

## Appeal decision

Appeal No. 2018-993

Appellant            Inter Bridge, LLC

Patent Attorney    KUDO, Ichiro

The case of appeal against the examiner's decision of refusal of Japanese Patent Application No. 2016-182086, entitled "Autonomous Small Wireless Device and its Distributed Installation Method" (the application published on March 22, 2018, Japanese Unexamined Patent Application Publication No. 2018-46517) has resulted in the following appeal decision.

### Conclusion

The appeal of the case was groundless.

### Reason

#### No. 1 History of the procedures

The application was filed on September 16, 2016, and the history of the procedures is as follows.

|                         |                                                                                         |
|-------------------------|-----------------------------------------------------------------------------------------|
| Dated August 29, 2017   | : Notification of reasons for refusal                                                   |
| October 13, 2017        | : Submission of written opinion and written amendment                                   |
| Dated October 20, 2017  | : Examiner's decision of refusal                                                        |
| January 24, 2018        | : Appeal against the examiner's decision of refusal and submission of written amendment |
| June 20, 2018           | : Submission of written statement                                                       |
| Dated December 10, 2018 | : Notification of reasons for refusal (the body)                                        |
| January 7, 2019         | : Submission of written opinion and written amendment                                   |

#### No. 2 The Invention

It is recognized that the Invention is an invention described in Claim 1 of the Scope of Claims amended by the above written amendment submitted on January 7, 2019 as follows.

"A fixedly installed autonomous small wireless device comprising:

an autonomous power supply (excluding one using a solar cell) which does not have other power supply receiving paths and cannot be detachably replaced;  
a communication control circuit that includes a communication circuit driven by the autonomous power supply; and  
an antenna driven by the communication control circuit,  
wherein the communication control circuit has a routing function means."

#### No. 3 Reasons for refusal

The outline of the reasons for refusal notified by the body dated December 10, 2018 (hereinafter referred to as "the reasons for refusal by the body") is that  
"1. (Inventive step) Since the inventions according to the following claims of this application could have been easily made by a person ordinarily skilled in the art based on the inventions described in the publications described below that had been distributed in Japan or a foreign country or on inventions that had become available to the public through electric communication lines prior to the filing of the application, the appellant should not be granted a patent for them under the provisions of Article 29(2) of the Patent Act," Cited Documents 10 and 11 are cited with respect to Claim 1.

10. National Publication of International Patent Application No. 2003-508939

11. Japanese Unexamined Patent Application Publication No. H10-51858

#### No. 4 Description of Cited Document, Cited Invention, Publicized prior art

##### 1 Described matters in Cited Document 10

National Publication of International Patent Application No. 2003-508939 cited in the reasons for refusal by the body describes the following matters. (The underlines are applied by the body.)

(1) "[0010]

[Embodiments of the invention]

The Appendix provides a Minion TM firmware operational overview of one preferred embodiment of the invention.

A MinionNet TM Network 100 as illustrated in FIGS. 1 and 2 is a wireless data network characterized by short-range device-to-device messaging. (Minion TM, MinionNet TM,  $\mu$ Minion TM, muMinion TM, microMinion TM, gatewayMinion TM, geoMinion TM, and cap TM are registered trademarks of the assignee. As used hereinafter, Minion device means Minion TM, MinionNet TM,  $\mu$  Minion TM, muMinion TM, microMinion TM, gatewayMinion TM, and/or geoMinion TM, unless

otherwise specified. The trademark designation "TM" will not be used hereafter for convenience.) Messages are automatically routed through multiple device-to-device "hops" to provide robust area coverage, redundancy, noise immunity, and dynamic routing and reconfiguration. These device-to-device messages do not have a time-critical requirement such as would be found in a real-time voice connection such as a cellular telephone net.

[0011]

The devices used by the MinionNet network 100 are generally referred to as Minion devices and are actually extremely inexpensive two-way data radios, such as a transceiver as will be described below. In particular, the Minion devices may be a  $\mu$ Minion (microMinion) device 110, a gateway Minion device 120, or a geoMinion device 130, each of which is a trademark of the assignee and will be described below. One key feature of these Minion devices is that they are able to exchange short data messages with each other as indicated by the arrows in FIG. 1. Each Minion device becomes a part of a community and can share the burden of conveying messages throughout an area. Any Minion device can directly communicate with any other Minion device within range. This facilitates message handoff and acknowledgment as will be described below.

[0012] to [0015] (Omitted)

[0016]

[The MinionNet network]

The MinionNet network operates along the same lines as the group. Each of the individuals communicates only with its neighbors that are in close proximity, including those that newly move in. A large amount of information can be exchanged in a short period of time because the small groups all operate in parallel. Moving messengers can pass important data from one group to another while suppressing less important items. Shared resources such as telephones are efficiently used and inexpensive. There is a high level of cooperation among individuals of the group or, in the case of the nodes, the MinionNet network. Herein, a node refers to a Minion device and, vice versa, since a Minion device may be a node.

