Examination Guidelines pertinent to IoT Related Technologies

～Application of Examination Guidelines and Examination Handbook to IoT, AI, 3D printing technologies, etc. ～

Examination Standards Office,

Administrative Affairs Division,

Japan Patent Office

March, 2017

1.Summary of Patent System

1－1. Patentable invention

What is a patentable invention?

- It is necessary for an invention to satisfy <u>the requirements regulated by Patent Law</u> to obtain a patent.
- Major requirements regulated by Patent Law are as follows[1]:

> Invention is a statutory invention（Article 2 (1))[2]

> Invention is industrially applicable (main paragraph of Article 29(1))

> Invention has novelty (Article 29 (1))

> Invention involves inventive step (Article 29 (2))

> Invention for which a patent is sought is clear (Article 36 (6) (ii))

> Invention satisfies enablement requirements (Article 36 (4) (i))

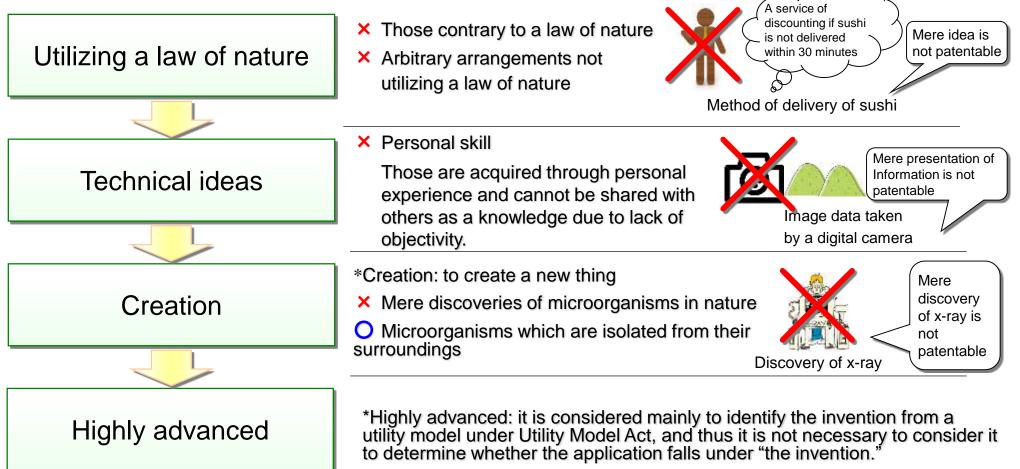[1] Patent Law regulates requirements other than those described herein; for example, a patent is not granted when an application claiming the identical invention has previously been filed (Articles 39 and 29bis), an invention which is contrary to public order and morality shall not be patented (Article 32).
[2] Reasons for refusal is notified due to violation of main paragraph of Article 29 (1).

What is a patentable invention?

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> **"Invention" shall be a statutory invention**

> "Invention" is a highly advanced creation of technical ideas utilizing a law of nature.
> (Patent Law, Article 2(1))

| Utilizing a law of nature | × Those contrary to a law of nature
× Arbitrary arrangements not utilizing a law of nature | A service of discounting if sushi is not delivered within 30 minutes
Mere idea is not patentable
Method of delivery of sushi |

| Technical ideas | × Personal skill
Those are acquired through personal experience and cannot be shared with others as a knowledge due to lack of objectivity. | Mere presentation of Information is not patentable
Image data taken by a digital camera |

| Creation | *Creation: to create a new thing
× Mere discoveries of microorganisms in nature
○ Microorganisms which are isolated from their surroundings | Mere discovery of x-ray is not patentable
Discovery of x-ray |

| Highly advanced | *Highly advanced: it is considered mainly to identify the invention from a utility model under Utility Model Act, and thus it is not necessary to consider it to determine whether the application falls under "the invention." |

What is a patentable invention ?

Industrially Applicable

× Methods of surgery, therapy or diagnosis of humans
(Medical devices and drug products are considered
to be industrially applicable)

Novelty

× Publicly known invention (an announcement, TV broadcast)
× Publicly worked invention
× Inventions described in publications (patent publications,
research papers, books, Internet, etc.)

Inventive Step

× An invention which can be easily made by a person skilled
in the art* based on inventions etc. described in
publications.

*A person skilled in the art: a person who has a general
knowledge in the technical field for which an invention pertains.

Clear

The statement of the claims for which the patent is sought
should be clear.

Enablement Requirements

The detailed description of the invention should be described
in a manner sufficiently clear and complete for the invention
to carry out the claimed invention based on the
matters described in the description and drawings.

1.Summary of Patent System

Patent Application

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Description ◎Explaining in detail the content of the invention

Title of the invention

Detailed description of the invention
・Background art
・Prior art
・Problems to be solved by the invention
・Effects of the invention
・Examples
・・・

Brief description of
 the drawings (where required)

etc.

Claims

・Claim 1 ・・・,　・Claim 2 ・・・,　・・・

Abstract ◎ Describing the point of the invention briefly

Drawings (where required) ◎Drawing(s) useful for understanding of the invention

Patent Application

Description ◎Explaining in detail the content of the invention

Title of the invention

Detailed description of the invention
・Background art
・Prior art
・Problems to be solved by the invention
・Effects of the invention
・Examples
・・・

etc.

> ・ **Detailed description of the invention should be described in a manner sufficiently clear and complete for the invention to carry out the claimed invention.**

Claims

・Claim 1 ・・・,　・Claim 2 ・・・,

> **・Technical scope in exercising the patent right**
> **・Describing the invention for which the patent is sought**
> **・Subject to the substantial examination**

Abstract ◎ Describing the point of the invention briefly

Drawings (where required) ◎Drawing(s) useful for understanding the invention

How to formulate a patent application (Example)

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Description

Title of the invention "A cup"

Detailed description of the invention

An example of a cup made of **aluminium**

An example of a cup made of **copper**

Description of various examples of the invention

Claims

"A cup made of **metal**"

- If "a cup made of aluminium" is described, a patent right for a cup made of metal other than aluminium cannot be exercised.

- If "a cup made of copper" is described, a patent right for a cup made of metal other than copper cannot be exercised.

- If "a cup made of metal" is described, a patent right for a cup made of any kinds of metal can be exercised,

- However, if "a cup made of metal" is described and "a cup made of stainless" is known, the invention is considered not to have novelty.

- To obtain a patent right with a broader claim, it is necessary to describe various examples in "Detailed description of the invention".

Metal

Aluminium

Copper

Stainless

1.Summary of Patent System

Flow of examination of patent application (overview)

★Judgment based on "patent / utility model examination guidelines"

Application is filed for a patent → 18 months → Publication

Within 3 years

Request for examination

Substantive examination

If there are reasons for refusal

Notification of reasons for refusal

If there are no reasons for refusal

Submission of written opinion/amendment

If there are new reasons for refusal

If the reasons for refusal are not solved

Decision of refusal

If the reasons for refusal are solved

Decision to grant a patent → **Registration to establish patent**

Supreme Court

IP High Court

Appeal

Trial for invalidation

Opposition

Patent right | 20 years from filing the application

* Third parties can inspect the documents such as a notification of reasons for refusal, and also can offer information.

Patent gazette

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The 4th industrial revolution caused by IoT, AI, etc.

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🔸 Based on the technological innovation in the fields such as IoT(Internet of Things), AI (Artificial Intelligence), etc., it is expected that the 4th industrial revolution will be brought about through utilization of big data and AI.

Automatization with computers (robots・Internet)

The 4th industrial revolution

Innovation of power (electric power・motor)

The 3rd industrial revolution

The 2nd industrial revolution

Acquiring power (steam engine)

The 1st industrial revolution

Collecting data from various "things" by IoT technologies
➡ Analyzing and learning collected big data with AI
➡ Optimization of computers and systems

IoT

AI

Technologies which properly control collected big data, and then analyze and learn from the data are important as a source for securing industrial competitiveness.

Optimization of computers and systems

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Development of IoT related technologies

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- Rapid progress is being made in research & development and application to business of "technologies that utilize information obtained by connecting "Things" to networks, thereby finding new values and services" (IoT (Internet of Things) related technology).
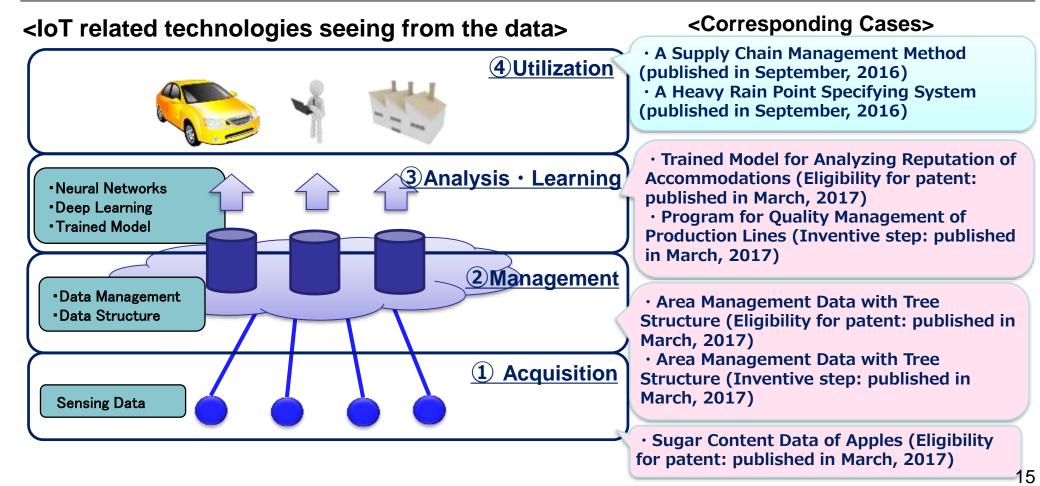
<Example>
A sensor for detecting road conditions transmits information of road traffic vibration to a server. The server provides appropriate maintenance information by assessment of road conditions including unevenness of roads from the vibration information.

<Example>
A sensor attached to a parcel transmits location information to a server. The server provides a shipping carrier with an optimum delivering route based on the location information and information on traffic congestion on the Web as required.

Office equipment
Ex.) Management and supply of consumable items

Logistics
Ex.) Real-time tracking

Railway
Ex.) Adjustment of operation intervals

Things

New Values and services

Utilizing information（collection・analysis）

Information

Life line
Ex.) Adjustment of supply of power

Transport Infrastructure
Ex.)Road maintenance

Industrial robots
Ex.) Extraction of optimum working conditions

Communication networks

Utilizing information（control・notification）

Healthcare
Ex.) Healthcare using wearable device

Information

Things

Things

New Values and services

Construction machinery
Ex.) Decision of maintenance timing

Housing
Ex.) 24 hour remote watching system

Animal husbandry
Ex.) Evaluation of health conditions

Automobiles
Ex.) Unmanned taxis

Agriculture and forestry
Ex.) Prediction of crop yields

Disaster prevention
Ex.) Prediction of flood

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Overview of IoT related technologies

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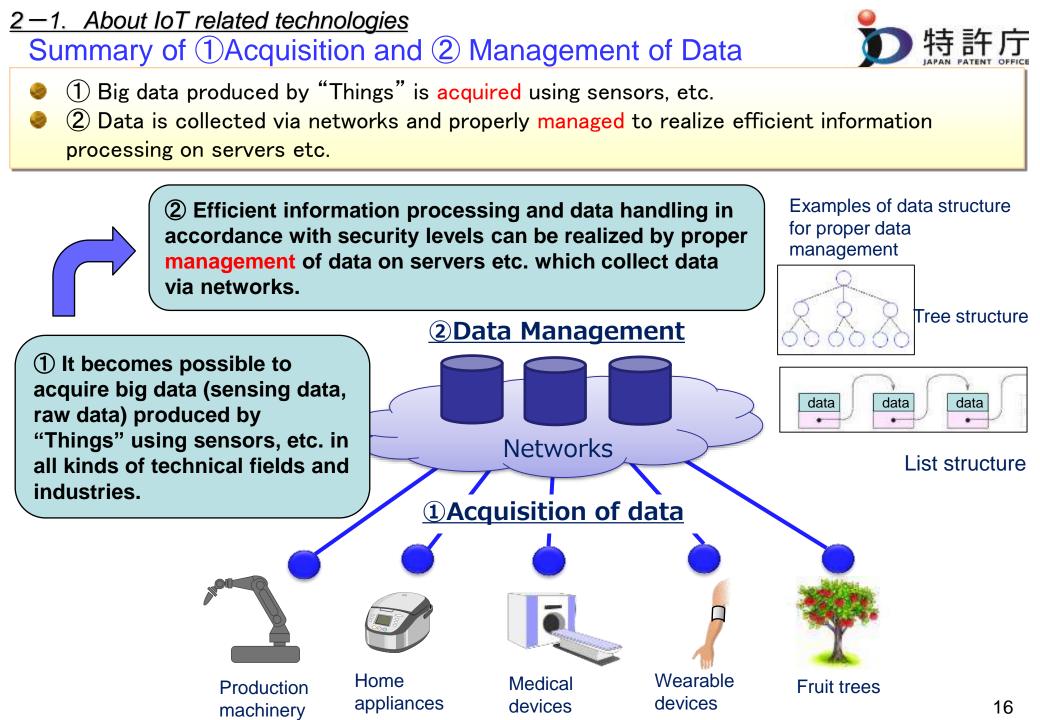
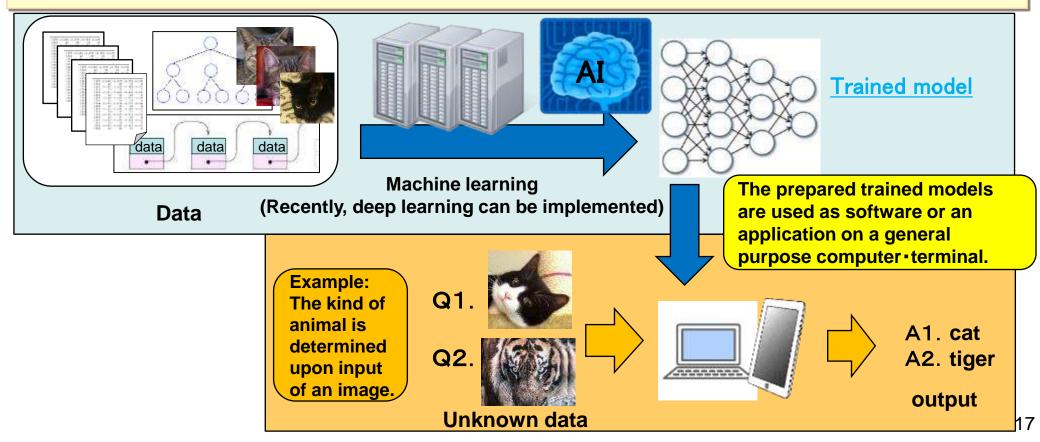- IoT related technologies are utilized in various technical fields.
- When considered from the perspective of "data", which is becoming more and more important, the IoT related technologies: ① acquire various data, ② manage data collected via networks, ③ analyze and learn big data using AI etc., and ④ utilize data while finding out new values and services.

