9 to the lock device 40." *Id.*; *Knutsson*, 13:31-35. Similar step 538 is shown in FIG. 5C, below. Ex-1003, ¶79.

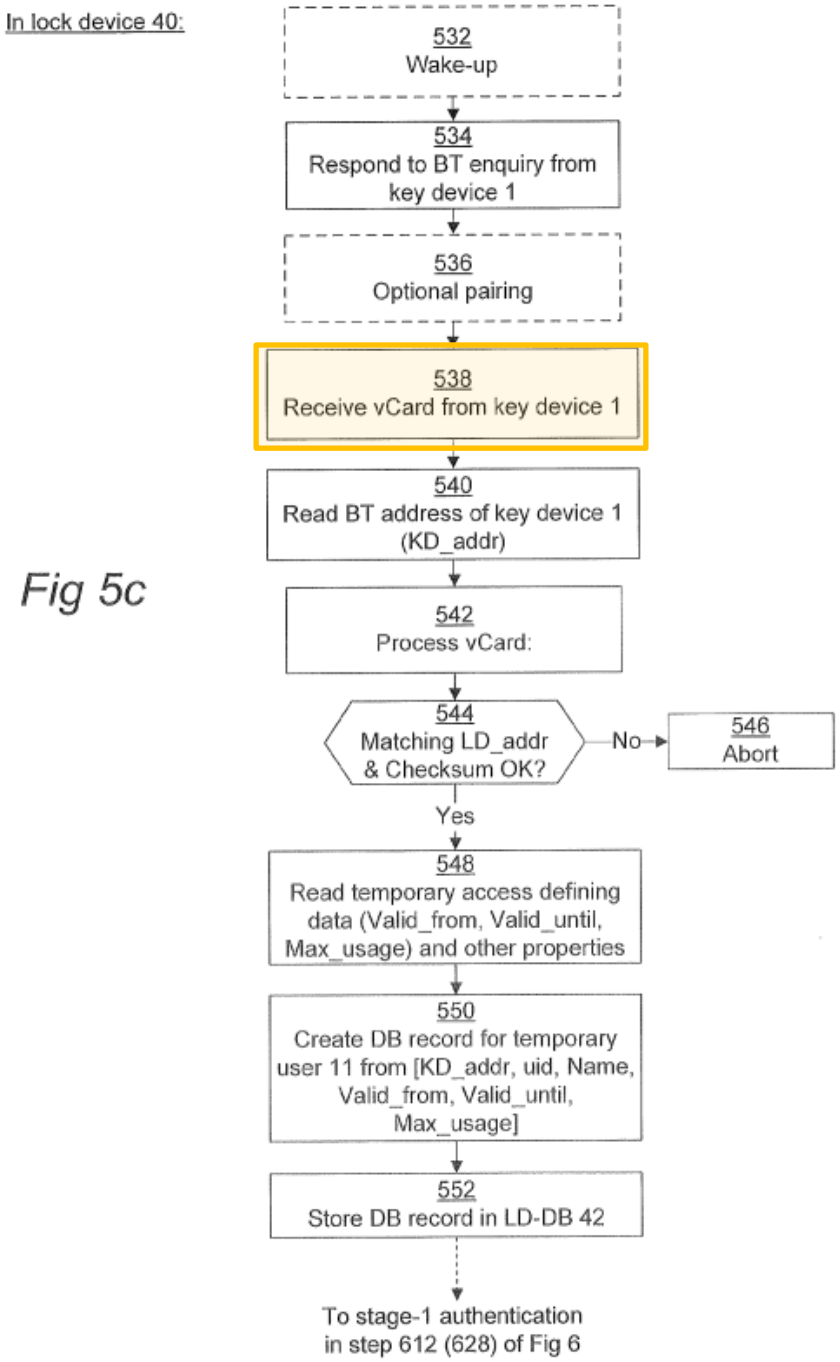


Fig 5c

Knutsson, FIG. 5C.

As discussed above in Section VI.A.9 for [1D(i)], *Knutsson* discloses "a graphical user interface 206 … which may be used by a user of the mobile terminal to

control the terminal's functionality." *Knutsson*, 13:25-28. The transmission of data object 12 including the Bluetooth address to *Knutsson*'s lock device and use of Bluetooth would have been one of the terminal's functions controlled by the key device's software application. Ex-1003, ¶80. *Knutsson*'s software application on its key device 1 transmits the data object 12 including the Bluetooth address to lock device 40 through Bluetooth because *Knutsson*'s discloses telecommunication capabilities of the key device 1 are controlled by the software application and specifically discloses using Bluetooth communication. *Id.*; *Knutsson*, 14:3-10, 14:20-23.

In both cases, *Knutsson*'s short-range data communication, caused by user 11, leads to "CPU 313 … perform[ing] a method for wireless automatic unlocking in response to the appearance and proper authentication of a key device." *Knutsson*, 17:9-11. "If the outcome of these checks is fully positive, as checked in step 632, the CPU 313 proceeds to step 634 and generates the control signal 307a to the actuator controller 307. As described above, this will cause unlocking of the lock." *Id.*, 20:7-11; Ex-1003, ¶81.

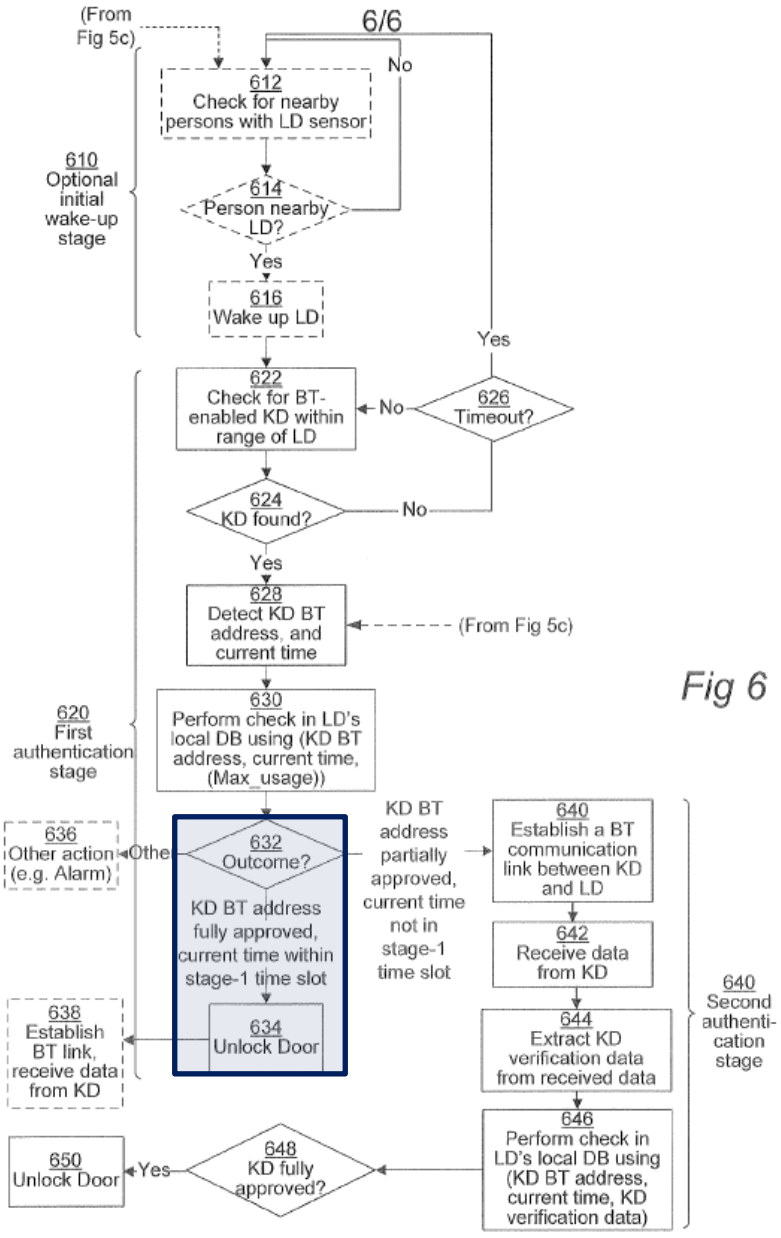


Fig 6

Knutsson, FIG. 6.

Communication occurs between the lock device 40 and the key device 1 because *Knutsson* discloses "authorization is based solely on the key device's Bluetooth® address and the current time, both of which are detected automatically

by the lock device 40 and require no interaction from the user (other than bringing the key device near the lock device 40)." *Id.*, 18:1-4; Ex-1003 ¶82. Because the communication identifier, which can be a Bluetooth address (communication setting), is conferred to the lock device 40 (access device), and the used communication means is a short-range communication such as Bluetooth, a POSA would have found it obvious that *Knutsson*'s software on a mobile terminal unlocks the door when it communicates the Bluetooth address through Bluetooth. *Knutsson*, 18:1-4; Ex-1003, ¶82.