[0017] (Omitted)

[0018]

[System Architecture]

Many possible applications and implementations of the MinionNet network are contemplated, only some of which are disclosed herein. For example, the MinionNet network may be used as a geolocation network as described below. In this

environment, this is accomplished by making a small percentage of the Minion devices in the field act as the geoMinion devices 130 illustrated in block diagram form in FIG. 3. These geoMinion devices 130 interface with the global positioning systems (GPS) already in place to act as anchor points for locating other Minion devices.

[0019]

Preferably, all Minion devices share a common structure in the form of a radio transceiver with an antenna, a microprocessor for controlling the transceiver, a memory associated with the microprocessor, and a power source. The transceivers transmit and receive on the same frequency, thereby reducing hardware requirements and allowing a single filter to be used on the antenna for both transmission and reception. This also avoids the need for tuning or frequency selection equipment.

[0020]

As shown in FIG. 3, the geoMinion device 130 comprises the  $\mu$ Minion device 110 configured to interface with a GPS receiver 300. The GPS receiver 300 would be in contact, either directly or through an optional GPS augmentation receiver 310, to a GPS which would provide a two- or three-dimensional indication of the location of the GPS receiver 300. By locating another  $\mu$ Minion device 110 between several geoMinion devices 130, the approximate position of the  $\mu$ Minion device 110 can be determined. The power supply options and power control of the geoMinion device 130 will be described below with reference to FIG. 7.

[0021]

Alternatively, the MinionNet network can be used to associate anchored, physical locations with virtual ones as illustrated in FIGS. 1 and 2. For example, points in the MinionNet network should be connected to a wider area network so that message travel times and network loading are minimized. This is accomplished by making a small percentage of the Minion devices in the field act as the gatewayMinion devices 120 illustrated in block diagram form in FIG. 4. These gatewayMinion devices 120 act as concentrators for messages bound to and emanating from the centralized supervisory components of the nationwide MinionNet network. The actual wide area connectivity of a gateway Minion device may be provided by a terrestrial wide area wireless data network such as the Bell South Wireless Data Mobitex(R) network, a cellular based network using CDPD, or a satellite-based data network such as Orbcomm.

[0022]

As shown in FIG. 4, the gatewayMinion device 120 comprises the  $\mu$ Minion device 110 configured to interface with a wide area network (WAN) interface 400.

The WAN interface 400 would be in contact, either directly or via wireless communication, with other stations which would provide data to the  $\mu$ Minion devices or receive data from the  $\mu$ Minion devices. The power supply options and power control of the gateway Minion device 120 will be described below with reference to FIG. 7.

[0023]

The dynamic configuration and automatic routing aspects of the MinionNet network Protocol cause messages to be routed by the most efficient method from their origin to their ultimate destination. Since many Minion devices will be installed in fixed locations to provide increased coverage, geolocation services, and application-specific functions, it will be possible to provide gateway services via wired and wireless local area networks, and other existing data networks. All Minion devices use the same communications protocol, data format, and data rate, thereby to reduce software and hardware requirements as well as maintain simplicity within the network itself.

[0024]

Providing Gateway Services to the individual Minion devices means that all Minion devices effectively become part of the Internet as shown in FIG. 2. Status enquiries and data messages can originate at any Internet workstation in the world and can be directed to any Minion device. The central MinionNet network Servers and application-specific features of individual Minion devices provide any required level of security. Security features would typically include robust public-key cryptography to provide end-to-end protection for specific data while still allowing for full participation in the shared aspects of the MinionNet network.

[0025]

The virtual geolocation mechanism and routine communication between Minion devices also allow for distribution of accurate time and date information. Minion devices automatically synchronize their internal clocks to within one millisecond. MinionNet network signals can be used to coordinate events throughout the network. Routinely transmitted data messages that provide local-time conversion information allow application-specific devices to keep track of time zones, daylight-savings-time changes, and leap-seconds. Minion devices can provide this important value-added feature to many consumer products.

[0026]

As shown in FIG. 5, one preferred embodiment of a Minion device comprises a radio transceiver 500, a micro-controller 510, and a data memory 520 contained on a double-sided circuit board about the size of a postage stamp. Preferably, the micro-controller is any microprocessor or controller which can be programmed to meet the

functional needs of the Minion device. For example, one preferred micro-controller is Model 16F876 manufactured by Microchip Technologies. Some advantages of such controllers include a built in analog to digital converter allowing power supply management, an adequate number of inputs for control signals, a built in clock generator so that a simple crystal need only be added to the controller, and a fairly low operating voltage such as 2.6 volts so that it is acceptable for battery power and programmable storage. In particular, the programmable storage would preferably be an on-chip flash memory which is field programmable on the fly so that the operating software of the controller can actually be changed through the MinionNet network system. In this way, Minion devices could be reprogrammed through the MinionNet network without the need for physically connecting to or handling the particular Minion device being reprogrammed.