<IoT related technologies seeing from the data>
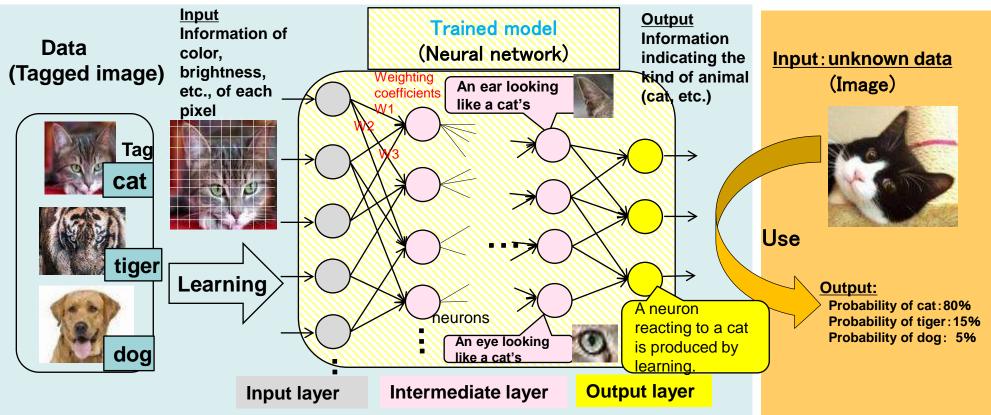
<Corresponding Cases>

④Utilization

③Analysis・Learning

- Neural Networks
- Deep Learning
- Trained Model

②Management

- Data Management
- Data Structure

① Acquisition

Sensing Data

・**A Supply Chain Management Method (published in September, 2016)**
・**A Heavy Rain Point Specifying System (published in September, 2016)**

・**Trained Model for Analyzing Reputation of Accommodations (Eligibility for patent: published in March, 2017)**
・**Program for Quality Management of Production Lines (Inventive step: published in March, 2017)**

・**Area Management Data with Tree Structure (Eligibility for patent: published in March, 2017)**
・**Area Management Data with Tree Structure (Inventive step: published in March, 2017)**

・**Sugar Content Data of Apples (Eligibility for patent: published in March, 2017)**

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Summary of ①Acquisition and ② Management of Data

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- ① Big data produced by "Things" is acquired using sensors, etc.
- ② Data is collected via networks and properly managed to realize efficient information processing on servers etc.

② **Efficient information processing and data handling in accordance with security levels can be realized by proper management of data on servers etc. which collect data via networks.**

Examples of data structure for proper data management

Tree structure

② **Data Management**

List structure

① **It becomes possible to acquire big data (sensing data, raw data) produced by "Things" using sensors, etc. in all kinds of technical fields and industries.**

Networks

① **Acquisition of data**

Production machinery

Home appliances

Medical devices

Wearable devices

Fruit trees

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③ Summary of Analysis and Learning of Data

- ③ Data analysis and learning are mostly implemented by machine learning of AI.
- There are various types of machine learning, and in recent years, deep learning using neural networks with multi-layer structures can be realized by the dramatic progress of computational performance, and high-quality trained models can be realized based on big data.
- Trained models prepared beforehand can output correct answers even to unknown data.

Data

Machine learning
(Recently, deep learning can be implemented)

Trained model

The prepared trained models are used as software or an application on a general purpose computer・terminal.

Example: The kind of animal is determined upon input of an image.

Q1.

Q2.

Unknown data

A1. cat
A2. tiger

output

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Trained Model
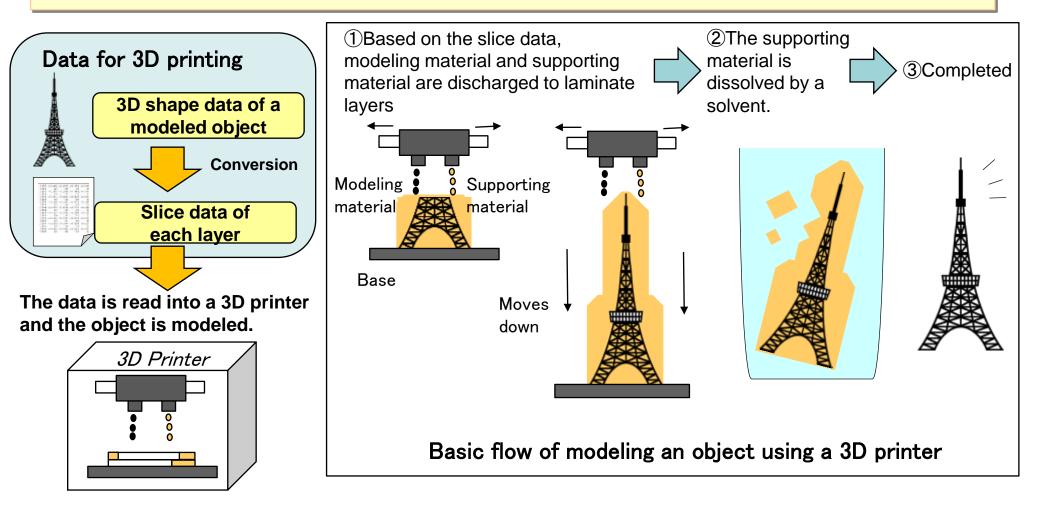
- **Trained models** which simulate the mechanism of neural circuits of the human brain are normally formed of a combination of (i) a program calculating from input to output and (ii) weighting coefficients (parameters) used for said calculation.

- **Weighting coefficients** among neurons in each layer of a neural network are optimized by machine learning so that correct answers can be output to various input data.
- **Deep learning is the machinery learning method using a neural network where the intermediate layer is formed of multiple layers, and can produce high-quality trained models.**

Data (Tagged image)

Tag: **cat**, **tiger**, **dog**

Learning

Input Information of color, brightness, etc., of each pixel

Trained model (Neural network)

Weighting coefficients W1, W2, W3

An ear looking like a cat's

neurons

An eye looking like a cat's

A neuron reacting to a cat is produced by learning.

Output Information indicating the kind of animal (cat, etc.)

Input：unknown data (Image)

Use

Output:
Probability of cat：80%
Probability of tiger：15%
Probability of dog： 5%

Input layer　**Intermediate layer**　**Output layer**

Data for 3D Printing

As well as IoT and AI related data, attention has been paid also on data for 3D printing as 3D printing technology advances and networks spread.

Data for 3D printing

3D shape data of a modeled object

↓ **Conversion**

Slice data of each layer

The data is read into a 3D printer and the object is modeled.

3D Printer

①Based on the slice data, modeling material and supporting material are discharged to laminate layers

Modeling material   Supporting material

Base

②The supporting material is dissolved by a solvent.

Moves down

③Completed

Basic flow of modeling an object using a 3D printer

Major Examination Guidelines associated with IoT related technologies

Examination Guidelines for Patent and Utility Model

Part III Chapter 1 Eligibility for Patent and Industrial Applicability
Part III Chapter 2 Novelty and Inventive Step

Examination Handbook for Patent and Utility Model

Annex B Chapter 1 Computer software related inventions

- See also the below.※
  Annex A Case Examples under "Examination Guidelines"
  Annex D Court Precedents under "Examination Guidelines"
  Reference documents : Case examples pertinent to IoT related technologies, etc.

Reference documents integrate IoT, AI and 3D printing related technologies described in Annex A and Annex B.

Eligibility for Patent

- IoT related technologies may require computer software.
- Determination on eligibility for patent for IoT related technologies has no difference from determination on eligibility for patent for other technologies which require computer software.

Patent Act (the first sentence of Article 29 (1))

Any person who has made an invention which is industrially applicable may obtain a patent therefor …

Examination Guidelines (Part III, Chapter 1. 2 Determination on Requirements of Eligibility for Patent)

To be considered as a statutory "invention", an invention needs to be "a creation of a technical idea utilizing a law of nature".

The following are not considered as statutory "inventions" (unpatentable inventions).

- A law of nature as such
- Mere discoveries and not creations
- Those contrary to a law of nature
- Those in which a law of nature is not utilized
- Those not regarded as technical ideas
- Those for which it is clearly impossible to solve the problems to be solved by any means presented in a claim

The claimed invention as a whole needs to utilize a law of nature.

- Even if a part of matters in a claim does not utilize a law of nature, when it is judged that the claimed invention as a whole utilizes a law of nature, it falls under a statutory "invention".
- Even if a part of matters in a claim utilizes a law of nature, when it is judged that the claimed invention as a whole does not utilize a law of nature, it does not fall under a statutory "invention".

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Eligibility for Patent

Eligibility for patent on an invention utilizing computer software

> Even if part of matters in a claim utilizes a device, system, computer software, etc., there are cases where the claimed invention as a whole does not utilize a law of nature; therefore, it should <u>be carefully considered</u> whether or not the claimed invention falls under a "creation of a technical idea utilizing a law of nature".

■ As shown as items (i) and (ii) below, those <u>utilizing a law of nature as a whole</u> and considered as a "creation of a technical idea utilizing a law of nature", <u>irrespective of whether computer software is utilized, satisfy the requirement of eligibility for patent without needing being examined from a viewpoint of computer software</u>. (Examination Guidelines, Part III, Chapter 1, 2.2)

  (i) Those concretely performing control of an apparatus, or processing with respect to the control (e.g. engine control).

 (ii) Those concretely performing information processing based on the technical properties of an object (e.g. image processing).

■ Eligibility of inventions created to utilize computer software as a whole, including computer software for business, computer software for games, and computer software for math operations, is determined as shown below (Examination Handbook, Annex B, Chapter 1) :

●   Where information processing by the software is specifically implemented by using hardware resources*, the invention satisfies the requirements of eligibility for patent.

    * Specifically, <u>eligibility is satisfied when software and hardware resources cooperate to constitute a specific information processing device or its operating method in accordance with the purpose of use.</u>

Eligibility for Patent (Data)

● When data corresponds to mere presentation of information, the application does not fall under a statutory "invention".

Examination Guidelines, Part III, Chapter 1 Eligibility for Patent and Industrial Applicability

2.1 "List of Subject Matters Not Corresponding to Statutory "Inventions" "
  When a claimed invention is considered as any of (i) to (vi) shown below, the claimed invention is not deemed to be "the highly advanced creation of technical ideas utilizing the Laws of nature (Article 2 (1))", and thus does not fall under a statutory "invention".

(i) Mere presentation of information (Only the contents of presented information have a feature and the main object is to present information)
  ✓ Ex. Image data taken by a digital camera
(ii) Arbitrary arrangements (e.g., a rule for playing a game as such)
(iii) Mathematical formula
(iv) Mental activities of humans
(v) Personal skill (which is acquired through personal experience and cannot be shared with others as knowledge due to lack of objectivity)
(vi) Mere aesthetic creations

Eligibility for Patent (Data)

● ”Structured data" and "Data structure" among data can be considered as "Those equivalent to programs".

Definition of Article 2 of Patent Act
➢ An invention of a "product" includes a "program, etc." (Article 2, (3) (i))
➢ "Programs, etc." include "programs" and "other information equivalent to programs to be used for computer processing (hereinafter referred to as "those equivalent to programs" . (Article 2, (4))
➢ "Programs" mean a set or sets of instructions to a computer which are combined so as to produce a result. (Article 2, (4))
➢ "Those equivalent to programs" mean those which are not direct instructions to computers and thus cannot be called programs, but have similar properties to programs in terms of prescribing computer processing（Text-tracing Manual for Industrial Property Law).

Examination Handbook Annex B Chapter 1 "Computer software related inventions" 2.1.2 Handling of "structured data" and "data structure"
➢ As examples of "those equivalent to programs", there are "structured data" and "data structure"(＊), those of which have similar properties to computer programs in terms of prescribing computer processing.
➢ "Programs" and "those equivalent to programs" are both called "software".

(＊)"Data structure" indicates "the logical structure of data represented by mutual relationships among data elements".

Eligibility for Patent (Data and Trained Model)

- "Structured data" and "Data structure" equivalent to programs shall be assessed to determine whether or not they can be considered to be statutory "inventions" as software.
- When it is clear that a trained model is a "program", it shall be handled as a "program".

Examination Handbook, Annex B, Chapter 1 "Computer Software Related Inventions", "1.2.1.2 Points to note"

If it is clear that the claimed invention is a "program" in consideration of the description and drawings and the common general knowledge at the time of filing, the claimed invention is handled as a "program" even if the end of claim is any word other than "program" (for example, "module", "library", "neural network", "support vector machine" or "model").

Novelty

> ● IoT related technologies are generally realized as a system where several devices and terminals are connected through a network, and therefore a part of the system may be applied for a patent as a sub-combination invention [(*)].
>
> ● Novelty of sub-combination inventions of IoT related technologies is determined in the same way as that of sub-combination inventions in other technical fields.

[(*)] In the case of an invention of the overall apparatus made of a combination of two or more devices, or an invention of a manufacturing method formed of a combination of two or more processes (combination), a sub-combination invention refers to an invention of each device combined to form the overall apparatus or an invention of each process.

Specifying the sub-combination invention in the determination on novelty

Examination Guidelines (Part III, Chapter 2, Novelty and Inventive Step)

♦ When specifying the claimed invention, the examiner should consider elements relevant to "another sub-combination" stated in the claim and not ignore them in specifying the claimed invention.

♦ The examiner should also understand the role which the elements have in specifying the sub-combination invention from the aspect of its structure, function, etc. when he/ she specifies the claimed sub-combination invention.

♦ In this regard, the examiner should take into account the statements in the description and drawings as well as the common general knowledge at the time of filing.

(Part III, Chapter 2, Section 4 4. Cases where an element relevant to "another sub-combination" has a role in specifying the claimed sub-combination invention. "4.1 Specifying the claimed invention")

Novelty

A case where there is a statement which is intended to specify a sub-combination invention by using an element relevant to "another sub-combination". (1)
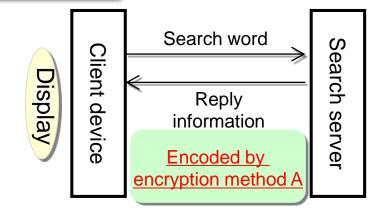
When an element relevant to "another sub-combination" specifies a structure, function, etc. of a sub-combination.