B. **[Claim 2]** "The system of claim 1 wherein the access device comprises a **unique identifier**, and wherein **at least the reservation certificate or the communication setting contains the unique identifier**."

Knutsson renders obvious claim 2. Ex-1003, ¶83. As explained in Section VI.B.4 for claim [1C], *Knutsson* discloses "**[t]he created data object 12** is then assigned the data which is necessary for the lock device 40 to be able to **grant temporary access for the key device 1**," where "[t]his necessary data includes a communication identifier ('LD_addr' in Fig 1) of the lock device 40." *Knutsson*, 11:32-35. *Knutsson* discloses "the communication identifier of the lock device may advantageously be the **unique** Bluetooth communication **address** which is assigned to every Bluetooth transceiver chip in conjunction with the manufacture thereof or later." *Id.*, 3:30-33; Ex-1003, ¶83.

Knutsson's temporary access defining data of data object 12 includes the unique Bluetooth address of lock device 40 as shown below. *Knutsson*, 12:8-11; Ex-1003, ¶84.

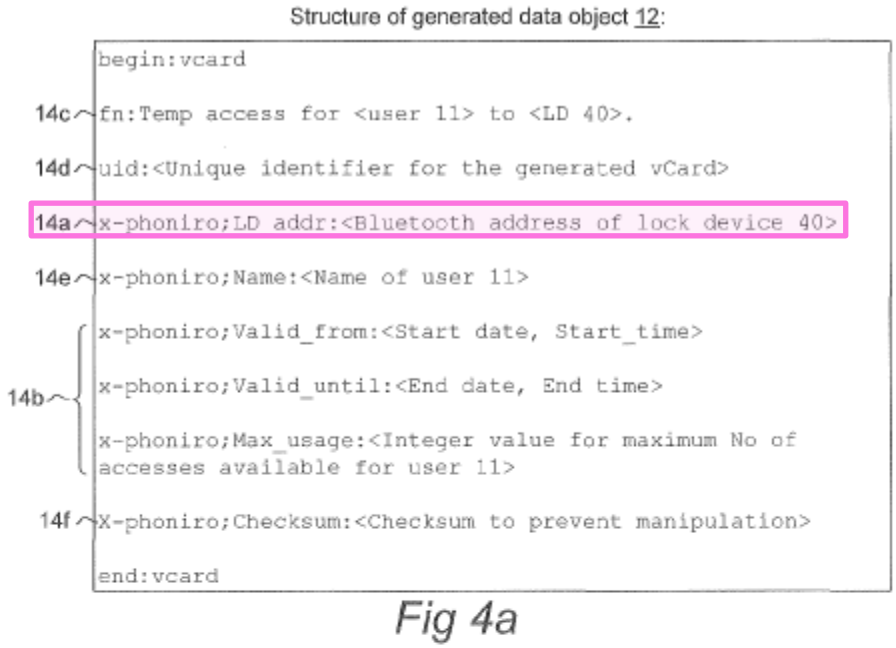


Fig 4a

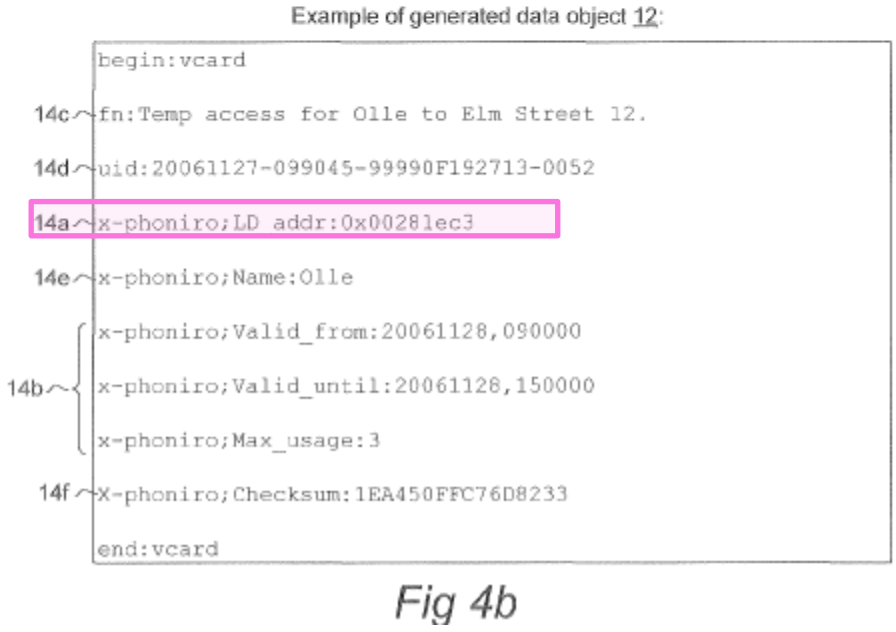


Fig 4b

Knutsson, FIGS. 4A-4B.

C. [Claim 3] "The system of claim 2 wherein at least a portion of the reservation certificate is **encrypted**."

Knutsson renders obvious claim 3. Ex-1003, ¶85. *Knutsson* discloses "**encrypt[ing] at least one of said first and second properties of said data object** using an encryption key which includes said communication identifier of said lock device." *Knutsson*, 6:10-12. *Knutsson* discloses "enhanced security is obtained by configuring the administration device to encrypt the contents of the generated data object, using as encryption key the communication address (Bluetooth® address) of the lock device's radio transceiver as well as a serial No of the lock device." *Id.*, 6:13-16. As discussed above in Section VI.A.7 for [1C(iii)], *Knutsson*'s data object corresponds to the claimed "reservation certified," and so encrypting at least one property of *Knutsson*'s data object corresponds to the claim limitation. Ex-1003, ¶85.

D. [Claim 4] "The system of claim 3 wherein the access device **decrypts** the encrypted portion of the reservation certificate."

Knutsson renders obvious claim 4. Ex-1003, ¶86. *Knutsson* discloses "[t]he lock device 40 has processing means 41 for processing the received data object 12." *Knutsson*, 16:6-7. *Knutsson* discloses "[t]he processing means may be configured to **decrypt at least one of said first and second properties** of said data object using a decryption key which includes said communication identifier of said lock device." *Id.*, 8:19-21. As discussed above, *Knutsson* discloses "a

graphical user interface 206 … which may be used by a user of the mobile terminal to **control the terminal's functionality.**" *Id.*, 13:25-28. The reception of data object 12 would have been one of the terminal's functions controlled by the key device's software application. Ex-1003, ¶86. *Knutsson*'s software application on its key device 1 decrypts the data object 12 because *Knutsson*'s disclosed telecommunication capabilities of the key device 1 are controlled by the software application. *Id.*; Ex-1003, ¶86.

E. [Claim 5] "The system of claim 3 wherein the application installed on the second device **decrypts** the encrypted portion of the reservation certificate."

Knutsson renders obvious claim 5. Ex-1003, ¶87. *Knutsson* discloses "[t]he lock device 40 has processing means 41 for processing the received data object 12." *Knutsson*, 16:6-7. *Knutsson* discloses "[t]he processing means may be configured to **decrypt** at least one of said first and second properties of said data object using a decryption key which includes said communication identifier of said lock device." *Id.*, 8:19-21; A POSA would have found it obvious that *Knutsson*'s key device would access information within data object 12 for *Knutsson*'s key device so the user can, through graphical user interface 206, "control the terminal's functionality and get access to any of the telecommunications services referred to above, or to any other software application executing in the mobile terminal." *Id.*, 13:25-28; Ex-1003, ¶88. One of those telecommunications services is receiving

"the temporary access defining data for the key device 1," of data object 12 and "deriv[ing] its first property 14a and second property 14b, plus additional properties 14c-14f if applicable," *Id.*, 11:18-19, 16:6-8, which can be encrypted. Thus, a POSA would have found it obvious that *Knutsson*'s software application would decrypt part of the data object 12 to derive its properties. Ex-1003, ¶88. A POSA would be able to implement *Knutsson*'s key device performing decryption because *Knutsson*'s key device is a mobile terminal with a processor capable of receiving encrypted messages like data object 12. *Id.* (citing *Knutsson*, 14:3-6).

F. **[Claim 7] "**The system of claim 1 wherein the reservation certificate **automatically expires** at the end of the interval of the reservation."