[0027]

Preferably, the transceiver 500 comprises an amplifier sequenced hybrid (ASH) transceiver such as disclosed in U.S. Pat. No. 5,787,117, the entire disclosure of which is incorporated herein by reference. Although the radio transceiver would preferably operate in the unlicensed ISM band (e.g., presently 902-928 MHZ, as is approved by the FCC in the United States and by the corresponding regulatory agencies in a number of other countries particularly in North and South America) with an effective output power of less than 1 milliwatt, other embodiments using other reference frequencies and power output levels are also contemplated. A second frequency selection should cover most of the European Market. All Minion devices transmit and receive on a single frequency so that most components of the transceiver are utilized in both receiving and transmitting messages and in receiving and transmitting acknowledgments that the messages have been handed off to the next node. This eliminates the added cost and complexity inherent in spread-spectrum or frequency agile approaches. The receiver is a stable, inexpensive direct-conversion implementation. Minion devices do not have frequency synthesizers, local oscillators, IF filters, IF amplifiers, or antenna duplexers.

[0028]

[Implicit and Explicit Acknowledgments]

Receipt of messages can be confirmed by either an implicit acknowledgment or an explicit acknowledgment. Implicit acknowledgment occurs when an originating Minion device sends a message via an intermediate Minion device to a destination Minion device and the originating Minion device receives a copy of the message when it is being transmitted by the intermediate Minion device. For example, suppose Minion devices A and B communicate with each other, Minion devices B and C

communicate with each other, and Minion devices B and D communicate with each other. Suppose Minion device A transmits a message to Minion device B to be passed along to a Minion device F as shown in FIG. 6C. Minion device A transmits the message to Minion device B which receives it. Minion device B determines that Minion device D should get the message next and transmits the message to Minion device D. Since Minion devices A and B are in communication, when Minion device B transmits to Minion device D, Minion device A also receives the transmission and recognizes it as the same message that Minion device A previously sent to Minion device B. This is an implicit acknowledgment that Minion device B received the message, since Minion device B could not be handing off the message to Minion device D unless Minion device D received the message from Minion device A in the first place.

[0029] to [0108] (Omitted)

[0109]

[Antennas and Physical Embodiments]

The antennas for the radios are built into the case and are intended to provide omnidirectional coverage. As illustrated in FIG. 15, the antenna A is printed on a dual sided circuit board B itself and wrapped around the periphery of the board. This allows the antenna to be printed as part of the printed circuit board layout. In general, the antenna would function as a monopole with a ground plane GP which may be embedded in the board B, although it is also contemplated that the antenna may be a dipole or j-pole or other antenna implementation. The other side of the board would have mounted thereon the micro-controller 510, the memory 540, and connectors (+and -) for connecting to the battery power supply (shown in phantom). Alternatively, as shown in FIG. 16, it is contemplated that the antenna may be a whip antenna A' in the form of a single piece of wire extending from the board B and having an imbedded ground plane GP. For example, a Minion device M mounted on a traffic sign post P may be provided with a one foot long quarter wave whip coil WC within its housing H (see FIG. 17) or hanging from the housing. The housing may be a PVC pipe with endcaps for enclosing a battery as illustrated in FIG. 17. Minions can be mounted in a number of ways. One preferred method is to use standard mounting brackets SMB used for mounting cameras, sensors, and other traffic monitoring equipment on traffic signal standards. Alternatively, the PVC pipe may be covered by an exterior sleeve of amorphous silicon SAS functioning as part of a solar cell to recharge the batteries. In cases where directionality is desired or required, a beam antenna with gain such as a three element yagi or an antenna with a reflector may be used. For example, in a situation where a Minion device may need to know which side of the road other Minion

devices are located would use a directional antenna. Also, a Minion device on a police car may have a directional antenna to focus on and interrogate a Minion device directly in front of it located on another vehicle. Omnidirectional antennas will never actually be realized and environmental limitations are an expected part of the operation of the network. The operating range of any transceiver will not be a fixed distance but should rather be viewed as a probability function. Thus, the likelihood of successfully exchanging messages between radios is a function of their positions in space. Viewed in this way, all sources of transmission error can be incorporated into a single function. This is similar to taking the bit error rate allowed for a fixed length message and determining the probability of successful reception. Unlike the wired network, the wireless network has a spatially distributed error rate.

[0110]

That being said, think of the effective range of a Minion device as varying from 100 to 300 feet. Additional control of the area of coverage will be possible with the use of application-specific antennas and packaging designs. Optional application specific interfaces include interfaces to vehicles, door locks, utility meters, appliances, building controls, user displays, and user keyboards. Application specific interfaces may also be linked to external sensors such as sensors for magnetic flux, temperature, meteorology, acceleration, altitude, and pressure.

[0111]

The antennas used for most Minion devices are intended to provide omnidirectional coverage, so that any omnidirectional antenna known in the art may be employed.