The sub-combination invention is specified as having such structure, function, etc.

If the one having the structure, function, etc. is not known, then it is novel.

Example: A client device transmitting a search word to a search server, decoding reply information directly received from the search server using a decoding means, and displaying a search result on a display means, wherein the search server encodes and transmits the reply information by an encryption method A.

Element relevant to "another sub-combination"

From the element relevant to that "another sub-combination" invention, and considering the common general knowledge, the sub-combination invention of client device is identified as an invention of a client device having a function of performing a decoding process corresponding to the encryption method A.

Display

Client device

Search word

Reply information

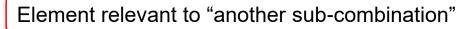Encoded by encryption method A

Search server

Novelty

A case where there is a statement which is intended to specify a sub-combination invention by using an element relevant to "another sub-combination". (2)
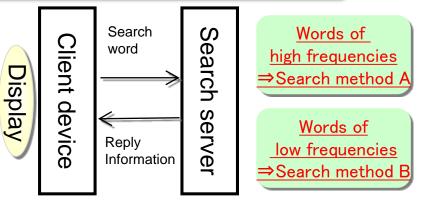
When an element relevant to "another sub-combination" <u>does not specify</u> any structure, function, etc. of a sub-combination.

⇒ The sub-combination invention is specified as <u>not having such structure, function, etc.</u>

Example: A client device transmitting a search word to a search server, receiving replay information, and displaying the result of search on display means, wherein <u>the search server changes the method of search on the basis of the frequency of appearance of search words.</u>

Element relevant to "another sub-combination"

The element relevant to that "another sub-combination" specifies the search server, but <u>does not at all specify the structure, function, etc.</u> of the sub-combination invention or the client device

Display

Client device

Search word

Reply Information

Search server

Words of high frequencies ⇒Search method A

Words of low frequencies ⇒Search method B

Part III, Chapter 2, Section 4 "4. Expression Specifying the Invention of Sub-combination by Elements of "Another Sub-combination"

Inventive step

- Inventive step of IoT, AI and 3D printing related technologies is determined in the same way as inventions related to other technologies.
- Inventions in the fields of IoT and the like, when compared with cited inventions, may provide advantageous effects brought about by utilization of information obtained as "Things" are connected to the network, particular output information obtained from specific trained models, or particular information processing defined by data having specific structure. In such cases, the effects should be considered as one of the "factors in support of the existence of an inventive step" in determination of inventive step.

Examination Guidelines (Part III, Chapter 2 Novelty and Inventive Step)

The examiner comprehensively assesses various factors in support of the non-existence of an inventive step and in support of the existence of an inventive step.

Factors working against inventive step

1. Motivation for applying secondary prior art to primary prior art
   (1) Relation of technical fields
   (2) Similarity of problems to be solved
   (3) Similarity of operations or functions
   (4) Suggestions shown in the contents of the cited invention
2. Design variation of the primary cited invention
3. Mere aggregation of prior art

Factors working for inventive step

1. Advantageous effects

2. Obstructive factors
   Example: It is contrary to the purpose of the primary prior art to apply the secondary prior art to the primary prior art.

Part III, Chapter 2, Section 2 "3. Detail of Determination of Inventive Step"

(Information) Comparison among countries

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	JPO	USPTO	EPO	SIPO	KIPO
Determination on eligible subject matter of CS/BM related inventions *CS (Computer software), BM (Business model)	·Is it a creation of a technical idea utilizing a law of nature? ·Is information processing by software specifically implemented by using hardware resources?	Two step test i) Is the claim directed to an abstract idea ? ii) Does the claim recite additional elements that amount to significantly more than the abstract idea? (Determination similar to inventive step) (Note 1)	Presence or absence of technical character (For instance, when the technical means such as a computer, computer network, etc., is used, the invention has the technical character).	Presence or absence of three technical elements ·Technical problem ·Technical means ·Technical effect (Note 3)	▪ Is it a creation of a technical idea utilizing a law of nature? ·Is information processing by software specifically implemented by using hardware resources?
Points of note in determination on inventive step of CS/BM related inventions	None	None	Pure non-technical aspects that do not contribute to the technical character are not taken into account in inventive step judgment	None	None
Eligibility of computer programs	Eligible subject matter	Eligible subject matter (when recorded on a recording medium)	Eligible subject matter (Note 2)	Eligible subject matter (when recorded on a recording medium (Note 4)	Eligible subject matter (when recorded on a recording medium)
Eligibility of data as mere presentation of information	Ineligible subject matter	Ineligible subject matter	Ineligible subject matter	Ineligible subject matter	Ineligible subject matter
Eligibility of structured data and data structure	Eligible subject matter	Eligible subject matter (when recorded on a recording medium)	Eligible subject matter	(There is no special provision in examination guidance)	Eligible subject matter (when recorded on a recording medium)

Note 1: The table shows particularly important arguments in the two-step test that are made in the assessment of eligibility of CS and BM related inventions. In this test, it is also determined whether the claim is directed to a process, machine, manufacture or composition of matter.

Note 2: A computer program is not considered to be an invention under Article 52 (2) of EPC, however, if the claimed subject-matter has a technical character it is not excluded from patentability(Guidelines for Examination, Part G, Chapter II, 3.6)

Note 3: An explanation on the eligibility of BM related inventions was added in the revised Examination Guidelines which came into force in Apr. 1, 2017, and it was clarified that the BM related inventions which include technical features are not necessarily ineligible.
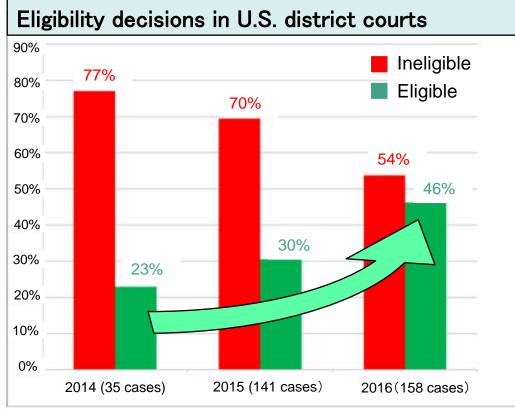
Note 4: This is based on the revised Examination Guidelines which came into force in Apr. 1, 2017.

(Information) Recent state of eligibility assessment of CS related inventions in the U.S.

Trend of decisions of the U.S. courts

Immediately after the U.S. Supreme Court's Alice decision in June 2014 (*1), there was a succession of decisions denying eligibility of CS related inventions.

After that, the application of the two-step test is increasingly promoted and the number of decisions finding patent eligibility is increasing.

(∗1) Alice Corp. v. CLS Bank International, 134 S. Ct. 2347

Eligibility decisions in U.S. district courts

※From: Robert T. Sachs, BILSKIBLOG (http://www.bilskiblog.com/)

- • Trend of Examination of the United States Patent and Trademark Office (USPTO)

- ✓ In order to overcome rejections refusing eligibility of CS related inventions, it may be effective to argue by citing and referring to decisions made after May 2016 (*2), stating <u>inventions made to provide technical improvements are not abstract ideas but do involve eligibility,</u> or to argue by citing and referring to materials (*3) made public regarding to eligibility by the USPTO.

- ✓ It may also be effective to allege in an interview with the examiner, so as to overcome the rejection, similarities between the invention at issue and an invention which has been found eligible in court.

- ✓ It is still difficult to win allowance of eligibility of business methods unrelated to technical improvement.

(∗2) Enfish, LLC v. Microsoft Corp., 822 F.3d 1327 (Fed. Cir. 2016)、McRO, Inc. v. Bandai Namco Games AM. Inc., 2016 U.S. App. LEXIS 16703 (Fed. Cir. 2016), etc.

(∗3) https://www.uspto.gov/patent/laws-and-regulations/examination-policy/subject-matter-eligibility

※These suggestions are based on comments and views of some experts (U.S. patent lawyers).

Fuller case examples about IoT related technologies

Providing fuller case examples about IoT related technologies

Applications about IoT, AI and 3D printing related technologies have conventionally been filed and patented.
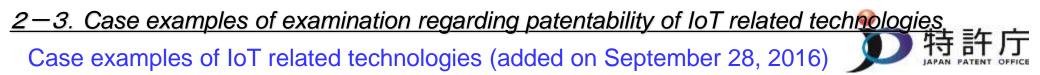
> Patent examination on technologies related to IoT etc. has conventionally been conducted without particular problems on the basis of the current Examination Standards.

Currently, as technologies of IoT etc. advance, it is required that **fuller case examples be shown to indicate how Examination Standards are applied** to patent applications about IoT etc.

Twelve case examples about IoT related technologies were added on September 28, 2016, and **11 case examples** about IoT, AI and 3D printing related technologies were added on March 22, 2017 to **Annex A and Annex B** of Examination Handbook.

Published on the Website of the Japan Patent Office（Japanese and English versions）
https://www.jpo.go.jp/shiryou/kijun/kijun2/handbook_shinsa.htm
https://www.jpo.go.jp/tetuzuki_e/t_tokkyo_e/handbook_sinsa_e.htm

※You can find materials as "Case examples pertinent to IoT etc. related technologies" in section "Reference documents" at the ends of the sites.

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Case examples of IoT related technologies (added on September 28, 2016)

Case examples (added to Annex A and Annex B of Examination Handbook)

- Cases were prepared to clearly show the points of inventions and issues discussed based on Examination Standards.
- Cases in various technical fields were prepared regarding mainly to (4) Utilization of data in IoT.

1. Eligibility for Patent (Annexes A and B)

Operation Method and Operation Program for Electric Rice Cooker······ : Case 4-2 (Annex A)
Method and System of Allocating Unmanned Autonomous Vehicle ······ : Cases 2-9, 2-10 (Annex B)

2. Novelty (Annex A)

Robot Apparatus ··· : Case 35
Water Treatment Apparatus ·· : Case 36
Healthcare System and Terminal ································· : Case 37
Drone Monitoring System and Drone ····························· : Case 38
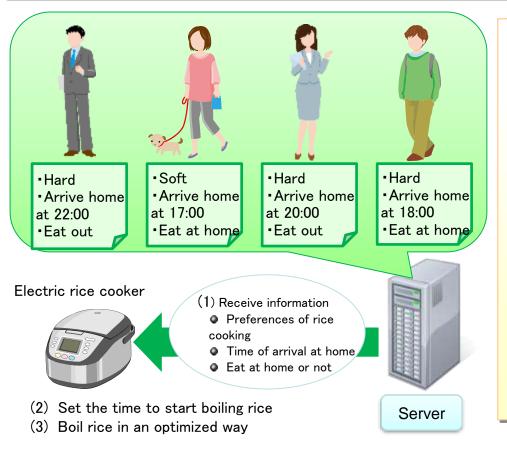
3. Inventive Step (Annex A)

Supply Chain Management Method ·································· : Case 26
Running Supporting System ························· ··············· : Case 27
Heavy Rain Point Specifying System ······························ : Case 28
Medical Device Maintenance Server ······························· : Case 29
Construction Machine Maintenance Server ························· : Case 30

Eligibility for Patent（Operation method and operation program for electric rice cooker） Examination Handbook Annex A 3.1 Eligibility　Case 4-2

特許庁 JAPAN PATENT OFFICE

[Claim 1]

　A method of operating an electric rice cooker communicative with an external server through a network, comprising:

　a step of receiving, from said external server, information on users' preferences of rice cooking, users' home arrival time, and whether or not to eat at home; a step of setting the time of starting rice boiling so that the rice boiling is completed just before the earliest home arrival time of users who have plans to eat at home based on information on the arrival time and whether or not to eat at home; and a step of performing the rice boiling in an optimum manner of rice cooking for users who have plans to eat at home based on information on users' preferences of rice cocking and whether or not to eat at home.

・Hard
・Arrive home at 22:00
・Eat out

・Soft
・Arrive home at 17:00
・Eat at home

・Hard
・Arrive home at 20:00
・Eat out

・Hard
・Arrive home at 18:00
・Eat at home

Electric rice cooker

（1）Receive information
　● Preferences of rice cooking
　● Time of arrival at home
　● Eat at home or not

（2）Set the time to start boiling rice
（3）Boil rice in an optimized way

Server

[Conclusion]

◎ Fall under "invention"

[Explanation]

　The invention of Claim 1 is a method of operating an electric rice cooker utilizing computer software. In addition, the electric rice cooker controls itself in the start time of the rice boiling and details of rice cooking based on information on users' preferences of rice cooking, the home arrival time, and whether or not to eat at home acquired from the external server. Therefore, the invention of Claim 1 concretely performs the control for rice boiling of the electric rice cooker as an apparatus or the processing with respect to the control.
　Accordingly, the invention of Claim 1 as a whole is a creation of a technical idea utilizing the laws of nature, and thus falls under "invention."

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2-3. Case examples of examination regarding patentability of IoT related technologies

Eligibility for Patent (System and method of allocating unmanned autonomous vehicle 1)

Examination Handbook Annex B
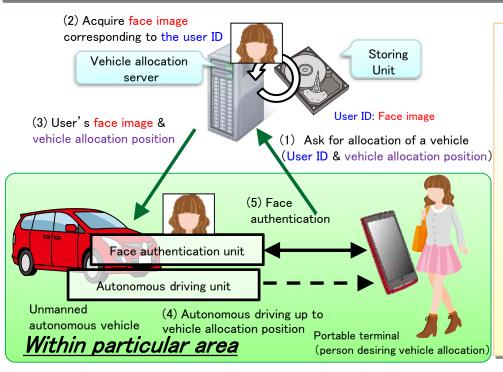Chapter 1   3. Cases   Case 2-9

特許庁
JAPAN PATENT OFFICE

[Claim 1]

  A system comprising a vehicle allocation server, a portable terminal which a person who desires a vehicle allocation has, and unmanned autonomous vehicles:

  wherein the portable terminal comprises <u>a transmitting unit for transmitting the user ID and a vehicle allocation position to the vehicle allocation server</u>,

  the vehicle allocation server comprises: <u>a storing unit for storing information on a face image of a user corresponding to a user ID; an acquiring unit for acquiring, from the storing unit, information on the face image made to correspond to the user ID received from said portable termial; a specifying unit for specifying an unmanned autonomous vehicle which can be allocated based on position information and a utilization state of the unmanned autonomous vehicle; and a transmitting unit for transmitting information on the vehicle allocation position and information on the face image</u> to the specified unmanned autonomous vehicle, and

  the unmanned autonomous vehicle comprises: an autonomous driving unit for performing autonomous driving up to the vehicle allocation position; <u>a face authentication unit for performing face authentication processing for surrounding people</u>; and a judging unit for <u>judging a person having a face matching the received face as the person who desires vehicle allocation</u>, thereby permitting utilization of the unmanned autonomous vehicle.