Knutsson renders obvious claim 7. Ex-1003, ¶89. *Knutsson* discloses "**[t]he created data object 12** is [] assigned the data which is necessary for the lock device 40 to be able to **grant <u>temporary</u> access for the key device 1**." *Knutsson*, 11:32-35. *Knutsson* discloses "temporal data is specified in a calendar data format, for instance in the form of one of more dates and/or times which define start and **end points** for permitted temporary access." *Id.*, 6:4-6. *Knutsson* clarifies that the temporal data may be "one of more dates and/or times which define start point ('Valid from') and end point ('Valid to') for the temporary access permitted." *Id.*, 12:24-26. A POSA would have found it obvious that the temporary access ends

(i.e., automatically expires) at the end point or end time, corresponding to the claimed "the end of the interval of the reservation." Ex-1003, ¶90.

G. [Claim 8] "The system of claim 1 wherein the second device comprises a **smartphone**."

Knutsson renders obvious claim 8. Ex-1003, ¶91. *Knutsson* discloses that "**a mobile terminal** is used as the wireless key device." *Knutsson*, 5:16-17. *Knutsson* discloses "mobile terminals" that are "the wireless key device." *Id.*, 5:18-23; Ex-1003, ¶91.

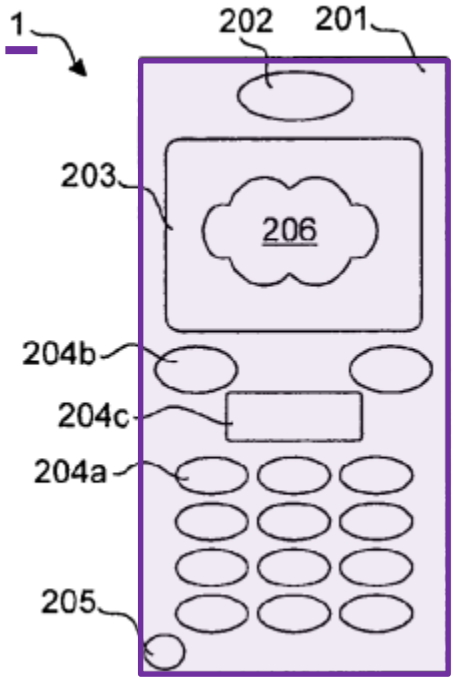


Fig 2

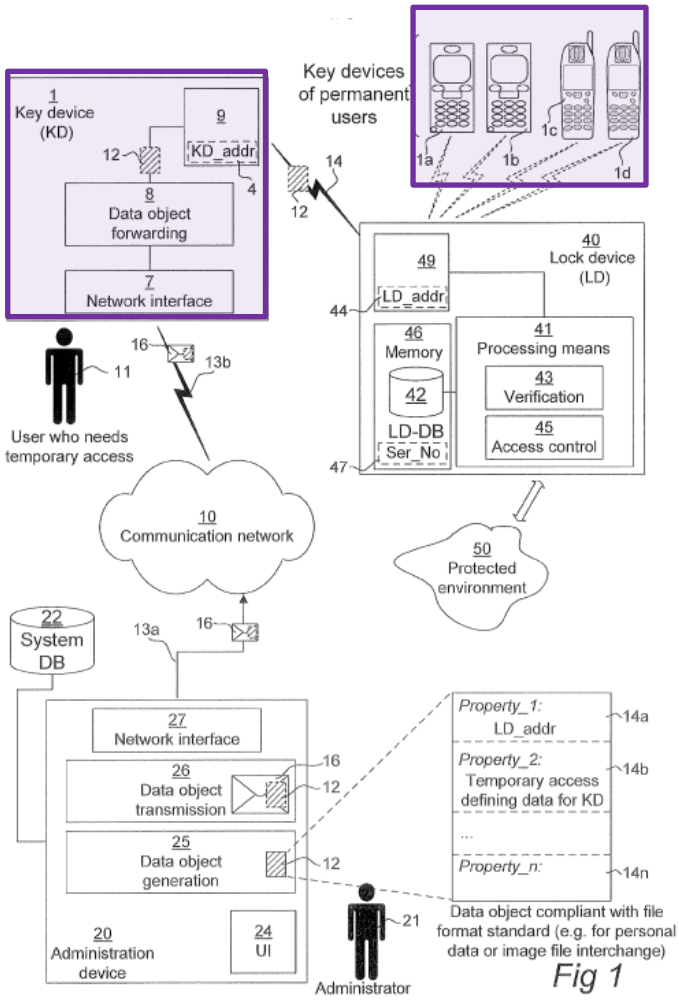


Fig 1

Knutsson, FIGS. 1, 2.

As illustrated above, *Knutsson*'s key device is the claimed "smartphone." Ex-1003, ¶92. For example, *Knutsson* discloses "the wireless key device is advantageously a mobile terminal, such as a mobile phone," *Knutsson*, 5:1-2, and, as shown above in Figure 1, portrays its "key devices 1a-1d" as mobile phones. *Id.*, FIG. 1; 10:30. Because *Knutsson*'s "mobile phone" includes "a graphical user interface (GUI)," "software application[s]," and complex functionality like encrypting, decrypting, and accepting user inputs to transmit data objects,

Knutsson's "mobile phone" discloses the claimed "smartphone." Ex-1003, ¶92; *Knutsson*, 5:1-2.

H. [Claim 9] "The system of claim 1 wherein the access device comprises a **Bluetooth transceiver**."

Knutsson renders obvious claim 9. Ex-1003, ¶93. *Knutsson* discloses "the lock device 40 has short-range wireless data communication means 49 in the form of a **Bluetooth® transceiver**." *Knutsson*, 12:3-4. *Knutsson* further discloses "the lock device 40 has a Bluetooth® radio module 309 with an antenna 310. The Bluetooth® radio module 309 may be identical to the aforementioned communication means 49." *Id.*, 17:18-20. As discussed above in Section VI.A.2, *Knutsson*'s lock device 40 is the claimed "access device." Ex-1003, ¶94.

I. [Claim 12] "The system of claim 1 wherein the reservation detail interface comprises one or more screens for **selecting at least a start time and a stop time, or a duration for the reservation**."

Knutsson renders obvious claim 12. Ex-1003, ¶95. *Knutsson* discloses "**[t]he created data object 12** is then assigned the data which is necessary for the lock device 40 to be able to **grant temporary access for the key device 1**." *Knutsson*, 11:32-35. *Knutsson* discloses its administrative device 20 has "a data object generation module 25 which is configured to **invite the administrator 21 to specify the temporary access defining data** through interaction with the user interface 24." *Id.*, 11:20-23. *Knutsson* discloses "temporal data is specified in a

calendar data format, for instance in the form of one of more dates and/or times which define start and end points for permitted temporary access." *Id.*, 6:4-6. Further, the temporal data is "one of more dates and/or times which define start point ("Valid from") and end point ("Valid to") for the temporary access permitted." *Id.*, 12:24-26; Ex-1003, ¶96.

To the extent "reservation detail interface comprises one or more screens" of claim 12 has an antecedent basis of "the reservation interface comprising one or more screens" of claim 1, claim 12 does not require a separate recitation to invalidate it. As discussed above for [1B(ii)] in Section VI.A.4, *Knutsson* discloses its administrative device 20 has "a data object generation module 25 which is configured to invite the administrator 21 to specify the temporary access defining data through interaction with the user interface 24." *Knutsson*, 11:20-23; Ex-1003, ¶96. *Knutsson*'s graphical user interface allows the administrator to specify the temporary access data. Ex-1003, ¶96. A POSA would have understood that a GUI comprises software components that give users "the ability to interact with their systems and application programs in a graphical and consistent manner," for example, allowing "a user to input commands into a system through the use of menus or by pointing to icons that picture commands." Ex-1018, 6; Ex-1003, ¶96. To the extent this term does require a separate recitation other than claim 1, a POSA would have understood that *Knutsson*'s graphical user interface would use

menus or icons, corresponding to the claimed "one or more screens." Ex-1003, ¶96.

J. Claim 13

Knutsson renders obvious claim 13. Ex-1003, ¶97.

1. [13p] "An access control system comprising:"

Knutsson renders obvious [13p] as discussed above for [1p] in Section VI.A.1. Ex-1003, ¶98.

2. [13A] "a) an access device comprising a communication module connected to a processor having control of a door lock restricting access to a room at a given location, the access device comprising at least **a Bluetooth transceiver**;"

Knutsson renders obvious [13A] as discussed above for [1A] in Section VI.A.2. Ex-1003, ¶99.