[0112]

In some applications, a Minion device may require a directional antenna to provide directionality so that Minion devices will only communicate in a specific region or with certain other Minion devices. This can be accomplished by a directional antenna well-known in the prior art or by electronically tuning the above-noted antennas to have limited sectors of reception with other sectors having nulls. Also, the directionality of an antenna may be controlled by placing the antenna in a shield or reflector such as employing the antenna in combination with a parabolic reflector so that only other antennas facing the parabolic reflector can communicate with the antenna in the reflector. In general, antennas would have a distance range of about 100 meters, in order to avoid excessive crosstalk between too many Minion devices. The use of antennas designed to provide gain in a particular direction may be used to increase the effective range to significantly greater than 10 meters in a particular direction. In



order to maintain the most compact size for each Minion device, particularly  $\mu$ Minion devices, and because high performance is not necessarily required of  $\mu$ Minion devices, the antenna is preferably built and mounted on the printed circuit board containing the other components of the Minion device. Some applications may require an external antenna. For example, an external antenna may be used when it is necessary to house the  $\mu$ Minion device circuitry in a shielded enclosure because of RF interference caused by other devices near the Minion device. In such cases, a suitable interconnect cable may be used between the Minion device and the external antenna.

[0113]

[Power Sources]

As shown in FIG. 7, self-contained Minion devices may be powered by one or more of the following power sources:

(1) Primary battery: Some applications will lend themselves to user-replaceable batteries. Some mechanism to indicate the need to replace the batteries will be necessary. Some applications will allow for disposable Minion devices, and a sufficient battery life can be obtained from a single battery for the life of the unit.

(2) Rechargeable battery: Used in conjunction with another power source to provide for the charging function. Primarily for applications in which the power source is unreliable or intermittent. Also applicable in situations where tampering with the power source must be detected and reported.

(3) Solar battery: Generally applicable for charging a rechargeable battery. May also be used as a supplementary source to extend the life of a primary battery.

(4) Super capacitor: Alternative to the rechargeable battery. Does not require chemical reactions, so would be appropriate for harsh environments which are either too hot or too cold for batteries.

(5) Thermoelectric: A thermal difference may provide sufficient power to operate a Minion device in an environment where no other power source is available.

[0114] to [0121] (Omitted)

[0122]

Each message transmitted by a Minion device has an Originating Minion device ID and a Final Destination ID which will result in passing through one or more gateways in the process. Usually the ID is the serial number of the Minion device. Some IDs are of special significance. The Null Minion device (ID zero) is used as a destination for messages that are broadcast and actually intended for all recipients in an area. Application-specific Minion devices send data to a Final Destination ID that represents the database that corresponds to the application. The MinionNet network

routes the message to a gatewayMinion device that forwards the message to the correct server.

[0123]

Each Minion device maintains a message routing table containing the following fields:

(1) Target Minion device ID: ID of Minion device that a message might need to reach,

(2) Intermediate Minion device ID: ID of Minion device to be used to send messages to the Target,

(3) Hops: Number of hops required to send a message to the Target Minion device via Intermediate Minion devices,

(4) Expiration: Time at which this table entry will no longer be valid, and

(5) Intermediate Minion device Attributes: Information about the Minion device, such as its Power Save status, Signal strength, and Transmit power level required to send to it.

[0124]

The routing table is maintained by snooping all received messages, not just those for a particular recipient. Thus, all message traffic helps to maintain correct routing tables in all Minion devices without generating additional traffic geared solely for routing table updates.

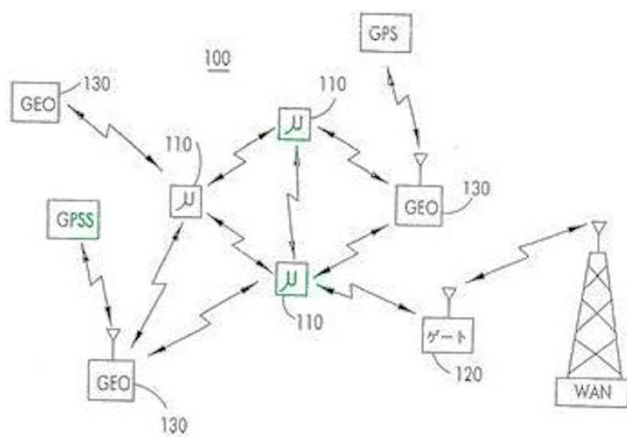
[0125] to [0228] (Omitted)

[0229]

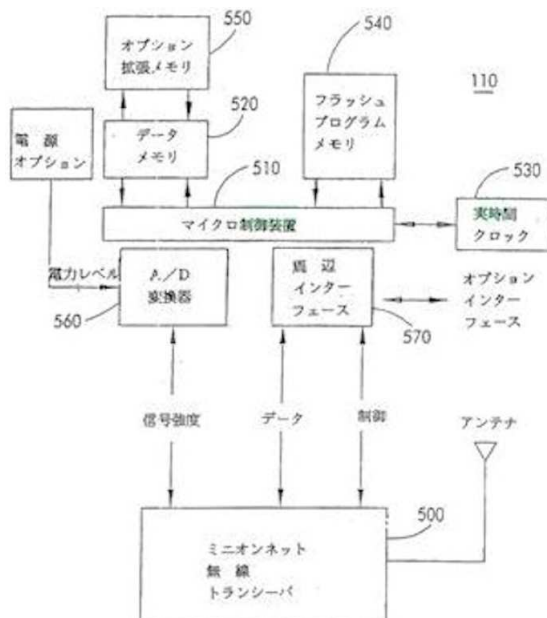
[Handicap Assist]

Exit Locator ... Minion devices could be installed at exits, stairways, restrooms, etc. in public buildings. Handicapped or visually impaired people could use handheld or wheelchair-mounted Minion devices to rapidly locate these places and be warned of obstacles or dangers along the way. In an emergency evacuation these could function in reverse to allow emergency personnel to assist the handicapped."