(2) Acquire face image corresponding to the user ID

Vehicle allocation server

Storing Unit

User ID: Face image

(3) User's face image & vehicle allocation position

(1) Ask for allocation of a vehicle (User ID & vehicle allocation position)

(5) Face authentication

Face authentication unit

Autonomous driving unit

Unmanned autonomous vehicle

(4) Autonomous driving up to vehicle allocation position

Portable terminal (person desiring vehicle allocation)

Within particular area

[Conclusion]

◎ **Fall under "invention"**

[Explanation]

  According to the description of Claim 1, a determination is made that <u>specific calculation or processing of information depending on the intended use which is an allocation of unmanned autonomous vehicles, is implemented by specific means in which software and hardware resources collaborate,</u> i.e., a system comprising: a vehicle allocation server having a storing unit; an unmanned autonomous vehicle provided with a face authentication unit; and a portable terminal. For this reason, <u>in the invention of Claim 1, a specific information processing system depending on the intended use is constructed through cooperation of software and hardware resources</u>.

Eligibility for Patent (System and method of allocating unmanned autonomous vehicle 2)
Examination Handbook Annex B
Chapter 1   3. Cases   Case 2-10

[Claim 1]
  A system comprising a vehicle allocation server, a portable terminal which a person who desires vehicle allocation has, and unmanned autonomous vehicles,
   wherein when the vehicle allocation server receives a vehicle allocation request for the unmanned autonomous vehicle for which a vehicle allocation position is specified from the person who desires the vehicle allocation, the vehicle allocation server allocates unmanned autonomous vehicle to the person who desires the vehicle allocation.

Vehicle allocation server

（2）Instruction

（1）Vehicle allocation request

（3）Autonomous driving to the vehicle allocation position

Unmanned autonomous vehicle

Within particular area

Portable terminal
（Person who desires vehicle allocation）

[Conclusion]

❌ **Not fall under "invention"**

[Explanation]
  Claim 1 specifies that <u>a system comprising a vehicle allocation server, a portable terminal, and an unmanned autonomous vehicle</u> is used. However, it is specified merely "when the vehicle allocation server receives a vehicle allocation request for the unmanned autonomous vehicle for which a vehicle allocation position is specified from the person who desires the vehicle allocation, the vehicle allocation server allocates unmanned autonomous vehicle to the person who desires the vehicle allocation", and <u>no information processing is specified. Therefore, it is not possible to determine that specific means or procedures for specific calculation or processing of information depending on the intended use which is an allocation of unmanned autonomous vehicles, is specified.</u> For this reason, in the invention of Claim 1, <u>a specific information processing system or an operation method thereof depending on intended use is not constructed through cooperation of software and hardware resources.</u>

Novelty（Robot apparatus ）

特許庁　JAPAN PATENT OFFICE

[Claim 1]
 A robot apparatus which acts on an object comprising:
 at least one kind of sensor for detecting the object; a transmission section for transmitting a query to a server in order to acquire information on the object based on an output of the sensor; a reception section for receiving response information answering the query from the server; and a control section storing a program which controls the operation of the robot apparatus on the basis of the received response information;
 wherein the response information contains the attribute information and the unique identification information of each of the said object specified by the said server.
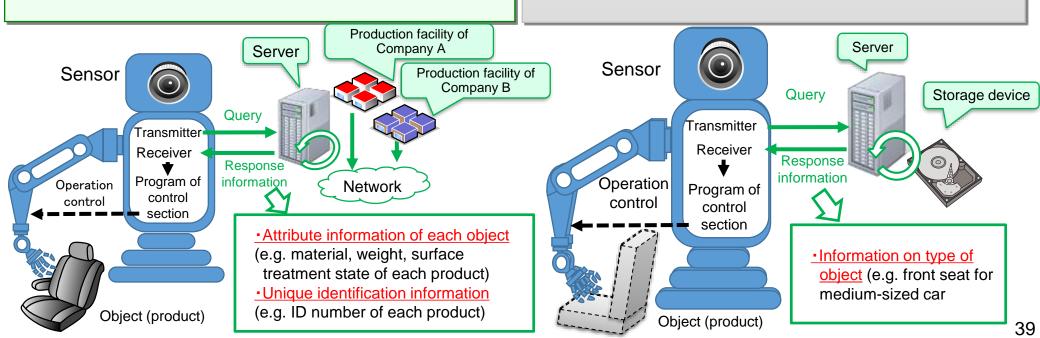
[Cited invention]
 A robot apparatus which acts on an object comprising:
 at least one kind of sensor for detecting the object; a transmission section for transmitting a query to a server in order to acquire information on the object based on an output of the sensor; a reception section for receiving response information answering the query from the server; and a control section storing a program which controls the operation of the robot apparatus on the basis of the received response information;
 wherein the response information is the information on a type of the said object specified by the said server.

Sensor — Server — Production facility of Company A — Production facility of Company B
Transmitter — Query — Response information — Network
Receiver
Program of control section
Operation control
Object (product)

・Attribute information of each object
 (e.g. material, weight, surface treatment state of each product)
・Unique identification information
 (e.g. ID number of each product)

Sensor — Server — Query — Storage device
Transmitter — Response information
Receiver
Program of control section
Operation control
Object (product)

・Information on type of object (e.g. front seat for medium-sized car)

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Novelty (Robot apparatus)

[Conclusion]

◎ Involve novelty

[Explanation]

　The robot apparatus is a sub-combination, which is a part of a combination of the robot apparatus and the server.

　Claim 1 on the robot apparatus recites a feature related to the server (the other sub-combination), namely, "the response information contains the attribute information and the unique identification information of each of the said object specified by the said server." With respect to the response information, Claim 1 also specifies that the robot apparatus has "a control section storing a program which controls the operation of the robot apparatus on the basis of the received response information."

　Therefore, the robot apparatus of the present invention has a control section storing a program which controls the operation of the robot apparatus on the basis of the attribute information and the unique identification information of each of the object, and performs the operation through the control section in response to the attribute information and the unique identification information of each of the object.

　In contrast, the robot apparatus of the cited invention only has a control section with a program which controls the operation of the robot apparatus on the basis of the information on a type of the said object, vis-à-vis the response information, and does not perform operation in response to the attribute inormation and the unique identification information of the object.

　Thus, the robot apparatus of the present invention includes a different program and performs different operation from the robot apparatus of the cited invention.

Novelty（Robot apparatus ）

特許庁
JAPAN PATENT OFFICE

[Claim 1]
 A robot apparatus which acts on an object comprising:
 at least one kind of sensor for detecting the object; a transmission section for transmitting a query to a server in order to acquire information on the object based on an output of the sensor; a reception section for receiving response information answering the query from the server; and a control section storing a program which controls the operation of the robot apparatus on the basis of the received response information;
 wherein the response information is the information on a type of the said object specified by the said server on the basis of information received via a network from a production facility of the said object.
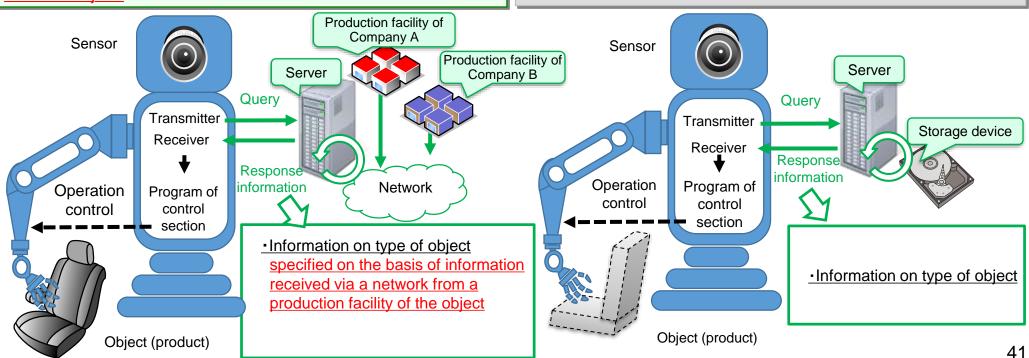
[Cited invention]
 A robot apparatus which acts on an object comprising:
 at least one kind of sensor for detecting the object; a transmission section for transmitting a query to a server in order to acquire information on the object based on an output of the sensor; a reception section for receiving response information answering the query from the server; and a control section storing a program which controls the operation of the robot apparatus on the basis of the received response information;
 wherein the response information is the information on a type of the said object specified by the said server.

Sensor

Production facility of Company A

Server

Query

Production facility of Company B

Transmitter
Receiver
↓
Program of control section

Operation control

Response information

Network

Object (product)

・Information on type of object specified on the basis of information received via a network from a production facility of the object

Sensor

Server

Query

Transmitter
Receiver
↓
Program of control section

Storage device

Operation control

Response information

Object (product)

・Information on type of object

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Novelty (Robot apparatus)

［Conclusion］

❌ <u>Lack Novelty</u>

［Explanation］

  The robot apparatus is a sub-combination, which is a part of a combination of the robot apparatus and the server.

  Claim 1 on the robot apparatus recites a feature related to the server (the other sub-combination), namely, "the response information is the information on a type of the said object specified by the said server on the basis of information received via a network from a production facility of the said objet."

  <u>The portion of "on the basis of information received via a network from a production facility of the said object" only describes the source from which the server, separate from the robot apparatus, obtains information for specifying response information.</u> This does not make any difference in the program itself of the robot apparatus, and does not serve to specify a structure, a function etc. of the robot apparatus.

  Consequently, there is no difference between the present invention and the cited invention. As a result, the invention at issue lacks novelty.

Novelty（Water treatment apparatus）

[Claim1]

Water treatment apparatus for producing treated water by removing contaminants contained in raw water, the apparatus comprising:

means for executing reverse cleaning process at a cycle of the variable number of days; a concentration detector for detecting concentration of the contaminants of raw water to be introduced into the water treatment apparatus; and means for sending the detected concentration of contaminants to a remote control server that is communicatively connected;

wherein the remote control server calculates a new cycle of the number of days for updating on the basis of a plurality of concentrations of contaminants received from a plurality of water treatment apparatuses on the same raw water line, and sends a result thereof to the water treatment apparatus.
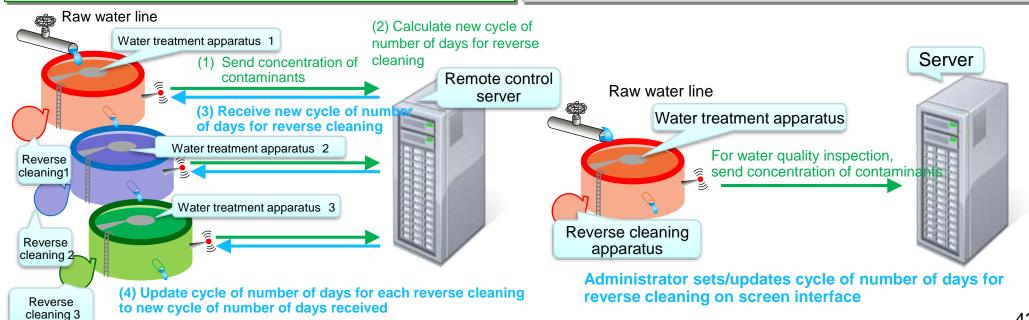
［Cited invention］

Water treatment apparatus for producing treated water by removing contaminants contained in raw water, the apparatus comprising:

means for executing reverse cleaning process at a cycle of the variable number of days; a concentration detector for detecting concentration of contaminants of raw water to be introduced into the water treatment apparatus; and means for sending the detected concentration of contaminants to a server that is communicatively connected.

Raw water line

Water treatment apparatus 1

(2) Calculate new cycle of number of days for reverse cleaning

(1) Send concentration of contaminants

Remote control server

(3) Receive new cycle of number of days for reverse cleaning

Water treatment apparatus 2

Reverse cleaning1

Water treatment apparatus 3

Reverse cleaning 2

Reverse cleaning 3

(4) Update cycle of number of days for each reverse cleaning to new cycle of number of days received

Raw water line

Water treatment apparatus

Server

For water quality inspection, send concentration of contaminants

Reverse cleaning apparatus

Administrator sets/updates cycle of number of days for reverse cleaning on screen interface

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Novelty (Water treatment apparatus)

[Conclusion]

⊚ Involve novelty

［Explanation］

　The invention of Claim 1 is directed to "water treatment apparatus." Claim 1 also includes a description to matters of the "remote control server" which is the other sub-combination. That is, Claim 1 includes a description of "the remote control server calculates a new cycle of the umber of days for updating on the basis of a plurality of concentrations of contaminants received from a plurality of water treatment apparatuses on the same raw water line, and sends a result thereof to the water treatment apparatus."

　When considering the common general technical knowledge at the time of filling the present application and a description of "when the water treatment apparatus receives the new cycle of the number of days from the remote control server, the prior set cycle of the number of days is automatically updated to the new cycle of the number of days, and the reverse cleaning process is executed according to the updated cycle of the number of days after the update" in the detailed description of the invention, the statement as to the other sub–combination specifies the water treatment apparatus in the meaning that the water treatment apparatus has reception means for receiving the cycle of the number of days from the remote control server. Therefore, the invention of Claim 1 is specified as the water treatment apparatus having reception means.

　Accordingly, the invention of Claim 1 differs from the invention of the water treatment apparatus of the cited document which only sends concentration of contaminants to the server and does not have reception means. Therefore the invention of Claim 1 has novelty.

Novelty（Healthcare system and terminal）

特許庁
JAPAN PATENT OFFICE

[Claim1]

A healthcare system comprising a wearable sensor, a healthcare server, and a terminal device, wherein the wearable sensor is a stick type sensor which is pasted on the skin of human body and comprises means for measuring biological data containing a body temperature and heart rate of a wearer, and means for sending the biological data to the terminal device; wherein the terminal device comprises means for receiving the biological data from the wearable sensor, means for periodically summarizing the received biological data to send a result thereof to the healthcare server, means for receiving a health index value A received from the healthcare server, and means for displaying the health index value A on a screen; and wherein the healthcare server comprises means for calculating a health index value A of the wearer by analyzing the biological data received from the terminal device by means of analysis procedure X, and means for sending the calculated health index value A to the terminal device.

[Claim 2]

A terminal device to be used for the healthcare system of Claim 1.