Knutsson renders obvious the claimed "access device comprising at least a Bluetooth transceiver" because *Knutsson* discloses "short-range wireless data communication means of the lock device may comprise a radio transceiver, preferably a **Bluetooth® transceiver**." *Knutsson*, 3:27-28; Ex-1003, ¶100.

3. [13B] "b) a reservation interface comprising one or more reservation screens associated with the location, the one or more reservation screens for selecting at least a room and an interval for a reservation at the location;"

Knutsson renders obvious [13B] as discussed above for [1B(i) and 1B(ii)] in Sections VI.A.3-VI.A.4. Ex-1003, ¶101.

4. **[13C(i)]** "c) a reservation server, in communication with the reservation interface and a network, to:"

Knutsson renders obvious [13C(i)] as discussed above for [1C(i)] in Section VI.A.5. Ex-1003, ¶102.

5. **[13C(ii)]** "receive a reservation request comprising at least a selected room and an interval for a reservation;"

Knutsson renders obvious [13C(ii)] as discussed above for [1C(ii)] in Section VI.A.6. Ex-1003, ¶103.

6. **[13C(iii)]** "issue a reservation certificate, the reservation certificate describing an interval of the reservation for the room based on the reservation request; and"

Knutsson renders obvious [13C(iii)] as discussed above for [1C(iii)] in Section VI.A.7. Ex-1003, ¶104.

7. **[13C(iv)]** "transmit, via the network, from the reservation server to an application installed on a smartphone, the reservation certificate and a communication setting corresponding to the access device;"

With the exception of the "smartphone" limitation, *Knutsson* renders obvious [13C(iv)] as discussed above for [1C(iv)] in Section VI.A.8. Ex-1003, ¶105. As discussed above with respect to claim 8 in Section VI.G, *Knutsson* discloses or renders obvious the key device being a "smartphone." Ex-1003, ¶106.

8. **[13D(i)]** "d) a smartphone application installed on the **smartphone** to receive the reservation certificate and the communication setting corresponding to the access device,"

Knutsson renders obvious [13D(i)] as discussed above for [1D(i)] in Section VI.A.9. Ex-1003, ¶107.

9. **[13D(ii)]** "wherein the smartphone application wirelessly transmits, **via Bluetooth,** the reservation certificate to the access device using the communication setting upon receipt of a command to activate the door lock; and"

Knutsson renders obvious [13D(ii)]. Ex-1003, ¶108. With the exception of the "via Bluetooth" limitation, *Knutsson* renders obvious [13D(ii)] as discussed above for [1D(ii)] in Section VI.A.10. *Id.*

Knutsson renders obvious the claimed "smartphone application wirelessly transmits, via Bluetooth, the reservation certificate" because it discloses "a wireless key device, the lock device comprising: short-range wireless data communication means capable of **short-range wireless data communication** with said key device based on a communication identifier of said lock device and capable of receiving from said key device a data object," *Knutsson*, 7:5-8, and "**us[ing] Bluetooth®** for the short-range wireless data communication." *Id.*, 22:15-16; Ex-1003, ¶109. As discussed above with respect to claim 8 in Section VI.G, *Knutsson* discloses or renders obvious that the key device is a "smartphone." Ex-1003, ¶109.

10. [13E] "e) wherein the access device receives the reservation certificate from the application based on use by the application of the communication setting, and the processor activates the door lock based on at least the receipt of the reservation certificate."

Knutsson renders obvious [13E] as discussed above for [1E] in Section VI.A.11. Ex-1003, ¶110.

VII. GROUND 2: CLAIM 6 IS RENDERED OBVIOUS BY *KNUTSSON* IN VIEW OF *WOODARD*

A. Motivation to Combine *Knutsson* and *Woodard*

As explained in Section III, claim 6 requires a report be generated that is not expressly disclosed by *Knutsson*. A POSA would have incorporated *Woodard*'s central management functionality into *Knutsson*'s access system to achieve a central management system and "complete the lockbox access record." *Woodard*, [0013]; Ex-1003, ¶111. *Woodard* discloses that its key device 104 would be able to transmit "certain access data to the central computer system/database 200 for further processing," and that the "ability to track, store and centrally process these access data are a valuable tool." *Woodard*, [0004]; Ex-1003, ¶111. A POSA thus would have been motivated to combine *Woodard*'s reporting and *Knutsson*'s key device 1, administrative device 20, and lock device 40 would be able to "track, store and centrally process [the] access data." Ex-1003, ¶111 (quoting *Woodard*, [0004]).

A POSA would have had a reasonable expectation of success combining *Woodard* and *Knutsson* because *Woodard* and *Knutsson* disclose similar key devices, such as *Woodard*'s "electronic key device 104, which can be a PDA, a cell phone," *Woodard*, [0003], and *Knutsson*'s key device that can be a PDA or a mobile phone, *Knutsson*, 5:1-2, to actuate access devices like *Woodard*'s lockbox 103, *Woodard*, [0048], or *Knutsson*'s lock device 40 to open a lock. *Knutsson*, 10:24-30; Ex-1003, ¶112.

B. [Claim 6] "The system of claim 1 wherein the access device **generates a record** indicating that the processor activated the door lock."

Knutsson does not expressly disclose generating a record, but *Woodard* does. Ex-1003, ¶113.

Knutsson's administration device 20 can be a "server computer." *Knutsson*, 11:1-6. *Knutsson*'s administration device 20 includes, "data object generation module 25 [that] is configured to create a data object 12." *Id.*, 11:24-26. This data object 12 is from administration device 20 as shown in Figure 1. Ex-1003, ¶¶113-114.

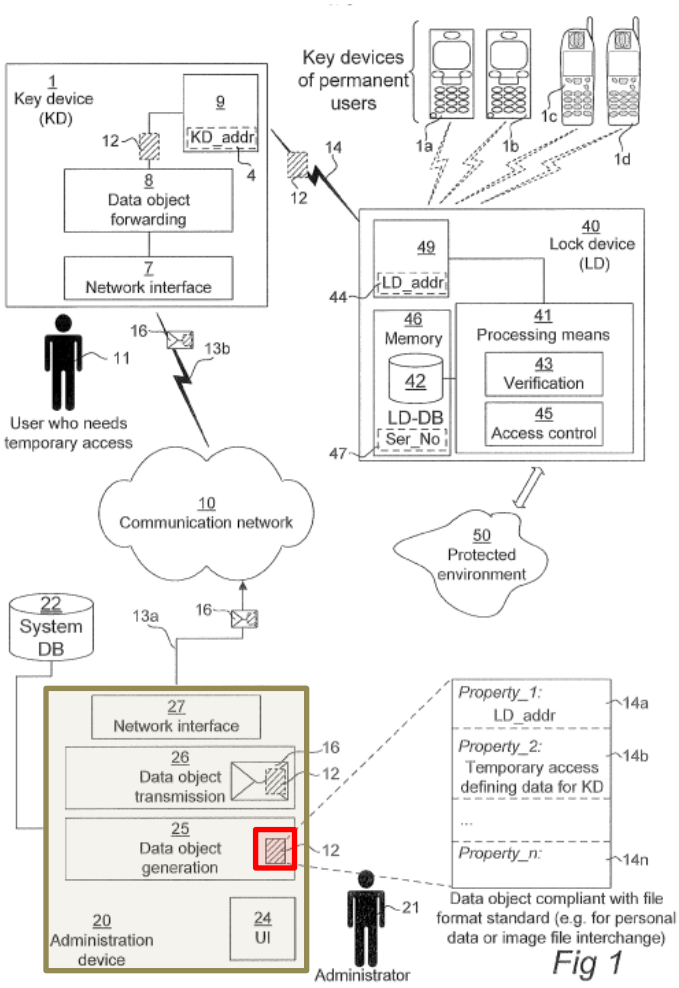


Fig 1

Knutsson, FIG. 1.