(2) FIG. 1



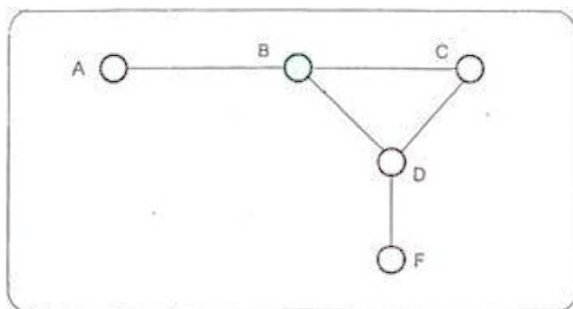
(3) FIG. 5



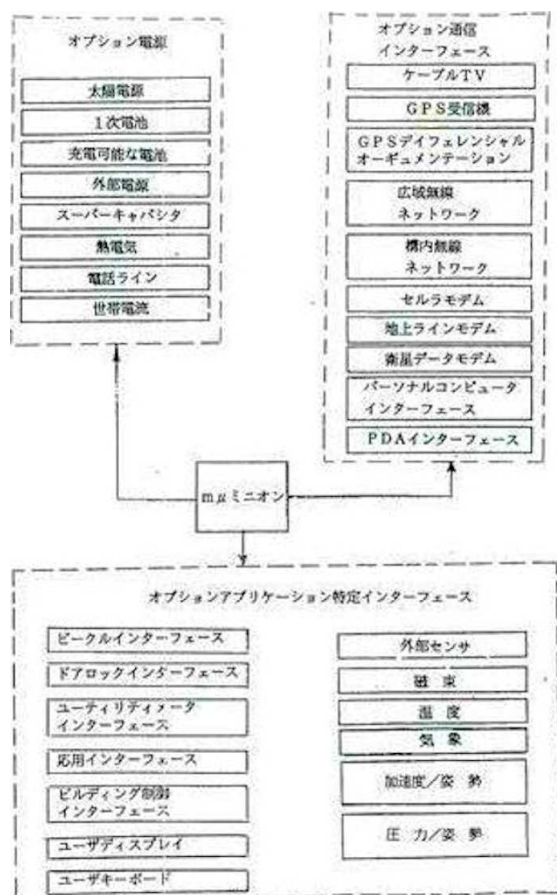
- オプション拡張メモリ      Option expansion memory
- 電源オプション      Power supply option
- データメモリ      Data memory
- フラッシュプログラムメモリ      Flash program memory
- マイクロ制御装置      Micro-controller
- 実時間クロック      Real-time clock
- 電力レベル      Power level
- A/D変換器      A/D converter
- 周辺インターフェース      Peripheral interface
- オプションインターフェース      Optional interface

信号強度                      Signal strength  
 データ      Data  
 制御      Control  
 ミニオンネット無線トランシーバ      MinionNet radio transceiver  
 アンテナ                      Antenna

(4) FIG. 6C



(5) FIG. 7



|                          |                                  |              |  |
|--------------------------|----------------------------------|--------------|--|
| オプション電源                  | Optional power supply            |              |  |
| 太陽電源                     | Solar power supply               |              |  |
| 1 次電池                    | Primary battery                  |              |  |
| 充電可能な電池                  | Chargeable battery               |              |  |
| 外部電源                     | External power supply            |              |  |
| スーパーキャパシタ                | Supercapacitor                   |              |  |
| 熱電気                      | Thermoelectricity                |              |  |
| 電話ライン                    | Telephone line                   |              |  |
| 世帯電流                     | Household current                |              |  |
| オプション通信インターフェース          | Optional communication interface |              |  |
| ケーブルTV                   | Cable TV                         |              |  |
| GPS 受信機                  | GPS receiver                     |              |  |
| GPS デイフェレンシャルオーギュメンテーション | GPS                              | differential |  |
| argumentation            |                                  |              |  |
| 広域無線ネットワーク               | Wide-area wireless network       |              |  |
| 機内無線ネットワーク               | In-flight wireless network       |              |  |
| セルラモデム                   | Cellular modem                   |              |  |
| 地上ラインモデム                 | Landline modem                   |              |  |
| 衛星データモデム                 | Satellite data modem             |              |  |
| パーソナルコンピュータインターフェース      | Personal computer interface      |              |  |
| PDA インターフェース             | PDA interface                    |              |  |
| ミニオン                     | Minion                           |              |  |
| オプションアプリケーション特定インターフェース  | Optional                         | application  |  |
| specifying interface     |                                  |              |  |
| ビークルインターフェース             | Vehicle interface                |              |  |
| ドアロックインターフェース            | Door lock interface              |              |  |
| ユーティリティメータインターフェース       | Utility meter interface          |              |  |
| 応用インターフェース               | Application interface            |              |  |
| ビルディング制御インターフェース         | Building control interface       |              |  |
| ユーザディスプレイ                | User display                     |              |  |
| ユーザキーボード                 | User keyboard                    |              |  |
| 外部センサ                    | External sensor                  |              |  |
| 磁束                       | Magnetic flux                    |              |  |
| 温度                       | Temperature                      |              |  |
| 気象                       | Weather                          |              |  |
| 加速度／姿勢                   | Acceleration / posture           |              |  |