[Cited Invention]

A healthcare system comprising a wearable sensor, a healthcare server, and a terminal device, wherein the wearable sensor is a clothing type sensor that a wearer wears and comprises means for measuring biological data containing a body temperature and heart rate of a wearer, and means for sending the biological data to the terminal device; wherein the terminal device comprises means for receiving the biological data from the wearable sensor, means for periodically summarizing the received biological data to send a result thereof to the healthcare server, means for receiving a health index value A received from the healthcare server, and means for displaying the health index value A on a screen; and wherein the healthcare server comprises means for calculating a health index value A of the wearer by analyzing the biological data received from the terminal device by means of analysis procedure Y, and means for sending the calculated health index value A to the terminal device.

Stick type sensor   Terminal device   Healthcare server

Biological data   Biological data

Analysis procedure X

Body temperature, heart rate, etc.   Health index A

Clothing type sensor   Terminal device   Healthcare server

Biological data   Biological data

Analysis procedure Y

Body temperature, heart rate, etc.   Health index A

45

Novelty (Healthcare system and terminal)

［Conclusion and Explanation］

⭕ Claim 1: involve novelty

The invention of Claim 1 differs from the invention disclosed in the cited document in a type of wearable sensor used in "healthcare system" and analysis procedure in the healthcare server.
That is, there is a difference between the invention of Claim 1 and the invention disclosed in the cited document. Therefore the invention of Claim 1 has novelty.

❌ Claim 2: lack novelty

Claim 2 depends on Claim 1 and is directed to an invention of "terminal device." Claim 1 describes matters as to a "wearable sensor" and a "healthcare server" which are the other sub-combination. That is, Claim 1 recites a wearable sensor "which is a stick type sensor to be pasted on the skin of human body and comprises means for measuring biological data containing a body temperature and heart rate of the wearer and means for sending the biological data to the terminal device," and a healthcare server "which comprises means for calculating a health index value A of the wearer by analyzing the biological data received from the terminal device by means of analysis procedure X and means for sending the calculated health index value A to the terminal device." However, the terminal device of Claim 2 has only a function of periodically summarizing the biological data received from the wearable sensor to send a result thereof to the healthcare server and a function of displaying the health index value A received from the healthcare server. Therefore, the type of the wearable sensor and the analysis procedure in the healthcare server do not specify a structure, a function, etc. of the terminal device.
When comparing the invention of Claim 2 with the invention disclosed in the cited document, there is a difference in description and expression with respect to the matters as to the other sub-combination; however, both inventions are identical in that having a function of periodically summarizing the biological data received from the wearable sensor to send a result thereof to the healthcare server and a function of displaying the health index value A received from the healthcare server, and thus there is no difference in the structure, the function, etc. of the terminal device. There are no other differences between the invention of Claim 2 and the invention disclosed in the cited document. Therefore the invention of Claim 2 lacks novelty.

Novelty (Drone monitoring system and drone)

[Claim 1]

 A drone monitoring system for monitoring a target to be monitored by means of a three-dimensionally movable drone, the system comprising:

 a plurality of drones; a terminal carried by the target to be monitored; and an administrative server connected to the drones and the terminal via a communication network;

 wherein the terminal comprises means for acquiring a current position as terminal position information to send the acquired information to the administrative server;

 wherein the administrative server comprises

 means for selecting a drone closest to the target to be monitored on the basis of the terminal position information received from the terminal, and means for sending the terminal position information to the selected drone; and

 wherein the drone comprises means for acquiring a current position of the drone itself as drone position information, means for receiving the terminal position information from the administrative server, and means for performing flying control of the drone itself on the basis of the drone position information and the terminal position information.

[Claim 2]

 A three-dimensionally movable drone connected to an administrative server via a communication network, comprising:

 means for acquiring a current position of the drone itself as drone position information; means for receiving terminal position information from the administrative server; and means for performing flying control of the drone itself on the basis of the drone position information and the terminal position information;

 wherein the administrative server comprises means for selecting a drone closest to the target to be monitored on the basis of terminal position information received from the terminal of the target to be monitored, and means for sending the terminal position information to the selected drone.

Novelty (Drone monitoring system and drone)

特許庁
JAPAN PATENT OFFICE

[Detailed Description of the Invention]

The present invention relates to a drone monitoring system for monitoring children and elderly people by utilizing autonomously flying unmanned object (drone).

The drone monitoring system of the present invention comprises a plurality of drones, a terminal to be carried by a child or an elderly who is a target to be monitored, and an administrative server.

An operation of the present system will be described below.

(1) The terminal acquires a current position of the terminal itself as terminal position information and continuously sends the information to the administrative server.

(2-1) The administrative server selects a drone closest to the target to be monitored on the basis of the received terminal position information.

(2-2) The administrative server continuously sends the terminal position information received from the terminal to the selected drone.

(3) The drone performs flying control of the drone itself on the basis of drone position information that the drone acquires as a current position of itself and the terminal position information that the drone continuously receives from the administrative server. More specifically, in order to monitor the target to be monitored in an appropriate way, the drone performs flying control such that the drone flies away from the target to be monitored by a fixed distance, keeps a constant height, and continues autonomous flight.

[Detailed Description of the Invention of Cited Document]

The present invention relates to a drone monitoring system for monitoring children and elderly people by utilizing autonomously flying unmanned object (drone).

The drone monitoring system of the present invention comprises a plurality of drones, a terminal to be carried by a child or an elderly who is a target to be monitored, and an administrative server.

An operation of the present system will be described below.

(1) The terminal sends identification information of the terminal itself to the administrative server. Subsequently, the terminal acquires a current position of the terminal itself as terminal position information and continuously sends the information to the administrative server.

(2-1) The administrative server specifies a drone corresponding to the received terminal identification information.
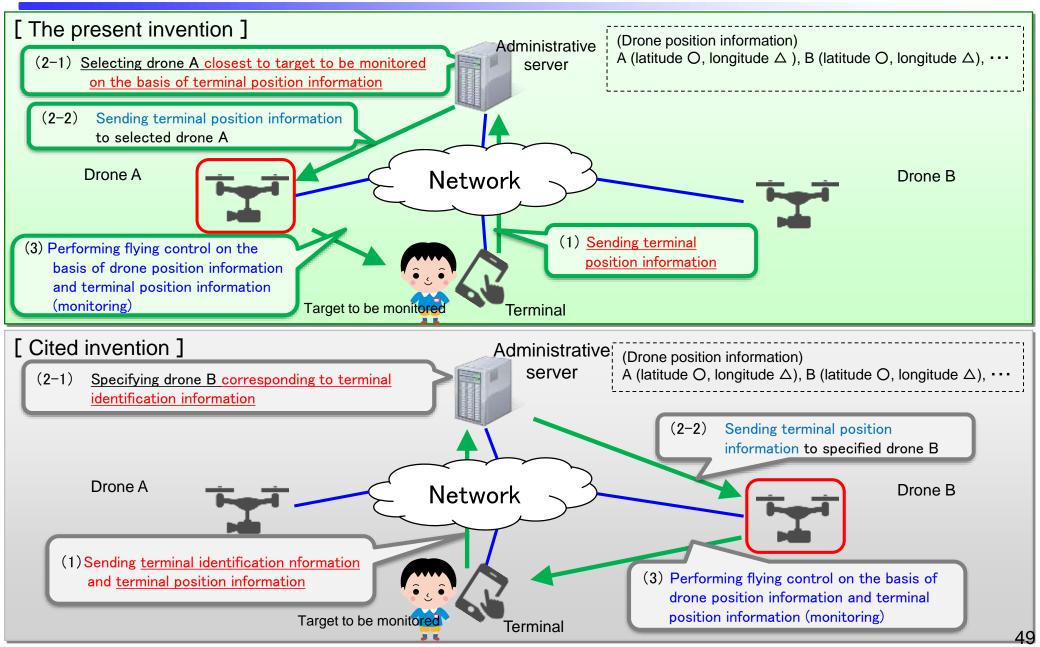
(2-2) The administrative server continuously sends the terminal position information received from the terminal to the specified drone.

(3) The drone performs flying control of the drone itself on the basis of drone position information that the drone acquires as a current position of itself and the terminal position information that the drone continuously receives from the administrative server. More specifically, in order to monitor the target to be monitored in an appropriate way, the drone performs flying control such that the drone flies away from the target to be monitored by a fixed distance, keeps a constant height, and continues autonomous flight.

Novelty（Drone monitoring system and drone）

[The present invention]

（2-1）　<u>Selecting drone A closest to target to be monitored on the basis of terminal position information</u>

（2-2）　Sending terminal position information to selected drone A

Drone A

（3）Performing flying control on the basis of drone position information and terminal position information（monitoring）

Administrative server

(Drone position information)
A (latitude ○, longitude △), B (latitude ○, longitude △), ・・・

Network

Drone B

（1）<u>Sending terminal position information</u>

Target to be monitored

Terminal

[Cited invention]

（2-1）　<u>Specifying drone B corresponding to terminal identification information</u>

Administrative server

(Drone position information)
A (latitude ○, longitude △), B (latitude ○, longitude △), ・・・

（2-2）　Sending terminal position information to specified drone B

Drone A

Network

Drone B

（1）Sending <u>terminal identification nformation</u> and <u>terminal position information</u>

Target to be monitored

Terminal

（3）Performing flying control on the basis of drone position information and terminal position information (monitoring)

Novelty (Drone monitoring system and drone)

[Conclusion and Explanation]

◯ Claim 1: involve novelty

　The invention of Claim 1 differs from the invention disclosed in the cited document because Claim 1 of the invention describes that the administrative server of the "drone monitoring system" "<u>selects a drone closest to the target to be monitored on the basis of the received terminal position information"</u>, while the invention of the cited document describes "<u>specifying the drone corresponding to the terminal identification information received."</u>
　That is, there is a difference between the invention of Claim 1 and the invention disclosed in the cited document. Therefore, the invention of Claim 1 involves novelty.

✖ Claim 2: lack novelty

　The invention of Claim 2 is directed to a "drone." Claim 2 describes matters as to "administrative server" which is the other sub-combination. That is, Claim 2 includes a description that "the administrative server comprises means for selecting a drone closest to the target to be monitored on the basis of the terminal position information received from the terminal of the target to be monitored and means for sending the terminal position information to the selected drone."
　However, <u>how the administrative server selects a drone for monitoring a target to be monitored on the basis of what kind of standard will not affect a structure, a function, etc. of the drone</u> of Claim 2. This means that the above matters of other sub-combination do not specify the structure, the function, etc. of the drone.
　When comparing the invention of Claim 2 with the invention disclosed in the cited document, there is a difference in description and expression in the matters of the other sub-combination; however, there is no difference in a structure, a function, etc. There is no other difference between the invention of Claim 2 and the invention disclosed in the cited document. Therefore, the invention of Claim 2 lacks novelty.

Inventive step（Supply chain management method）

特許庁　JAPAN PATENT OFFICE

[Claim 1]
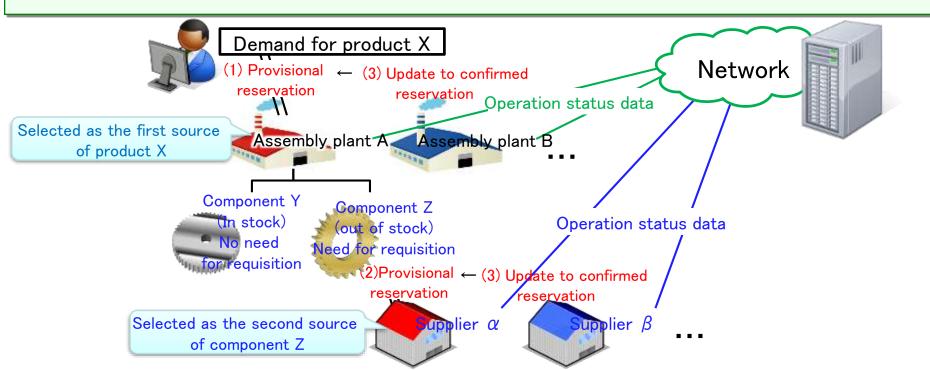 A computer implemented method for managing a supply chain, comprising the steps of:
 receiving a demand for a product;
 selecting at least one first source(s) to satisfy the said demand, based on information including operation status data at a plurality of sources of the said product, and generating a provisional reservation for a supply from the selected source(s);
 determining whether there is a need for a requisition for any component part or material of the said product for the first source(s) to implement the said reservation;
 selecting, where it is determined that there is a need for the said requisition, at least one second source(s), from among a plurality of sources of the component part or material, to satisfy the requisition as a demand, based on information including operation status data at the sources, and generating a provisional reservation for a supply from the selected source(s); and
 updating the provisional reservations generated so far to confirmed reservations where, for each component part or material of the said product, it has been determined that the requisition is not necessary or the provisional reservation has been generated.

Demand for product X
(1) Provisional reservation ← (3) Update to confirmed reservation
Operation status data
Network

Selected as the first source of product X
Assembly plant A   Assembly plant B   ...

Component Y (In stock) No need for requisition
Component Z (out of stock) Need for requisition
Operation status data

(2) Provisional reservation ← (3) Update to confirmed reservation

Selected as the second source of component Z
Supplier α   Supplier β   ...

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Inventive step（Supply chain management method）

[Cited invention 1]

 A computer implemented method for managing the supply and demand of a product, comprising the steps of:
  receiving a demand for a product;
  selecting a source to satisfy the said demand, based on information including operation status data at a plurality of sources of the said product;
  determining whether the said demand is satisfied by the supply from the said source; and
  selecting, where it is determined that the demand is not satisfied, another source to satisfy the unsatisfied demand, from among a plurality of sources of the said product, based on information including operation status data at the sources, or
  generating, where it is determined that the demand is satisfied, reservations for supply from the sources selected so far.

[Cited invention 2]

 A computer implemented method for assisting the inventory management of parts at a production facility, comprising the steps of:
  receiving a demand for a product;
  identifying component parts necessary for manufacturing the said product;
  determining whether the stock of each component part is sufficient to satisfy the said demand;
  indicating, where it is determined that the stock is insufficient, possible source(s) of the said component part to satisfy the said demand and their supply capacity, based on information including operation status data at a plurality of sources of the said part, or
  indicating, where it is determined that the stock is sufficient, information regarding the said stock.