Knutsson does not expressly disclose that its lock device 40 has direct access to administration device 20 or that the lock device 40 reports that it was activated, but *Woodard* does. Ex-1003, ¶115. For example, *Woodard* discloses that "the lockbox access records stored in the electronic lockboxes are transmitted via a communications link between the electronic lockbox and the showing management system's servers coupled to the showing management system's database." *Woodard*, [0072]. A POSA would have found it obvious to implement *Woodard*'s

lockbox access records being stored in the lockboxes and reporting those records to the system's servers via a communications link into *Knutsson*'s lock devices 40 and administration device 20. Ex-1003, ¶115. A POSA would have been motivated to combine *Knutsson* and *Woodard* as discussed above in Section VII.A. *Id.*

VIII. GROUND 3: CLAIMS 1-5 AND 7-14 ARE RENDERED OBVIOUS BY *KNUTSSON* IN VIEW OF *INOUE*

A. Motivation to Combine *Knutsson and Inoue*

As explained in Section III, claims 1 and 13 include limitations of a reservation request that includes a selection of a location at a destination. A POSA would have been motivated to implement *Inoue*'s selection of a room into the *Knutsson* interface because *Inoue* discloses "a reservation for a hotel stay by using the data send/receive function of a mobile phone … for opening the door of a room reserved in advance … without having to proceed to the hotel counter." *Inoue*, [0004]; Ex-1003, ¶116. A POSA would have incorporated *Inoue*'s selection of a room to avoid using a counter or front desk, *id*., which is similar to *Knutsson*'s goal of conveniently providing "temporary access" to a protected environment. *Knutsson*, 2:21-24, 5:15-16. Both access systems accomplish this convenient access through "a mobile terminal [] used as the wireless key device," and a POSA would have thus been motivated to improve *Knutsson*'s access system to bypass the counter of front desk. Ex-1003, ¶116. A POSA would have been motivated to

implement computerization of long-standing hotel practice of "making a reservation" by allowing a user to make a "reservation for a room" by recording "a hotel in the region where they wish to stay and then confirm[ing] the desired dates, room availability, fee, and the like." *Inoue*, [0003]; Ex-1003, ¶116.

As explained in Section III, claims 10, 11, and 14 require the selection of amenities, which is not expressly disclosed by *Knutsson*. A POSA, however, would have been motivated to implement *Inoue*'s selection of amenities into the *Knutsson* interface because *Inoue* discloses receiving "in advance, on the mobile-phone side, data corresponding to a key for opening the door of a room reserved in advance, and to open the door of the room using the data corresponding to that key, then the reserved room could be easily utilized without having to proceed to the hotel counter." *Inoue*, [0004]; Ex-1003, ¶117. A POSA would have incorporated *Inoue*'s amenities selection so that users could reserve a room easily without going to the hotel counter. *Id*.

A POSA would have had reasonable expectations of success combining *Inoue's* reservation system which allows advance reservation selection through a user interface, *Inoue*, [0004], into *Knutsson*'s access control system that also includes an administrative device 20, which has a similar graphical user interface for controlling access (i.e., reservations). *Knutsson*, 11:1-6. Indeed, both *Inoue* and *Knutsson* rely on a server that receives reservation information and issues access

information through electronic key data, *Inoue*, [0024], or a data object, *Knutsson*, 11:24-26; Ex-1003, ¶118. A POSA would have found it obvious that *Inoue*'s reservation system, including selection of a room and amenities, would be incorporated into *Knutsson*'s graphical user interface so that *Knutsson*'s administrative device 20 could receive a selection of a user's desired room selection and room requirements. *Inoue*, [0024], Ex-1003, ¶118. Such incorporation would be a simple and obvious replacement of similar components in similar systems. Ex-1003, ¶118.

Inoue and *Knutsson*'s key devices are similar because *Knutsson* discloses its key device is a mobile phone, *Knutsson*, 5:1-2, and *Inoue* discloses a "portable telephone unit" for access to an entrance, *Inoue*, [0008]. Similarly, *Knutsson*'s access device, lock device 40, opens a lock, *Knutsson*, 10:24-30, and *Inoue*'s entrance control device 40 unlocks the door of the desired room. *Inoue*, [0024]; Ex-1003, ¶119. Thus, a POSA would have found it a simple matter of substitution to implement *Inoue*'s reservation server and its selection of rooms and other access benefits, with *Knutsson*'s access control system because both *Knutsson* and *Inoue* disclose similar data and reservation systems used by similar key devices to access similar lock devices. Ex-1003, ¶119.

B. Claim 1

Knutsson in view of *Inoue* renders obvious claim 1. Ex-1003, ¶120.

1. [1p]-[1A]

Knutsson renders obvious [1p]-[1A] as discussed above in Sections VI.A.1-VI.A.2. Ex-1003, ¶121.

2. [1B(i)] "b) **a secure reservation interface** to receive a reservation request from a first device for a reservation at a given destination,"

Knutsson renders obvious [1B(i)] because *Knutsson* discloses a graphical user interface on devices like administrative device 20 (first device) used to grant temporary access to a room, a protected environment,for a set amount of time. Ex-1003, ¶122.

Knutsson's administrative device 20, with input devices connected to a user interface 24 is used to grant temporary access when requested, corresponds to the claimed "a secure reservation interface to receive a reservation request from a first device for a reservation … the reservation interface comprising one or more screens," as discussed above in Section VI.A.3. Ex-1003, ¶123.

Knutsson's temporary access to an environment corresponds to the claimed "a reservation at a given destination," as discussed above in Section VI.A.3. Ex-1003, ¶124.

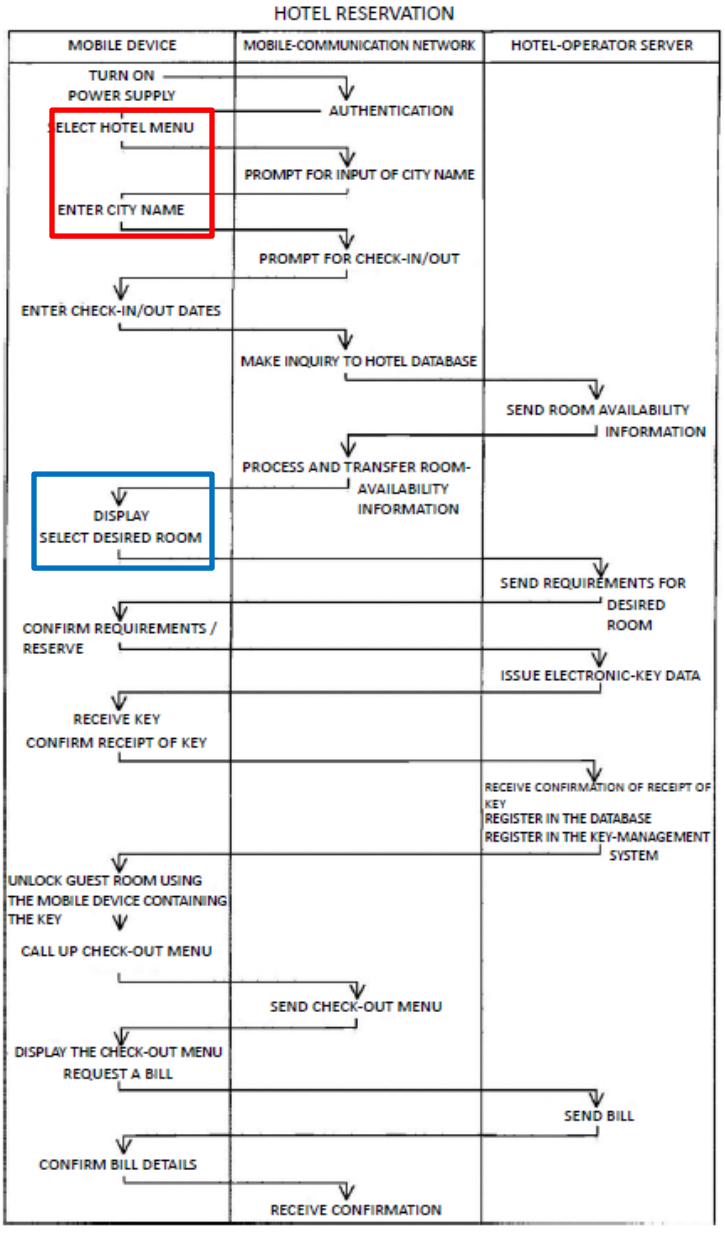
3. [1B(ii)] "the reservation interface comprising one or more screens for receiving **a selection of a location** at the destination and **an interval of the reservation**;"

Knutsson renders obvious [1B(ii)] because *Knutsson* discloses a graphical user interface that receives access data from a user. Ex-1003, ¶122. *Knutsson*'s lockable door corresponds to the claimed "selection of a location at the destination," as discussed above in Section VI.A.3. Ex-1003, ¶125. *Knutsson*'s time frames correspond to the claimed "interval of the reservation" as discussed above in Section VI.A.3. Ex-1003, ¶¶125-126.