## 2 Cited Invention

(1) According to 1 (5) FIG. 7 above and 1 (1) Paragraph 0113 above, it can be said that Cited Document 10 describes "disposable self-contained Minion devices" equipped with "a single battery capable of obtaining a sufficient battery life for the life of the unit" as a different category from "(2) Rechargeable battery" and "(3) Solar battery".

(2) According to 1 (3) FIG. 5 above and 1 (1) Paragraphs 0019 and 0026, in Cited Document 10, it can be seen that a Minion device 110 comprises an antenna, a MinionNet radio transceiver 500, and a micro-controller 510, and the antenna is driven by the MinionNet radio transceiver 500 and the micro-controller 510.

Further, in the disposable self-contained Minion devices, it is obvious that the MinionNet radio transceiver 500 and the micro-controller 510 are driven by the battery.

(3) According to the descriptions of "messages are automatically routed through multiple device-to-device 'hops' to provide robust area coverage, redundancy, noise immunity, and dynamic routing and reconfiguration" in 1 (1) Paragraph 0010 above, and "the dynamic configuration and automatic routing aspects of the MinionNet network Protocol cause messages to be routed by the most efficient method from their origin to their ultimate destination" in Paragraph 0023, it can be said that Cited Document 10 describes that in the MinionNet network configured by Minion devices, message routing that is routing is performed.

Also, according to 1 (4) FIG. 6C above and 1 (1) Paragraph 0028 above, Minion device B receives a message from Minion device A, determines that Minion device D should get the message next, and transmits the message to Minion device D.

Then, it can be said that the above mentioned operation of Minion device B that transmits the message received from Minion device A only to Minion device D, not to Minion device C similarly communicable therewith, is routing operation for deciding a communication path of data in a network.

Further, according to 1 (1) Paragraph 0123 above, from the fact that Minion devices maintain a message routing table, it is obvious that the Minion devices described in Cited Document 10 perform the routing operation.

In addition, it is obvious that the communication control of Minion devices is performed by the micro-controller 510, and thus it can be said that the routing operation included in the communication control is performed by the micro-controller 510.

(4) Since in 1 (1) Paragraph 0023 above, it is described that "many Minion devices will

be installed in fixed locations to provide increased coverage, geolocation services, and application-specific functions", and in 1 (1) Paragraph 0229, it is described that "Minion devices could be installed at exits, stairways, restrooms, etc. in public buildings," it can be said that Minion devices described in Cited Document 10 are fixedly installed.

(5) On the basis of the above-mentioned facts, it is recognized that Cited Document 10 describes the following invention (hereinafter, referred to as "Cited Invention").

"A fixedly installed disposable self-contained Minion device comprising:

a single battery capable of obtaining a sufficient battery life for the life of the unit, which is different from a rechargeable battery or a solar battery;

a micro-controller 510 and a MinionNet radio transceiver 500 which are driven by the battery; and

an antenna which is driven by the MinionNet radio transceiver 500 and the micro-controller 510,

wherein the micro-controller 510 performs routing operation."

### 3 Regarding Cited Document 11 and Publicized prior art

Japanese Unexamined Patent Application Publication No. H10-51858 (hereinafter, referred to as "Cited Document 11") cited in the reasons for refusal by the body describes the following matters. (The underlines are applied by the body.)

(1) "[0039] Note that, although the call restriction at the time of call origination by the MS 3 has been described above, the MS 3 whose limit of use has been exceeded may be configured so as not to accept an incoming call addressed to the MS 3. FIG. 8 is a diagram showing a configuration of a disposable mobile station MS 4 according to the third embodiment (mobile station initiative battery management type).

[0040] This MS 4 is also a disposable mobile unit which itself manages the limit of use, and the memory 52 of the MS 4 stores the control program shown in FIG. 9 executed by the CPU 51 and data such as the mobile station number. However, the limit of use is managed by the life of the battery 7. For this purpose, the battery 7 is sealed in the body of the MS 4 and cannot be replaced and charged externally. On the other hand, the power switch unit 8 can only be mechanically and electrically turned on, and once being turned on by the power supply key PW, it cannot be turned off. Furthermore, the battery 7 has a power supply capacity corresponding to the use (contract) period of the MS 4, and when the use period is, for example, 3 months, it has a power supply capacity which sufficiently withstands the use of 3 months when the MS 4 is used at a normal frequency. Note that, in case where a continuous call is made by the MS 4, since the call power is greater than the standby power, there is a case where the call

power cannot be used less than 3 months later.