Demand for product X

Network

Reservation

Reservation

Operation status data

Assembly plant A
（ Source of supply
 of product X ）
→ Demand: not satisfied

Assembly plant B
（ Another source
 of product X ）
→ Demand: satisfied

Demand for product X

Network

Part Y
（ In stock ）

Part Z
（ out of stock ）

Operation status data

Supplier α
（ Possible source 1
 for part Z ）
→ Indication of the supplier α
and information on its supply capacity

Supplier β
（ Possible source 2
 for part Z ）
→ Display Indication of the supplier β
and information of its supply capacity

２－３． *Case examples of examination regarding patentability of IoT related technologies*

Inventive step (Supply Chain Management Method)

Examination Handbook Annex A
5. Cases about inventive step   Case 26

特許庁
JAPAN PATENT OFFICE

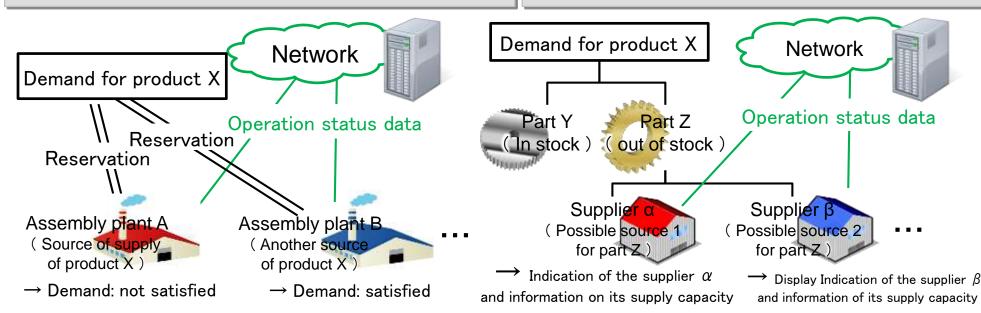[Conclusion]

◎ Involve inventive step

[Explanation]

（Difference 1）

  The cited invention 1 is a method for managing the supply and demand of a product and does not take into account a requisition for any component part or material of the product.

  It would have been obvious to one of ordinary skill in the art to apply the cited invention 2 to the cited invention 1, to take into account a requisition for a component part of the product for better supply and demand management, so as to manage a supply chain by incorporating in the method the steps of determining whether there is a need for a requisition for any component part of a product and selecting at least one second source(s).

（Difference 2）

  The cited invention 1, as well as the cited invention 2, is silent about the features regarding the generation of a "provisional reservation" and the updating to a confirmed reservation.

  The present invention generates, upon the selection of one or more source(s) to satisfy the said demand for a product in the supply chain, a provisional reservation for a supply from the selected source(s), and then updates the generated provisional reservations to confirmed reservations where all the necessary provisional reservations for the supply chain have been generated.

  This enables the method of the present invention to generate promptly provisional reservation(s) even in the case of a complicated supply chain with a number of tiers, and to find the status of insufficient supply in the supply chain, based on the existence of remaining provisional reservation(s) without being updated to confirmed reservation(s), if any. The present functionality is considered to constitute an advantageous effect, which is not readily expected from the cited inventions 1 and 2.

Inventive step（ Running supporting system ）

特 許 庁
JAPAN PATENT OFFICE

[Claim 1]

A running supporting system comprising a wrist watch type device having a screen interface and a GPS function, and <u>an information distributing server communicative with the wrist watch type device through a network</u>,

wherein the wrist watch type device has: course information receiving means for receiving specification of course information from a user through the screen interface; and transmitting means for transmitting the course information to the information distributing server, and continuously transmitting running information including position information and time information which are acquired by the GPS function to the information distributing server while the user performs the running,

the information distributing server has: recording means for producing first lap time information corresponding to the course information based on the course information and the running information which are received from the wrist watch type device, and recording the resulting first lap time information in a running history database within the information distributing server; acquiring means for acquiring a plurality of second lap time information previously recorded in the running history database, and corresponding to the course information; and transmitting means <u>for producing running support information which supports the running of the user based on comparison of the first lap time information with a plurality of second lap time information</u>, and transmitting the resulting running support information to the wrist watch type device,

the wrist watch type device further has a displaying means for receiving the running support information from the information distributing server and displaying the running support information on the screen interface, and

<u>the plurality of second lap time information is lap time information which Is produced based on the newest running information transmitted from the wrist watch type device which a user different from the user has.</u>

Information distributing server

Running history database

Running information including position information etc.

Running support information

Other users

Wrist watch type device

User A

User	Date	0-100m	100-200m	200-300m	・・・
User A	7/1/2016	20.3	22.1		
User B	6/29/2016	19.5	19.4	20.0	・・・
User C	6/23/2016	19.9	20.6	19.5	・・・
User D	6/20/2016	21.0	23.4	23.1	・・・
・・・	・・・	・・・	・・・	・・・	・・・

First lap time information → User A
Second lap time information: User B, User C, User D

Rank at 200 m
1. User B（20 m ahead）、2. User C（15 m ahead）、3.YOU!、4. User D（10 m behind）、・・・

Inventive step (Running supporting system)

特許庁
JAPAN PATENT OFFICE

[Cited invention 1]

A wrist watch type device having a screen interface and a GPS function, having: course information receiving means for receiving specification of course information from a user through the screen interface; recording means for producing first lap time information corresponding to the course information based on running information including position information and time information which are acquired by the GPS function while the user performs running, and recording the resulting first lap time information in a running history database within the wrist watch type device; acquiring means for acquiring a plurality of second lap time information which is previously recorded in the running history database, and corresponds to the course information; and displaying means for producing running support information which supports the running of the user by comparing the first lap time information with the second lap time information, and displaying the resulting running support information on the screen interface .

Wrist watch type device

Past lap time information recorded in the wrist watch type device
（ Running history database ）

Provide running support information from running information including position information etc.

First lap time information →

Rank at 200 m
1. 6/29（20 m ahead）
2. 6/23（15 m ahead ）
3. TODAY!
4. 6/20（10 m behind ）
・・・

Second lap time information

Date	0-100m	100-200m	200-300m	・・・
7/1/2016	20.3	22.1		
6/29/2016	19.5	19.4	20.0	・・・
6/23/2016	19.9	20.6	19.5	・・・
6/20/2016	21.0	23.4	23.1	・・・
・・・	・・・	・・・	・・・	・・・

User

[Well-known art]

The technique that in the system in which the server and the terminal can communicate with each other, due to the storage capacity, and the processing burden reduction on the terminal side, the data required at the terminal is transmitted to the server, the processing is executed based on the data concerned in the server and the processing result is transmitted from the server to the terminal.

Inventive step (Running supporting system)

［Conclusion］

◎ Involve inventive step

［Explanation］

（Difference）

A point that in the invention of Claim 1, the second lap time information is produced based on the newest running information transmitted from the wrist watch type device which the user different from the user of the first lap time information has, whereas in the cited invention 1, with respect to the second lap time information, such specification is not performed.

（Examine the Difference）

The cited invention 1 involves a problem that the running can be performed while the information on the comparison with the past lap time information on the user himself/herself is referred, and does not disclose the matter about the comparison with other users. In addition, that matter is not conceived easily by a person skilled in the art. From this reason, performing the comparison with the second lap time information based on the newest running information transmitted from the wrist watch type device which the different user has cannot be said a design variation, etc. (design variation or design choice associated with an application of specific techniques to solve certain problems) which may be performed when the well-known art is applied to the cited invention 1.

Moreover, the invention of Claim 1 has the advantageous effect, relative to the cited invention 1, that even when the user performs the running alone, he/she can obtain the sense of the competition with other users by producing the running support information based on the comparison with the lap time information of the different user.

2－3. Case examples of examination regarding patentability of IoT related technologies

Inventive step (Heavy rain point specifying system)
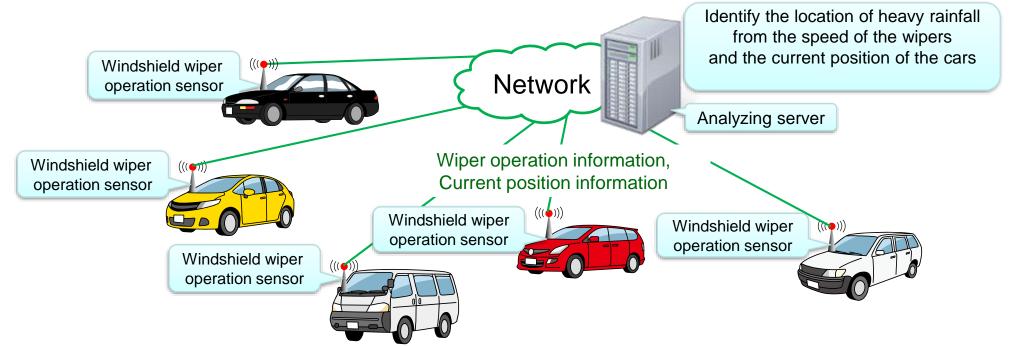
Examination Handbook Annex A
5. Cases about inventive step   Case 28

特許庁
JAPAN PATENT OFFICE

[Claim 1]
 A heavy rain point specifying system comprising windshield wiper operation sensors attached to windshield wipers which a plurality of vehicles equip, and an analyzing server connected to the windshield wiper operation sensors through a network,
 wherein the windshield wiper operation sensor comprises: a detecting unit for detecting operation information including acceleration information of the windshield wiper; an acquiring unit for acquiring current position information on the sensor; and a transmitting unit for transmitting the current position information made to correspond to the operation information to the analyzing server,
 the analyzing server comprises: a collecting unit for collecting the operation information and the current position information from the plurality of windshield wiper operation sensors; and an analyzing unit for statistically analyzing the current position information made to correspond to the operation information, exhibiting that the windshield wiper is operated at a high speed, of a plurality of collected operation information, thereby specifying a point at which heavy rain occurs.

Windshield wiper operation sensor

Windshield wiper operation sensor

Windshield wiper operation sensor

Windshield wiper operation sensor

Windshield wiper operation sensor

Network

Identify the location of heavy rainfall from the speed of the wipers and the current position of the cars

Analyzing server

Wiper operation information, Current position information

Inventive step (Heavy rain point specifying system)

[Cited invention 1]

 A windshield wiper failure detecting system comprising windshield wiper operation sensors attached to windshield wipers which a plurality of vehicles equip, and an analyzing server connected to the windshield wiper operation sensors through a network,

 wherein the windshield wiper operation sensor comprises: a detecting unit for detecting operation information including acceleration information of the windshield wiper; an acquiring unit for acquiring current position information on the sensor; and a transmitting unit for transmitting the operation information with the current position information being made to correspond to the operation information to the analyzing server,

 the analyzing server comprises: a collecting unit for collecting the operation information from the plurality of windshield wiper operation sensors; an analyzing unit for specifying the windshield wiper in which a failure was caused based on comparison of the collected operation information with the past operation information having the failure; and a notifying unit for notifying an administrator of the specified windshield wiper, and current position information thereof.
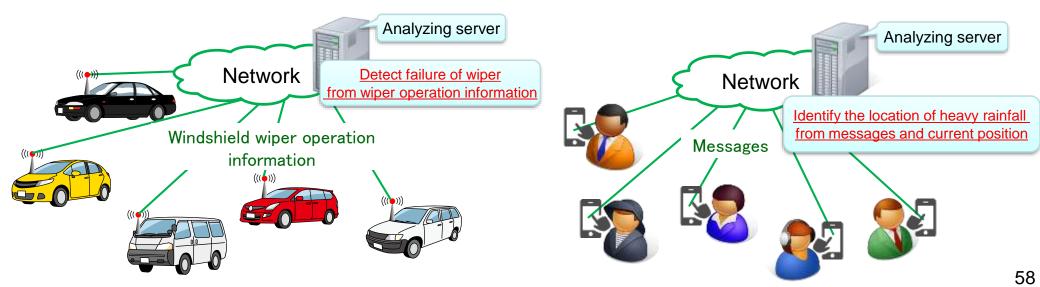
[Cited invention 2]

 A heavy rain point specifying system comprising a plurality of portable terminals, and an analyzing server connected to the plurality of portable terminals through a network,

 wherein the portable terminal comprises: a receiving unit for receiving an input of a message to the network by a user; an acquiring unit for acquiring current position information on the terminal; and a transmitting unit for transmitting the message and the current position information to the analyzing server,

 the analyzing server comprises: a collecting unit for collecting the messages and current position information from the plurality of portable terminals; and an analyzing unit for statistically analyzing the current position information correspond to the message including words about the heavy rain of the plurality of messages collected, thereby specifying a point at which the heavy rain occurs.

Analyzing server

Network

Detect failure of wiper from wiper operation information

Windshield wiper operation information

Analyzing server

Network

Identify the location of heavy rainfall from messages and current position

Messages

[Conclusion]

◎ Involve inventive step

[Explanation]

（Motivation）

In the failure detecting system of the cited invention 1, the cited invention 2 is applied, the common general knowledge is taken into consideration, and the position information made to correspond to the operation information indicating that the windshield wiper is operated at the high speed is analyzed, thereby examining whether or not a person skilled in the art could easily conceive of specifying the heavy rain point.

When up to (1) to (3) of the considered motivation are comprehensively taken into consideration, <u>it is not said that there is the motivation in which the cited invention 2 is applied to the cited invention 1.</u>

In the light of the above circumstances, it is impossible to say that a person skilled in the art could have easily conceived of configuring the present invention by applying the cited invention 2 to the cited invention 1, and taking the common general knowledge into consideration.

（Matters considered about the motivation）

1. Relation of technical fields: Since <u>the cited invention 1 is the invention relating to the detection of the failure of the windshield wiper</u>, and <u>the cited invention 2 is the invention relating to the specification of the heavy rain point using the message</u>, they are different in technical field from each other.

2. Similarity of problems to be solved: <u>The cited invention 1 involves the problem that the operation information on the windshield wipers is collected,</u> and <u>the windshield wiper in which the failure is caused is specified by the comparison with the past failure history</u>. On the other hand, <u>the cited invention 2 involves the problem that the heavy rain point is specified by utilizing the messages including the words about the heavy rain</u>. Therefore, the problems of the both are different from each other.