To the extent it is argued that *Knutsson* does not disclose "the reservation interface comprising one or more screens for receiving a selection of a location at the destination," *Inoue* does. Ex-1003, ¶127. For example, *Inoue* discloses "a reservation for a hotel stay by using the data send/receive function of a mobile phone to access the reservation server of the hotel operator, to receive in advance, on the mobile-phone side, data corresponding to a key for opening the door of a room reserved in advance." *Inoue*, [0004]. Indeed, *Inoue* discloses "FIG. 4 is a drawing that explains a data send/receive example of a hotel reservation." *Id.*, [0048]. *Inoue* states that its reservation server 7 communicates through a mobile communication network with a mobile device 10 so that the server 7 "searches the database 8 for room-availability information at the requested check-in and check-out dates and sends that room-availability information to the mobile

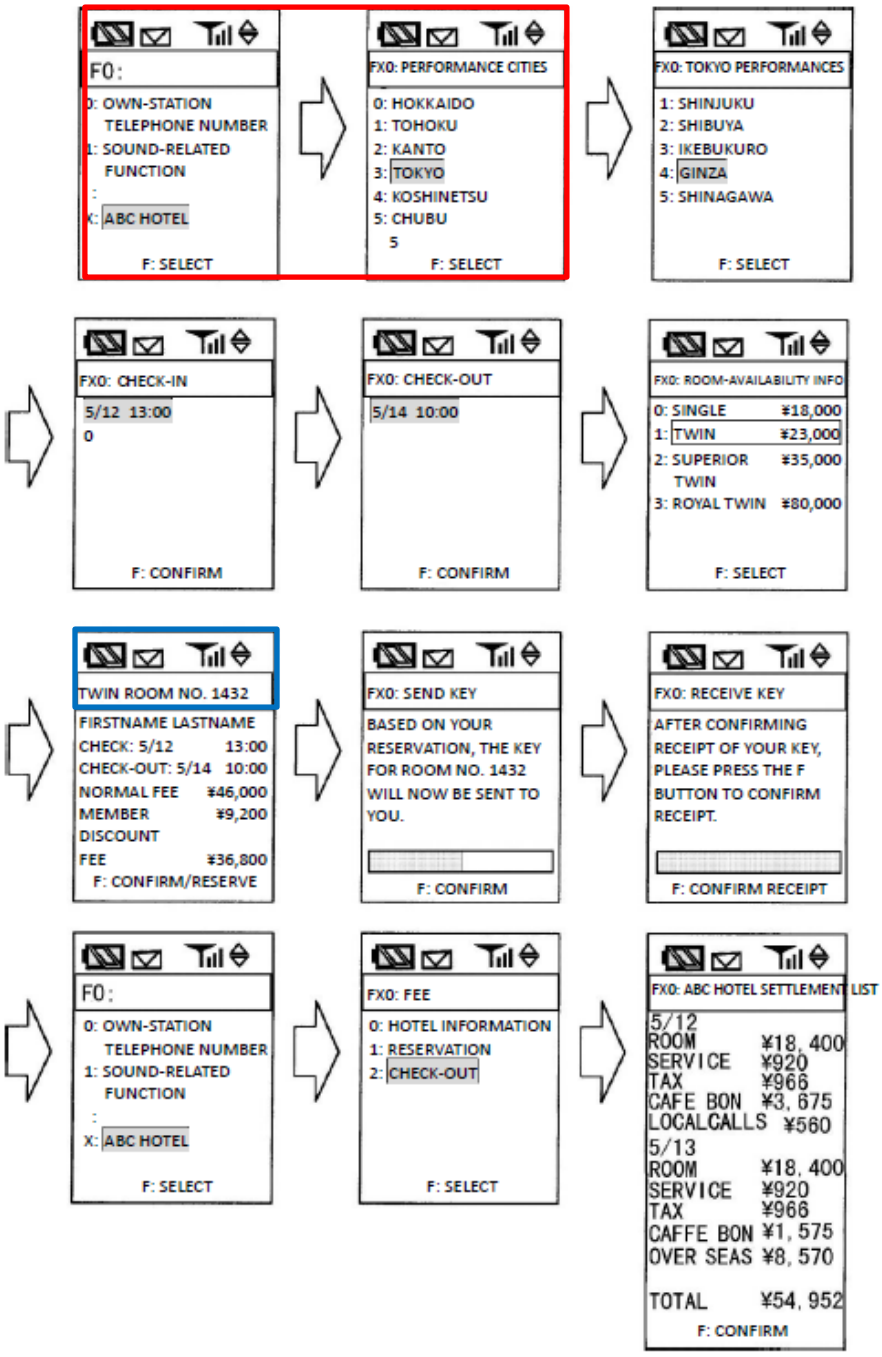
communication network 1 side." *Id.*, [0023]. As shown below in *Inoue*'s Figures 4 and 5 a hotel reservation that includes selecting a hotel or city (destination) and selecting a room at the hotel in the city (location). Ex-1003, ¶127.

FIG. 4



Id., FIG. 4.

FIG. 5


F0:
0: OWN-STATION TELEPHONE NUMBER
1: SOUND-RELATED FUNCTION
X: ABC HOTEL
F: SELECT
FX0: PERFORMANCE CITIES
0: HOKKAIDO
1: TOHOKU
2: KANTO
3: TOKYO
4: KOSHINETSU
5: CHUBU
5
F: SELECT
FX0: TOKYO PERFORMANCES
1: SHINJUKU
2: SHIBUYA
3: IKEBUKURO
4: GINZA
5: SHINAGAWA
F: SELECT
FX0: CHECK-IN
5/12 13:00
0
F: CONFIRM
FX0: CHECK-OUT
5/14 10:00
F: CONFIRM
FX0: ROOM-AVAILABILITY INFO
0: SINGLE ¥18,000
1: TWIN ¥23,000
2: SUPERIOR TWIN ¥35,000
3: ROYAL TWIN ¥80,000
F: SELECT
TWIN ROOM NO. 1432
FIRSTNAME LASTNAME
CHECK: 5/12 13:00
CHECK-OUT: 5/14 10:00
NORMAL FEE ¥46,000
MEMBER DISCOUNT ¥9,200
FEE ¥36,800
F: CONFIRM/RESERVE
FX0: SEND KEY
BASED ON YOUR RESERVATION, THE KEY FOR ROOM NO. 1432 WILL NOW BE SENT TO YOU.
F: CONFIRM
FX0: RECEIVE KEY
AFTER CONFIRMING RECEIPT OF YOUR KEY, PLEASE PRESS THE F BUTTON TO CONFIRM RECEIPT.
F: CONFIRM RECEIPT
F0:
0: OWN-STATION TELEPHONE NUMBER
1: SOUND-RELATED FUNCTION
X: ABC HOTEL
F: SELECT
FX0: FEE
0: HOTEL INFORMATION
1: RESERVATION
2: CHECK-OUT
F: SELECT
FX0: ABC HOTEL SETTLEMENT LIST
5/12
ROOM ¥18,400
SERVICE ¥920
TAX ¥966
CAFE BON ¥3,675
LOCALCALLS ¥560
5/13
ROOM ¥18,400
SERVICE ¥920
TAX ¥966
CAFFE BON ¥1,575
OVER SEAS ¥8,570
TOTAL ¥54,952
F: CONFIRM

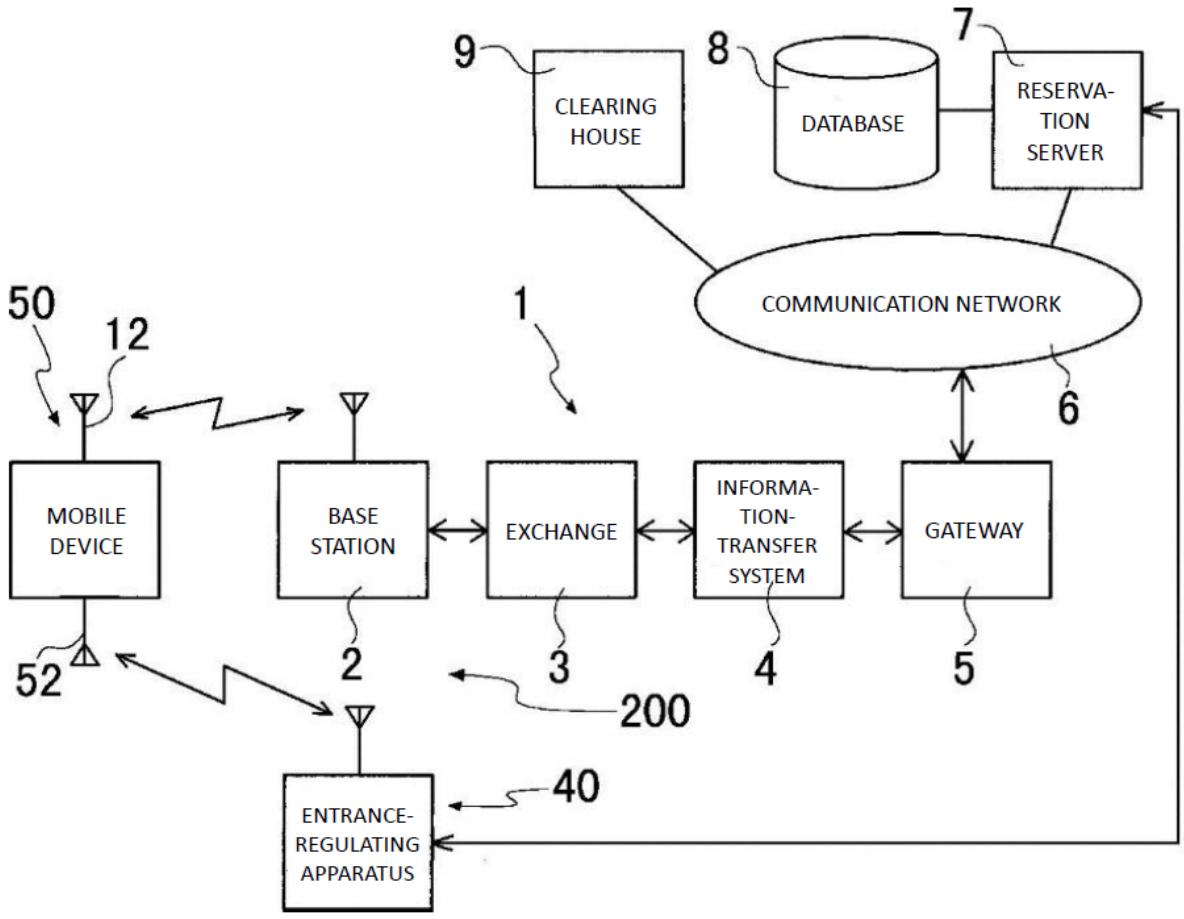
Id., FIG. 5.