[0041] As described above, when the contract (use) period elapses, the battery 7 is consumed, so that the MS 4 cannot be used. Therefore, on the side of the mobile switching center, basically, it is not necessary to perform any deadline management for the MS 4. Thus, such MS 4 can be easily introduced without otherwise changing the existing mobile switching system. However, during a call of the MS 4, there may be a case where the contract deadline is exceeded (if a contract deadline is provided separately) or a case where the battery is maliciously replaced, and the expiration date may be overly extended substantially. Therefore, the mobile switching center according to this embodiment performs the deadline management in a confirmatory sense."

(2) According to (1) above, it is recognized that Cited Document 11 describes the following art (hereinafter, referred to as "Publicized prior art").

"A disposable mobile unit, wherein a battery is sealed in a body and cannot be replaced and charged externally."

#### No. 5 Comparison

In comparison between the Invention and Cited Invention, the following are recognized.

1 Although "a single battery capable of obtaining a sufficient battery life for the life of the unit, which is different from a rechargeable battery or a solar battery" of Cited Invention is not specified as "cannot be detachably replaced," it is common to the Invention in that it can be said to be "an autonomous power supply (excluding one using a solar cell) which does not have other power supply receiving paths".

2 It can be said that "a MinionNet radio transceiver 500" of Cited Invention is "a communication circuit". Then, it is optional to refer to "a micro-controller 510 and a MinionNet radio transceiver 500" of Cited Invention as "a communication control circuit that includes a communication circuit".

In view of the above, "a micro-controller 510 and a MinionNet radio transceiver 500 which are driven by the battery" of Cited Invention correspond to "a communication control circuit that includes a communication circuit driven by the autonomous power supply" of the Invention.

3 "An antenna which is driven by the MinionNet radio transceiver 500 and the micro-controller 510" of Cited Invention corresponds to "an antenna driven by the communication control circuit" of the Invention.



4 Since it can be said that the micro-controller 510 performing routing operation has a routing function means, Cited Invention is identical to the Invention in that it can be said that "the communication control circuit has a routing function means".

5 Since it can be said that a self-contained Minion device that is not especially specified as a large wireless device includes "a small" wireless device, "a fixedly installed disposable self-contained Minion device" of Cited Invention is identical to the Invention in that it can be said to be "a fixedly installed autonomous small wireless device".

Based on the above, the Invention and Cited Invention are identical to and different from each other in the following features.

#### Corresponding Feature

"A fixedly installed autonomous small wireless device comprising:  
an autonomous power supply (excluding one using a solar cell) which does not have other power supply receiving paths;  
a communication control circuit that includes a communication circuit driven by the autonomous power supply; and  
an antenna driven by the communication control circuit,  
wherein the communication control circuit has a routing function means."

#### Different Feature

"An autonomous power supply (excluding one using a solar cell) which does not have other power supply receiving paths" that is the corresponding feature "cannot be detachably replaced" in the Invention, whereas although, in Cited Document, a self-contained Minion device of Cited Document is "disposable" and is fed by "a single battery capable of obtaining a sufficient battery life for the life of the unit, which is different from a rechargeable battery or a solar battery," the battery is not specified as "cannot be detachably replaced".

#### No. 6 Judgment

As mentioned in No. 4 3 (2), "A disposable mobile unit, wherein a battery is sealed in a body and cannot be replaced and charged externally" is Publicized prior art. Then, Cited Invention and Publicized prior art belong to a common technical field in that they are apparatuses fed by a single battery capable of obtaining a sufficient battery life for the life of the unit, and thus it can be said that it could have been easily conceived by a person skilled in the art that "a single battery capable of obtaining a

sufficient battery life for the life of the unit, which is different from a rechargeable battery or a solar battery" of Cited Invention is sealed in the body so as not to be replaced externally; namely, is made to be one that "cannot be detachably replaced" by applying Publicized prior art to Cited Invention.

Meanwhile, here, the eligibility of Cited Invention for Publicized prior art will be examined.

1 The appellant, in the written opinion "(1) Regarding Reason 1" submitted on January 7, 2019, argues that the technology described in Cited Document 10 does not fall under "an invention available" to the public through electric telecommunication lines of Article 29(1)(iii) of the Patent Act.

However, it can be said that Cited Document 10 (National Publication of International Patent Application No. 2003-508939) that is a National publication of an International Patent Application is a "publication distributed" in Japan prior to the filing of the application, and thus Cited Invention based on the described matters of Cited Document 10 falls under an invention described in publications distributed in Japan which is prescribed in Article 29(1)(iii) of the Patent Act.