3. Similarity of operations or functions: <u>The cited invention 1 compares the collected operation information on the windshield wipers with the past operation information</u>, whereas <u>the cited invention 2 statistically analyzes the messages including the position information, thereby specifying the heavy rain point</u>. Therefore, they are different in operations and functions from each other.
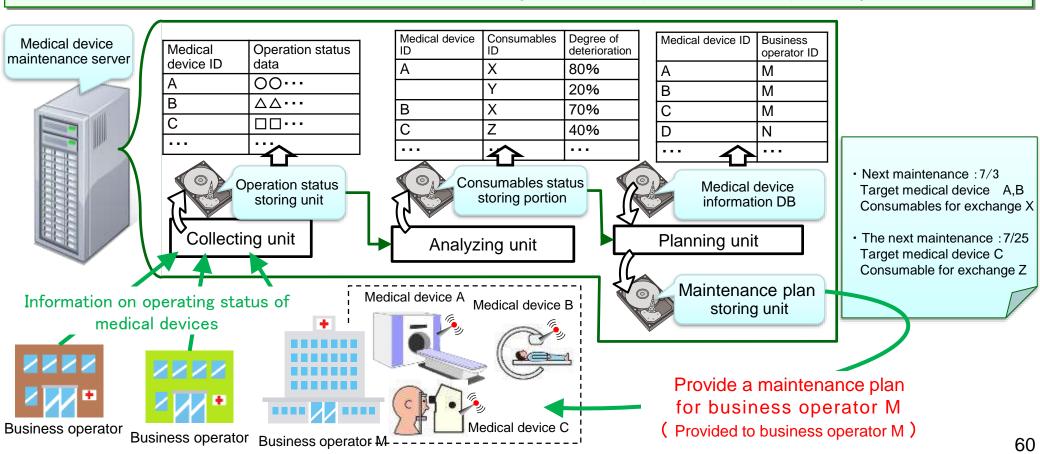
Inventive step (Medical device maintenance server)

特許庁
JAPAN PATENT OFFICE

[Claim 1]
　A medical device maintenance server for producing a maintenance plan pertaining to implementation of maintenance for a plurality of medical devices which a business operator possesses, having: a collecting unit for collecting information on an operation status of a medical device, collected from a sensor mounted to the medical device through a network, and recording the operation status in an operation status storing unit; an analyzing unit for calculating degrees of deterioration of consumables which the medical device includes by analyzing the operation status recorded in the operation status storing unit, and recoding the degrees of deterioration in a consumables status storing unit; a medical device information database for storing information on a business operator, and information on the medical devices which the business operator possesses correspond to each other; and a planning unit for producing a maintenance plan in which timing of the maintenance for a plurality of medical devices, and information on a consumables as an object of exchange are summarized for every business operator based on the degrees of deterioration of the consumables recorded in the consumables status storing unit, and the information recorded in the medical device information database, and recording the maintenance plan in a maintenance plan storing unit.

Medical device maintenance server

Medical device ID	Operation status data
A	○○・・・
B	△△・・・
C	□□・・・
・・・	・・・

Medical device ID	Consumables ID	Degree of deterioration
A	X	80%
	Y	20%
B	X	70%
C	Z	40%
・・・	・	・・・

Medical device ID	Business operator ID
A	M
B	M
C	M
D	N
・・・	・・・

Operation status storing unit

Consumables status storing portion

Medical device information DB

Collecting unit

Analyzing unit

Planning unit

Maintenance plan storing unit

・Next maintenance：7/3
Target medical device　A,B
Consumables for exchange X

・The next maintenance：7/25
Target medical device C
Consumable for exchange Z

Information on operating status of medical devices

Medical device A
Medical device B
Medical device C

Business operator
Business operator
Business operator M

Provide a maintenance plan for business operator M
（Provided to business operator M）

60
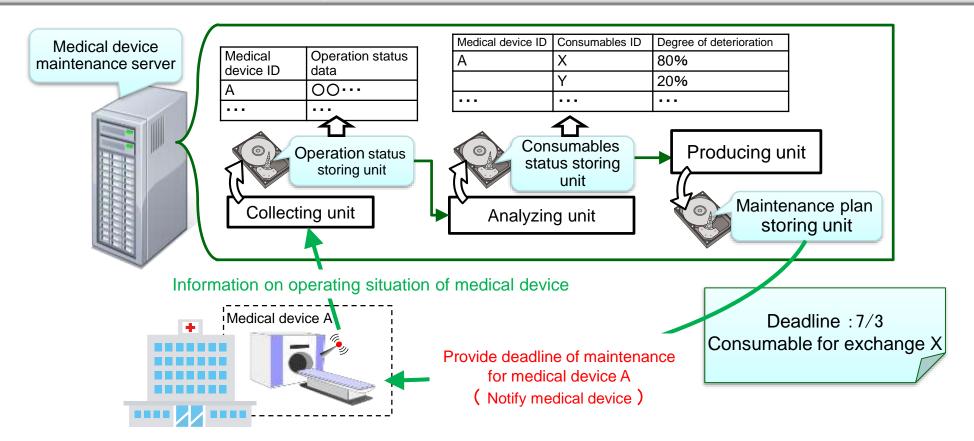
Inventive step (Medical device maintenance server)

Examination Handbook Annex A
5.Cases about inventive step　Case 29

特許庁
JAPAN PATENT OFFICE

[Cited invention 1]

A medical device maintenance server for judging necessity of maintenance of a specific medical device, having: a collecting unit for collecting information, on an operation status of a medical device, collected from sensors mounted to the medical device through a network, and recording the information on the operation status in an operation status storing unit; an analyzing unit for calculating degrees of deterioration of a plurality of consumables which the medical device includes by analyzing the operation status recorded in the operation status storing unit, and recording the degrees of deterioration in a consumables status storing unit; and a producing unit for producing maintenance information including information on a deadline of the maintenance of the medical device, and the consumables as an object of exchange based on the degree of deterioration, of the consumables, recorded in the consumables status storing unit, and recording the resulting maintenance information in a maintenance information storing unit.

Medical device maintenance server

Medical device ID	Operation status data
A	○○・・・
・・・	・・・

Medical device ID	Consumables ID	Degree of deterioration
A	X	80%
	Y	20%
・・・	・・・	・・・

Operation status storing unit

Consumables status storing unit

Producing unit

Collecting unit

Analyzing unit

Maintenance plan storing unit

Information on operating situation of medical device

Medical device A

Provide deadline of maintenance for medical device A
（ Notify medical device ）

Deadline：7／3
Consumable for exchange X

Inventive step (Medical device maintenance server)

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[Conclusion]

◎ Involve inventive step

[Explanation]

（Difference）

  In the invention of Claim 1, the medical device maintenance server has the medical device information database in which the information on the business operator is made to correspond to the information on the medical devices which the business operator possesses, and the maintenance plan is produced for every business operator which has plurality of medical devices, whereas the cited invention 1 produces the maintenance information on the specific medical device, but does not produce the maintenance plan for each business operator which has plurality of medical devices.

（Examine the Difference）

  The cited invention 1 involves the problem that the deadline of the maintenance which should be implemented before the medical device gets out of order is determined. In addition, producing the maintenance plan for each business operator is different from the problem of cited invention 1 and also is not conceived easily by a person skilled in the art. Therefore, it cannot be said as a design variation, etc. (design variation or design choice associated with an application of specific techniques to solve certain problems) from the cited invention 1 to have the medical device information database in which the information on the business operator is made to correspond to the information on the medical devices which the business operator concerned possesses, and produce the maintenance plan summarized for every business operator.

  Moreover, the invention of Claim 1 has the effect, advantageous relative to the cited invention 1, that the invention of Claim 1 has the matter pertaining to the difference, thereby reducing the burden of the consideration about the plan of the maintenance for the business operator who possesses a large number of medical devices.
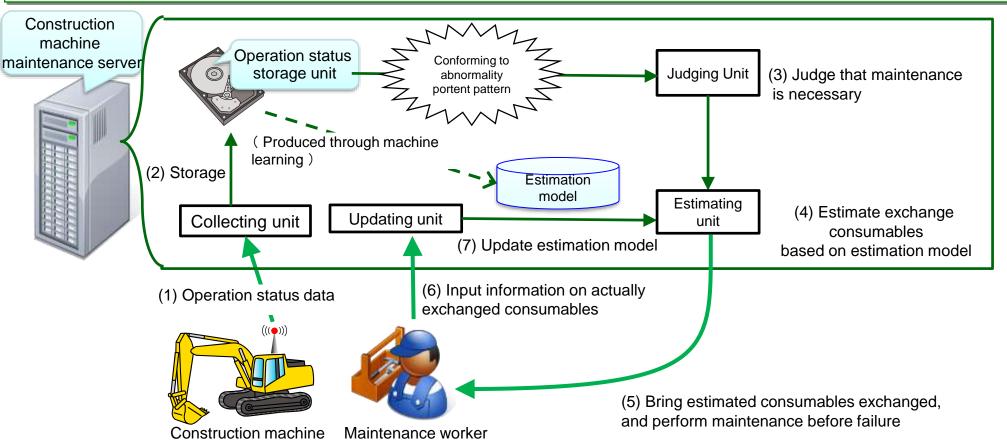
  Comprehensively assessing the situations above, it cannot be said that a person skilled in the art would have easily arrived at the invention of Claim 1 based on the cited invention 1.

Inventive step (Construction machine maintenance server)

特許庁
JAPAN PATENT OFFICE

[Claim 1]
 A construction machine maintenance server, having: a collecting unit for collecting operation status data on a construction machine from sensors mounted to the construction machine through a network, and recording the operation status data in an operation status storing unit; a judging unit for judging that maintenance of the construction machine is necessary when it is detected that a specific abnormality portent pattern is included in the collected operation status data; an estimating unit for estimating consumables which are necessary for exchange by applying an estimation model which is created through machine learning to the operation status data for a predetermined period of time when the maintenance of the construction machine is necessary; and an updating unit for receiving an input of information on the consumables which are actually exchanged at the time of a maintenance work, and updating the estimation model based on information.

Construction machine maintenance server

Operation status storage unit

Conforming to abnormality portent pattern

Judging Unit

(3) Judge that maintenance is necessary

（Produced through machine learning）

(2) Storage

Estimation model

Collecting unit

Updating unit

Estimating unit

(4) Estimate exchange consumables based on estimation model

(7) Update estimation model

(1) Operation status data

(6) Input information on actually exchanged consumables

(5) Bring estimated consumables exchanged, and perform maintenance before failure

Construction machine　Maintenance worker

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Inventive step (Construction machine maintenance server)

[Cited invention 1]

 A construction machine maintenance server, having: a collecting unit for collecting operation status data on a construction machine from sensors mounted to the construction machine through a network, and recording the operation status data in an operation status storing unit; an estimating unit for estimating consumables necessary to be exchanged by applying an estimation model created through machine learning for the operation status data for a predetermined period of time when maintenance of the construction machine is necessary; and an updating unit for receiving an input of information on the consumables which are actually exchanged at the time of maintenance work, and updating the estimation model based on the information.
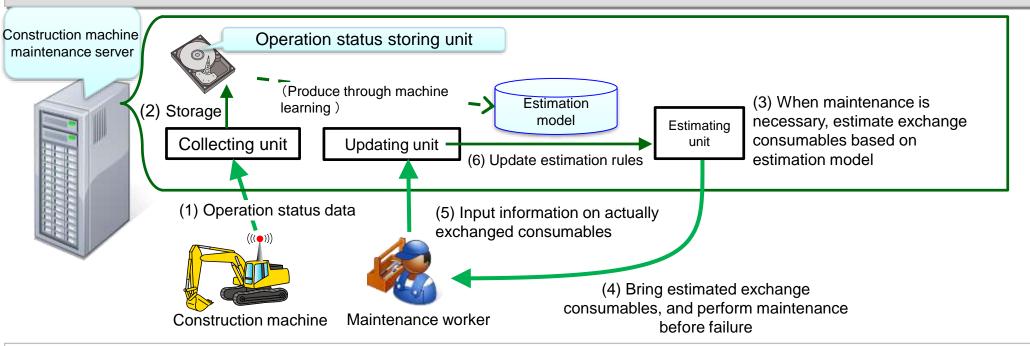

Construction machine maintenance server

Operation status storing unit

（Produce through machine learning）

Estimation model

(2) Storage

Collecting unit

Updating unit

(6) Update estimation rules

Estimating unit

(3) When maintenance is necessary, estimate exchange consumables based on estimation model

(1) Operation status data

(5) Input information on actually exchanged consumables

Construction machine   Maintenance worker

(4) Bring estimated exchange consumables, and perform maintenance before failure

[Cited invention 2]

 A server which collects operation status data on a construction machine from sensors mounted to the construction machine through a network; records the operation status data in a storing unit; judges that maintenance of the construction machine is necessary when it is detected that a specific abnormality portent pattern is included in the collected operation status data; and notifies the specific person of that.

Inventive step (Construction machine maintenance server)

[Conclusion]

❌ Lack inventive step

[Explanation]
（Difference）
  The invention of Claim 1 has a judging unit for judging that maintenance of the construction machine is necessary when it is detected that a specific abnormality portent pattern is included in the collected operation status data, whereas the cited invention 1 does not have the judging unit.
（Examine Difference)
  The cited invention 2, as described above, is the server which collects operation status data on a construction machine from sensors mounted to the construction machine through a network; records the operation status data in a storing unit; and judges that maintenance of the construction machine is necessary when it is detected that a specific abnormality portent pattern is included in the collected operation status data. Thus, the cited invention 2 describes the method for performing the judgment by detecting the specific abnormality portent pattern within the operation status data as the method for judging the necessity for the maintenance of the construction machine.
  Both the cited invention 1 and the cited invention 2 relate to the maintenance of the construction machine, and thus they are common in technical field to each other. In addition, both the inventions have the common problem in that the maintenance of the construction machine is suitably performed before the actual failure occurs. Moreover, both the inventions collect and analyze the operation status data on the construction machine, thereby outputting information for the maintenance of the construction machine. Thus both the inventions have the common function.
  When the above circumstances are comprehensively assessed, a person skilled in the art could have easily conceived of having a judgement unit for judging that the maintenance of the construction machine is necessary when it is detected that the specific abnormality portent pattern is included in the operation status data by applying the cited invention 2 to the cited invention 1.

[Measures of the applicant]
    In Claim 1, by adding "providing unit for producing a report on the operation status based on the analysis of the operation status data on the construction machine and providing the report to the users of the construction machine", the above reason for refusal is overcome.

─Fuller case examples about IoT related technologies etc. (March 22, 2017)

- Case examples related to (1) acquiring, (2) managing, and (3) analyzing and learning data in IoT technologies etc., especially related to such data and data analysis and learning using AI, have been prepared.