On the mobile device side, "the displayed desired room requirement is confirmed," for example through a selection on a display. *Id.*, [0023]; FIG. 5. A POSA would have been motivated to combine *Knutsson* and *Inoue* as discussed above in Section VIII.A. Ex-1003, ¶127.

4. [1C(i)] "c) **a reservation server,** in communication with the reservation interface and a network, to:"

Knutsson in view *Inoue* renders obvious claim [13C(i)]. Ex-1003, ¶128. To the extent it is disclosed that Knutsson does not disclose "a reservation server" separately from the claimed "first device" and "second device," *Inoue* does. Ex-1003, ¶128. For example, *Inoue* discloses "communication network 6, to which … reservation server 7 … [is] connected." *Inoue*, [0044]. This relationship is shown in FIG. 9 below. Ex-1003, ¶128.

FIG. 9



Inoue, FIG. 9.

The reservation server 7 receives a selection of room-availability information and "when the displayed desired room requirement is confirmed and a reservation is selected, information related to the reservation is sent to the reservation server 7." *Id.*, [0023]. *Inoue*'s reservation server 7 receives information from "a menu … displayed on the display part 19" of mobile device 10. *Id.*, [0022]. *Inoue*'s

communication network 6 is connected to reservation server 7. *Id.*, [0022]; Ex-1003, ¶128.

A POSA would have found it obvious that *Inoue*'s reservation server 7 could be combined with *Knutsson*'s access system so that *Knutsson*'s access system would receive reservations "in advance, and thereby the door can be opened and the room utilized easily." Ex-1003, ¶128 (quoting *Inoue*, [0005]). A POSA would have had reasonable expectations of success in implementing *Inoue*'s reservation server 7 as a device to receive reservations rather than *Knutsson*'s administrative device 20 because both devices are servers that forward messages and are connected to databases, and both devices are connected to communication networks for managing access to rooms. *Inoue*, [0014], [0024]; *Knutsson*, 11:7-11, 13:6-19. Further, *Inoue*'s reservation server 7 would have been able to receive reservation information from *Knutsson*'s administrative device 20 because *Inoue* discloses its mobile device 10 includes generic parts including "key-manipulation part 18, [] display part 19, memory 20," that are used to request information from and send data to reservation server 7, *Inoue*, [0016], and *Knutsson*'s administrative device 20 similarly has generic parts such as a keyboard, mouse, and display that are used to specify access data, and administrative device 20 can even "be a mobile terminal." *Knutsson*, 11:1-14. A POSA would have been further motivated to combine *Knutsson* and *Inoue* as discussed above in Section VIII.A. Ex-1003, ¶129.

5. [1C(ii)]-[1C(iv)]

Knutsson renders obvious [1C(ii)]-[1C(iv)] as discussed above in Sections VI.A.6-VI.A.8. Ex-1003, ¶129. A POSA would have found it obvious that *Inoue*'s reservation server 7 would be capable of the limitations of [1C(ii)]-[1C(iv)] as rendered obvious by *Knutsson*'s disclosure discussed above in Sections VI.A.6-VI.A.8. Ex-1003, ¶130.

6. [1E]

Knutsson renders obvious [1D(i)]-[1E] as discussed above in Sections VI.A.9-VI.A.11. Ex-1003, ¶131.

C. [Claim 2]-[Claim 5], [Claim 7]-[Claim 9], [Claim 12]

Knutsson renders obvious Claims 2-9 and 12 as discussed above in Sections VI.B-VI.E (claims 2-5), VI.F-I (claims 7-9, 12). Ex-1003, ¶132.

D. [Claim 10] "The system of claim 1 wherein the reservation interface comprises one or more screens for **selecting one or more amenities** at the destination."

Knutsson in combination with *Inoue* renders obvious claim 10. *Knutsson* does not expressly disclose "selecting one or more amenities," but *Inoue* does. *Inoue* discloses "the reservation server 7, which received the inquiry from the mobile-communication network 1 side, searches the database 8 for room-availability information at the requested check-in and check-out dates." *Inoue*, [0023]. Then, "[o]n the mobile device 10 side, the room-availability information is

received and displayed on the display part 19. That is, as shown in FIG. 5, for example, 'Single ¥ 18,000', 'Twin ¥ 23,000', 'Super twin ¥ 35,000' and 'Royal twin ¥ 80,000' are displayed." *Id.* A POSA would have found it obvious that each of these modifications to the reservation would be an amenity. Ex-1003, ¶¶133-134. A POSA would have been motivated to combine *Knutsson* and *Inoue* as discussed above in Section VIII.A. Ex-1003, ¶134.

To the extent "reservation detail interface comprises one or more screens" of claim 10 has an antecedent basis of "the reservation interface comprising one or more screens" of claim 1, claim 10 does not require a separate recitation to invalidate it. As discussed above for [1B(ii)] in Section VI.A.4, *Knutsson* discloses its administrative device 20 has "a data object generation module 25 which is configured to invite the administrator 21 to specify the temporary access defining data through interaction with the user interface 24." *Knutsson*, 11:20-23; Ex-1003, ¶134. *Knutsson*'s graphical user interface allows the administrator to specify the temporary access data. A POSA would have understood that a GUI comprises software components that give users "the ability to interact with their systems and application programs in a graphical and consistent manner," for example, allowing "a user to input commands into a system through the use of menus or by pointing to icons that picture commands." Ex-1018, 6; Ex-1003, ¶134. To the extent this term does require a separate recitation other than claim 1, a POSA would have

understood that *Knutsson*'s graphical user interface would use menus or icons, and *Inoue* discloses several different screens for selection of amenities as discussed above, corresponding to the claimed "one or more screens." Ex-1003, ¶134.

E. [Claim 11] The system of claim 10 wherein the reservation server receives a request for **one or more amenities** at the destination.

Knutsson in combination with *Inoue* renders obvious claim 11. *Knutsson* does not expressly disclose "selecting one or more amenities," but *Inoue* does. Ex-1003, ¶135. For example, *Inoue* discloses "when the displayed desired room requirement is confirmed and a reservation is selected, information related to the reservation is sent to the reservation server 7." *Inoue*, [0023]; Ex-1003, ¶¶135-136. A POSA would have been motivated to combine *Knutsson* and *Inoue* as discussed above in Section VIII.A. Ex-1003, ¶136.

F. Claim 13

Knutsson in view of *Inoue* renders obvious claim 13. Ex-1003, ¶137.

1. [13p]-[13A]

Knutsson renders obvious [13p]-[13A] as discussed above in Sections VI.A.1-VI.A.2 for [1p]-[1A]. Ex-1003, ¶138.

2. **[13B]** "b) a reservation interface comprising one or more screens associated with the location, the one or more reservation screens for selecting at least a room and an interval for a reservation at the location;"

Knutsson in view of *Inoue* renders obvious claim [13B] as discussed above in Sections VIII.B.2-VIII.B.3 for [1B(i)] and [1B(ii)]. Ex-1003, ¶139.