2 The appellant's argument in the written opinion "(1) Regarding Reason 1" submitted on January 7, 2019 that the technology described in Cited Document 10 is not described clearly and sufficiently to enable a person of ordinarily skilled in the art to which the Invention pertains to work it will also be examined.

Concerning the eligibility of Cited Invention for Publicized prior art, it is held that "so as to say that it is 'an invention described in publications distributed' prior to the filing of the application, it is necessary to disclose technical ideas to the extent that the technical ideas can be implemented, to the extent necessary for comparison with the contents of the patent invention, etc., specified by the description of the Scope of Claims, when a person skilled in the art view the publications, on the basis of the technical level at the time of filing the application, and it is reasonable to understand that it is enough. For example, in the case where the patent invention, etc. is an invention of an 'article,' as the description of publications to be compared with the patent invention, etc., it is necessary to disclose the constitution of the 'article' to the extent necessary for comparison with the contents of the patent invention, etc., but so long as a person skilled in the art can obtain or manufacture, and use the 'article' on the basis of the descriptions in the publications and the common general technical knowledge at the time of the filing the application, the publications do not necessarily have to disclose a specific method for manufacturing the 'article'. Further, even if it is

not the specific 'article' itself described in the publications, if it is possible to obtain or manufacture, and use an 'article' having similarity to the 'article' to the extent necessary for comparison with the contents of the patent invention, etc., it should be said to be enough." (2006 (Gyo-Ke) No. 10316)

(1) Then, first, we will examine whether or not a person skilled in the art can manufacture and use Cited Invention based on the description of Cited Document 10.

A It is obvious that the battery of Cited Invention is an ordinary battery that is different from a rechargeable battery or a solar battery, and can be implemented by a person skilled in the art.

B It is obvious that "the micro-controller 510" of Cited Invention can be implemented with use of any microprocessor by a person skilled in the art, based on the description "Preferably, the micro-controller is any microprocessor or controller which can be programmed to meet the functional needs of the Minion device" in 1 (1) Paragraph 0026 above.

C It is obvious that "the MinionNet radio transceiver 500" of Cited Invention can be implemented with use of a publicly known ASH transceiver by a person skilled in the art, based on the description "preferably, the transceiver 500 comprises an amplifier sequenced hybrid (ASH) transceiver such as disclosed in U.S. Pat. No. 5,787,117, the entire disclosure of which is incorporated herein by reference" in 1 (1) Paragraph 0027 above.

D It is obvious that the antenna of Cited Invention can be implemented as any omnidirectional antenna or any directional antenna by a person skilled in the art, based on the descriptions of 1 (1) Paragraphs 0109 to 0112.

E Although, regarding the routing operation in the nodes in the network, the explanation is omitted because it is a long sentence, it can be said that it can be implemented by a person skilled in the art, based on the descriptions about the control of the transceiver 500 by the micro-controller 510 in Paragraphs 0034 to 0108 of Cited Document 10, and the descriptions about the outline of the  $\mu$ Minion firmware in Paragraphs 0257 to 0370.

F It can be said that the point that the device is fixedly installed is a matter that a person skilled in the art is well capable of implementing.

Therefore, according to A to F above, it can be said that a person skilled in the art can manufacture and use Cited Invention based on the description of Cited Document 10.

(2) Furthermore, the common general technical knowledge at the time of the filing the application will be also examined.

A wireless device performing routing operation was a matter of common general technical knowledge at the time of the filing the application, which is determined by a communication standard mentioned in "2.5.5.5.2 ZigBee Router" "3.6.3 Routing" of ZigBee SPECIFICATION, ZigBee Document 053474r20, ZigBee Alliance, September 7, 2012, <http://www.zigbee.org/wp-content/uploads/2014/11/docs-05-3474-20-0csg-zigbee-specification.pdf>, for example.

Also, since it is obvious that the wireless device is composed of a power supply including a battery, a controller, a radio transceiver, and an antenna, it can be said that a person skilled in the art can manufacture and use Cited Invention, also based on the description of Cited Document 10 and the common general technical knowledge at the time of filing the application.

(3) As described in (1) or (2) above, since it can be said that Cited Document 10 "discloses technical ideas to the extent that the technical ideas can be implemented, to the extent necessary for comparison with the contents of the patent invention, etc., specified by the description of the Scope of Claims, when a person skilled in the art views the publications, on the basis of the technical level at the time of filing the application," there is no problem in comparing Cited Invention with the Invention as "an invention described in publications distributed"; that is, a publicly known invention of Article 29(1)(iii) of the Patent Act, in order to judge the presence/absence of the inventive step of the Invention.

#### No. 7 Closing

As described above, the Invention could have been easily made by a person skilled in the art based on the Cited Invention and the publicized prior art, and thus the appellant should not be granted a patent for it under the provisions of Article 29(2) of the Patent Act. Thus, the present application should be rejected without examining other claims.

Therefore, the appeal decision shall be made as described in the conclusion.

February 22, 2019

Chief administrative judge: IWAMA, Naozumi  
Administrative judge: MATSUNAGA, Minoru  
Administrative judge: KURAMOTO, Atsushi