3. **[13C]** "c) a reservation server, in communication with the reservation interface and a network, to:"

Knutsson in view of *Inoue* renders obvious claim [13C(i)] as discussed above in Sections VIII.B.4 for [1C(i)]. Ex-1003, ¶140.

4. **[13C(i)-[13E]**

Knutsson renders obvious [13C(ii)]-[13E] as discussed above in Sections VI.B.5-VI.B.6 for [1C(ii)]-[1E]. Ex-1003, ¶141.

G. **[Claim 14]** "The system of claim 13 wherein the reservation interface comprises one or more reservation screens associated with the location, the one or more screens for **selecting one or more amenities** at the location."

Claim 14 is substantially similar to claim 10 aside from its dependency from claim 13. *Knutsson* in combination with *Inoue* renders obvious claim 14 for the reasons explained for claim 10 in Section VIII.D. Ex-1003, ¶142.

IX. GROUND 4: CLAIM 6 IS RENDERED OBVIOUS BY *KNUTSSON* IN VIEW OF *WOODARD* AND *INOUE*

A. Motivation to Combine *Knutsson, Woodard, and Inoue*

As explained in Section III.A, claim 6 requires a report be generated that is not expressly disclosed by *Knutsson* or *Inoue*. A POSA would have incorporated

Woodard's central management functionality into *Knutsson*'s access system to achieve a central management system and "complete the lockbox access record." *Woodard*, [0013]; Ex-1003, ¶143. *Woodard* discloses that its key device 104 would be able to transmit "certain access data to the central computer system/database 200 for further processing," and that the "ability to track, store and centrally process these access data are a valuable tool." *Woodard*, [0004]; Ex-1003, ¶143. This is consistent with *Inoue*'s disclosure of its reservation server 7 searching for "room-availability information," *Inoue*, [0022]-[0023], that a POSA would have found it obvious to keep up-to-date so the information is accurate and to avoid double-booking or displaying out-of-date availabilities. Ex-1003, ¶143. A POSA thus would have been motivated to combine *Woodard*'s reporting, *Inoue*'s reservation/IT system, and *Knutsson*'s key device 1, administrative device 20, and lock device 40 to "track, store and centrally process [the] access data." Ex-1003, ¶143 (quoting *Woodard*, [0004]).

A POSA would have had reasonable expectations of success combining *Inoue* into the *Woodard-Knutsson* combination because all three disclose similar key devices such as *Woodard*'s "electronic key device 104, which can be a PDA, a cell phone," *Woodard*, [0003], *Knutsson*'s key device that can be a PDA or a mobile phone, *Knutsson*, 5:1-2, and *Inoue*'s "mobile-phone part" for accessing an entrance, *Inoue*, [0008], to actuate similar access devices like *Woodard*'s lockbox

103, *Woodard*, [0048], *Knutsson*'s lock device 40 to open a lock, *Knutsson*, 10:24-30, or *Inoue*'s unlocking the entrance regulating apparatus 40 constituting the door of the desired room. *Inoue*, [0024]; Ex-1003, ¶144.

B. [Claim 6]

Knutsson in combination with *Woodard* and *Inoue* renders obvious claim 6. *Woodard* discloses the limitations of claim 6, as discussed above in Section VII.B. A POSA would have been motivated to combine *Knutsson, Woodard*, and *Inoue* as discussed above in Section IX.A. Ex-1003, ¶145.

X. DISCRETIONARY DENIAL IS IMPROPER

Non-institution under § 314(a) would be improper because no factors articulated in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 5-6 (PTAB Mar. 20, 2020), weigh in favor of non-institution. No effective trial date has been set in either *Liberty Access Technologies Licensing LLC v. ASSA ABLOY AB et al.*, 2:22-cv-00507 (E.D. Tex.) ("the -00507 case") or *ASSA ABLOY Global Solutions, Inc. v. Liberty Access Technologies Licensing LLC*, 1:23-cv-00756 (N.D. Ill.) ("the -00756 case"). Ex-1011; Ex-1017. These cases are in their infancy. No invalidity contentions have been asserted and no Markman hearing date has been set. Petitioners filed counterclaims asserting invalidity in the -00756 case, but those counterclaims do not create a bar to institution. 35 U.S.C. § 315(a)(3); *Canfield Scientific, Inc. v. Melanoscan, LLC*, IPR2017-02125, Paper 7 (P.T.A.B. Mar. 30,

2018). Petitioners intend to seek a stay of these cases and there is a high likelihood that a stay will be granted in the co-pending case because there has been virtually no investment in the parallel proceeding. Moreover, as invalidity contentions have not been asserted, there are no overlap of issues with this Petition.

Further, this Petition's grounds include compelling merits, challenging all claims with only minor modifications of § 102(b) references.

Non-institution under § 325(d) would also be improper under the factors set forth in *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (PTAB Dec. 15, 2017). The asserted combinations are materially different and not cumulative of the prior art involved during the examination of the challenged claims. During prosecution, no references were applied by the Office and the claims were issued only a double patenting rejection, Ex-1002 at 55-58, before being allowed barely a year after being filed. *Id.*, 90.

The prior art references presented in this Petition were never listed by the Patent Owner nor cited by any examiner. They were never discussed or applied by the examiner to reject any claims. The cited references are materially different from and not cumulative of the earlier references at least because they describe receiving a reservation request on a reservation interface on a first device (laptop), issuing a reservation certificate based on the reservation request, and allowing a second device (smartphone) to activate an access device when the access device

receives the reservation certificate from the second device. There is thus little to no overlap between the current and prior arguments. *Becton*, Paper 8, 23. As explained in this Petition, the cited references render obvious these added limitations, making denial under § 325(d) improper.

XI. MANDATORY NOTICES

A. Real Parties-in-Interest

The real parties-in-interest are ASSA ABLOY AB, ASSA ABLOY Mobile Services AB,[3] ASSA ABLOY Global Solutions, Inc., ASSA ABLOY Global Solutions AB, ASSA ABLOY Inc., ASSA ABLOY Global Solutions, Inc., HID Global Corporation, and Marriott International, Inc.

B. Related Matters

Patent Owner has asserted the ’747 patent in litigation filed on August 18, 2022, *Liberty Access Technologies Licensing LLC v. Marriott International, Inc.*, 2:22-cv-00318 (E.D. Tex.).

Patent Owner has asserted the ’747 patent in litigation filed on Dec. 30, 2022, *Liberty Access Technologies Licensing LLC v. ASSA ABLOY AB et al.*, 2:22-cv-00507 (E.D. Tex.).

[3] ASSA ABLOY Mobile Services AB was named as a party in the -00507 case, but this entity does not exist and did not exist at the time.

Petitioner ASSA ABLOY Global Solutions, Inc. has asserted only non-infringement of the '747 patent in a declaratory judgment action filed on February 7, 2023, *ASSA ABLOY Global Solutions, Inc. v. Liberty Access Technologies Licensing LLC*, 1:23-cv-00756 (N.D. Ill.).

C. Lead and Back-Up Counsel, and Service Information

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XII. GROUNDS FOR STANDING

Petitioner certifies the '747 patent is available for IPR and Petitioner is not barred or estopped from requesting IPR challenging the patent claims on the grounds identified in this Petition.

XIII. CONCLUSION

Petitioner has established a reasonable likelihood of prevailing with respect to each of the challenged claims 1-14 of the ’747 patent. Petitioner therefore requests the Board institute *inter partes* review and cancel each of these claims as unpatentable.

The Office may charge any required fees for this proceeding to Deposit Account No. 06-0916.

Date: May 24, 2023

Respectfully Submitted,

/Lionel M. Lavenue/
Lionel M. Lavenue, Lead Counsel
Reg. No. 46,859

CERTIFICATION UNDER 37 C.F.R. § 42.24(d)

Pursuant to 37 C.F.R. § 42.24(a)(1)(i), the undersigned hereby certifies that the foregoing PETITION FOR *INTER PARTES* REVIEW contains 11,197 words, excluding the parts of this Petition that are exempted under 37 C.F.R. § 42.24(a), as measured by the word-processing system used to prepare this paper.

/Lionel M. Lavenue/
Lionel M. Lavenue, Lead Counsel
Reg. No. 46,859

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§ 42.6(e) and 42.105(a), the undersigned certifies that the foregoing **Petition for *Inter Partes* Review, the associated Power of Attorneys, and Exhibits 1001 through 1008, 1011, 1013-1014, 1016-1019** are being served on May 24, 2023, by FedEx Priority Overnight on the correspondence address of record indicated in the Patent Office's Patent Center system for U.S. Patent No. 10,657,747.

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