1. Eligibility for Invention (Annexes A and B)

Sugar Content Data of Apples and a Method for Predicting Sugar Content Data of Apples (IoT, AI related technology)·· : Case 3-2 (Annex A)

3D Printing Data of Dolls and a 3D Printing Method of Dolls (3D printing related technology)
··· : Case 3-3 (Annex A)

Tree-Structured Area Management Data (IoT related technology) ···················· : Case 2-11 (Annex B)

Data Structure of Encrypted Package File (IoT related technology) ·················· : Case 2-12 (Annex B)

Data Structure of Dialogue Scenarios in Voice Interactive System (AI related technology)
··· : Case 2-13 (Annex B)

Trained Model for Analyzing Reputations of Accommodations (AI related technology)
··· : Case 2-14 (Annex B)

3D Printing Data (3D printing related technology) ···································· : Case 2-15 (Annex B)

2. Inventive Step (Annexes A and B)

Learning System Comprising On-vehicle Device and a Server (IoT, AI related technology)
··· : Case 31 (Annex A)

Quality Management Program of Manufacturing Lines (IoT, AI related technology) ·· : Case 32 (Annex A)

Tree-Structured Area Management Data (IoT related technology) ···················· : Case 3-4 (Annex B)

3D Printing Method and 3D Printing Data (3D printing related technology) ·········· : Case 3-5 (Annex B)

＜① **Data Acquisition**＞

Eligibility (Sugar content data of apples and method for predicting sugar content data of apples) Examination Handbook Annex A
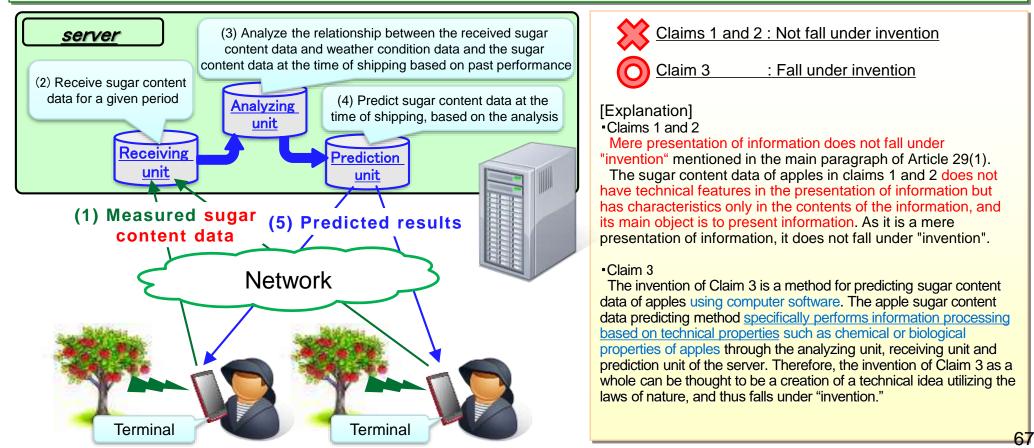3.1 Eligibility　Case 3-2

[Claim 1]
　Sugar content data of preharvest apples on trees measured by a portable sugar content sensor for apples which performs reflective near-infrared spectroscopic analysis.
[Claim 2]
　The sugar content data of apples as described in Claim 1 received by a receiving unit of a server and stored in a memory unit of the said server.
[Claim 3]
　A method for predicting sugar content data of apples comprising; a step in which an analyzing unit of the server analyzes the relationship between sugar content data of preharvest apples for specified periods and data on meteorological conditions, and sugar content data of apples at the time of their shipping, based on past performance; a step in which the receiving unit of the said server receives the sugar content data of apples for specified periods as described in Claim 1; and a step in which a prediction unit of the said server predicts and outputs sugar content data of apples at the time of future shipping using the said received sugar content data of apples for specified periods and data on past and future meteorological conditions as inputs, based on the said analyzed relationships.

server

(3) Analyze the relationship between the received sugar content data and weather condition data and the sugar content data at the time of shipping based on past performance

（2) Receive sugar content data for a given period

Analyzing unit

(4) Predict sugar content data at the time of shipping, based on the analysis

Receiving unit

Prediction unit

(1) Measured sugar content data

(5) Predicted results

Network

Terminal

Terminal

❌ Claims 1 and 2 : Not fall under invention

⭕ Claim 3　　　　: Fall under invention

[Explanation]
・Claims 1 and 2
　Mere presentation of information does not fall under "invention" mentioned in the main paragraph of Article 29(1).
　The sugar content data of apples in claims 1 and 2 does not have technical features in the presentation of information but has characteristics only in the contents of the information, and its main object is to present information. As it is a mere presentation of information, it does not fall under "invention".

・Claim 3
　The invention of Claim 3 is a method for predicting sugar content data of apples using computer software. The apple sugar content data predicting method specifically performs information processing based on technical properties such as chemical or biological properties of apples through the analyzing unit, receiving unit and prediction unit of the server. Therefore, the invention of Claim 3 as a whole can be thought to be a creation of a technical idea utilizing the laws of nature, and thus falls under "invention."

Eligibility (Tree-structured area management data)

<②　Data management ＞
Examination Handbook Annex B
Chapter 1　3.Cases　Case 2-11

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[Claim 1]
　Tree-structured area management data comprising in the order of single-layer root node (1), multi-layer intermediate nodes (2) and single-layer leaf nodes (3) from top, wherein; the said leaf nodes have location information on distribution areas and contents data; among the said intermediate nodes (2), those equipped with the said plurality of leaf nodes underneath have pointers to the said plurality of leaf nodes underneath and location information having a minimum bounding rectangle that bounds the said plurality of distribution areas corresponding to the plurality of leaf nodes underneath with the minimum area; among the said intermediate nodes (2), those equipped with a plurality of intermediate nodes underneath have pointers to the said plurality of intermediate nodes underneath and location information of the minimum bounding rectangle that bounds the said minimum bounding rectangles owned by the plurality of intermediate nodes underneath with the minimum area; the said root node (1) has pointers to the said plurality of intermediate nodes underneath; wherein the tree-structured area management data is stored in a contents distribution server; and it is used by the said contents distribution server to perform processing to identify leaf nodes corresponding to distribution areas that geographically bound current location information input as a search key in accordance with the pointers owned by root node or intermediate nodes.

(2) Identify the area where the mobile game machine is located

Content Distribution server

(1) GPS POSITION INFORMATION

content

(3) Distribute

Mobile game machine

Tree-structured area management data

Root Node (1)

Root

Pointer X　Pointer Y　Pointer ・・・

Minimum bounding rectangle X

Minimum bounding rectangle Y

Intermediate nodes (2)

Pointer α　Pointer ・・・

Minimum bounding rectangle α

Minimum bounding rectangle I

Minimum bounding rectangle Ⅱ

Leaf Nodes (3)

Distribution area A / Distribution area B / Distribution area C / Distribution area D / Distribution area E / Distribution area F

Content data A / Content data B / Content data C / Content data D / Content data E / Content data F

First layer

Second layer

(N−1) th layer

Nth layer

Bottom layer

Distribution area A
Distribution area B
Distribution area C

Distribution area D
Distribution area E
Distribution area F

Distribution of content data A

User's current location (search key)

Eligibility (Tree-structured area management data)

⊚ Fall under invention

［Explanation］
  The area management data of Claim 1 is <u>data having a structure capable of identifying distribution areas that geographically contain current location information input as a search key by means of information processing in accordance with pointers owned by root nodes and intermediate nodes</u>. Thus, the "structured data" has characteristics similar to the computer program in that a structure the data has specifies information processing by computer so that this structured data is determined to be equivalent to the computer program.

  Moreover, it is determined, from the statement of Claim 1, that computing or processing of specific information in accordance with its purpose of use, that is, the identification of distribution areas including current location input as a search key, is realized by specific means or specific procedures, that is, a series of information processing by the contents distribution server that stores area management data by means of the collaboration between the software ("structured data" equivalent to the computer program) and hardware resources. The "structured data" is thus determined to establish an operating method of a specific information processing device in accordance with the purpose of use by means of the collaboration between the software and hardware resources.

  Therefore, as information processing specific by the "structured data" equivalent to the computer program is realized specifically using hardware resources, the area management data of Claim 1 is a creation of the technical idea utilizing a law of nature and thus falls under "invention".

Eligibility (Data structure of encrypted package file)

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[Claim 1]
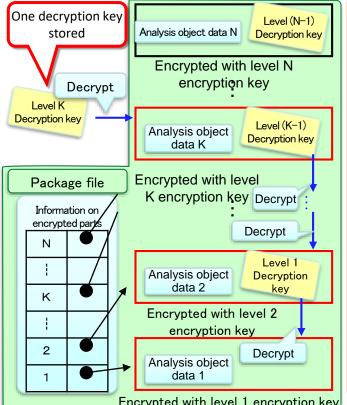　A data structure of a package file comprising;
　encrypted data in which each part of data subject to analysis is encrypted with an encryption key in accordance with a security level 1 - N (N is an integer of 2 or larger) of the part;
　a plurality of encrypted decryption keys whose security level is 1 - (N-1) encrypted with encryption keys whose security level is one level higher than them; and
　information on the said encrypted data part indicating said encrypted data parts and said encrypted decryption keys which are encrypted with said encryption keys, wherein;
　an analyzing device equipped with a memory part that stores the said package file and a decryption key whose security level is any of 1 - N and a decryption unit that decrypts data with the said decryption keys; and
　it is used to repeat a process in which the analyzing device, in accordance with information indicated by the said information on encrypted parts, decrypts and acquires parts that can be decrypted with the said decryption keys and encrypted decryption keys whose security level is one level lower among the said encrypted data until the device decrypts and acquires encrypted decryption keys of security level 1.

One decryption key stored

Decrypt

Level K Decryption key

Package file

Information on encrypted parts

N
⋮
K
⋮
2
1

Analysis object data N — Level (N–1) Decryption key

Encrypted with level N encryption key

Analysis object data K — Level (K–1) Decryption key

Encrypted with level K encryption key — Decrypt

Decrypt

Analysis object data 2 — Level 1 Decryption key

Encrypted with level 2 encryption key

Decrypt

Analysis object data 1

Encrypted with level 1 encryption key

◎ **Fall under invention**

[Explanation]
　The data structure of package file of Claim 1 can be said to be a data structure which enables the processing of decrypting encrypted parts and decryption keys of subordinate security levels sequentially, from its statement that "an analyzing device equipped with a memory part that stores the said package file and a decryption key whose security level is any of 1 - N and a decryption unit that decrypts data with the said decryption keys; and it is used to repeat a process in which the analyzing device, in accordance with information indicated by the said information on encrypted parts, decrypts and acquires parts that can be decrypted with the said decryption keys and encrypted decryption keys whose security level is one level lower among the said encrypted data until the device decrypts and acquires encrypted decryption keys of security level 1." Since the data structure has characteristics similar to the computer program in that it specifies information processing performed by an analyzing device, it is equivalent to the computer program (computer software).
　Moreover, we may determine, from the statement of Claim 1, that computing or processing of specific information in accordance with its purpose of use, that is, an analyzing device having one decryption key sequentially decrypts encrypted parts and decryption keys of subordinate security levels and thereby decrypting the data parts in the range depending on the security level of the analyzing device, is realized by specific means or specific procedures, that is, a series of information processing by the analyzing device by means of the collaboration between the software (data structure equivalent to the computer program) and hardware resources. The data structure is thus determined to establish an operating method of the specific information processing device in accordance with the purpose of use by means of the collaboration between the software and hardware resources.
　Therefore, the data structure of Claim 1 is a creation of the technical idea utilizing a law of nature and thus falls under "invention."

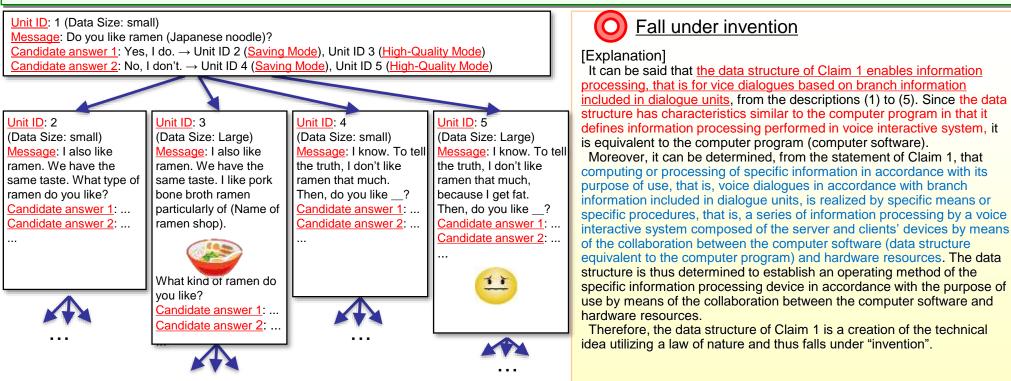Eligibility (Data structure of dialogue scenarios in voice interactive system)

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[Claim 1]
　A data structure of dialogue scenarios utilized in a voice interactive system composed of a client's device and a server, comprising: unit IDs that identify dialogue units constituting dialogue scenarios; messages including contents of utterances and information presented to users; a plurality of candidate answers in response to answers from users; information on communication mode; and a plurality of branch information mapped to each of the candidate answers and information on communication mode, wherein the branch information indicates the following dialogue unit which contains messages corresponding to the said candidate answers and whose data size is corresponding to the said information on communication mode;
　wherein the said data structure of dialogue scenarios is utilized for the following processing performed by the said client's device:
(1) outputting a message included in the current dialogue unit;
(2) acquiring an answer from the user in response to the said message;
(3) specifying the said candidate answer based on the answer from the said user, and specifying the said communication mode information set for said client's device;
(4) selecting one branch information based on specified said candidate answer and information on communication mode; and
(5) receiving from the server a following dialogue unit indicated by the selected branch information.

Unit ID: 1 (Data Size: small)
Message: Do you like ramen (Japanese noodle)?
Candidate answer 1: Yes, I do. → Unit ID 2 (Saving Mode), Unit ID 3 (High-Quality Mode)
Candidate answer 2: No, I don't. → Unit ID 4 (Saving Mode), Unit ID 5 (High-Quality Mode)

Unit ID: 2
(Data Size: small)
Message: I also like ramen. We have the same taste. What type of ramen do you like?
Candidate answer 1: ...
Candidate answer 2: ...
...

Unit ID: 3
(Data Size: Large)
Message: I also like ramen. We have the same taste. I like pork bone broth ramen particularly of (Name of ramen shop).

What kind of ramen do you like?
Candidate answer 1: ...
Candidate answer 2: ...

Unit ID: 4
(Data Size: small)
Message: I know. To tell the truth, I don't like ramen that much. Then, do you like __?
Candidate answer 1: ...
Candidate answer 2: ...
...

Unit ID: 5
(Data Size: Large)
Message: I know. To tell the truth, I don't like ramen that much, because I get fat. Then, do you like __?
Candidate answer 1: ...
Candidate answer 2: ...
...

◎ Fall under invention

[Explanation]
　It can be said that the data structure of Claim 1 enables information processing, that is for vice dialogues based on branch information included in dialogue units, from the descriptions (1) to (5). Since the data structure has characteristics similar to the computer program in that it defines information processing performed in voice interactive system, it is equivalent to the computer program (computer software).
　Moreover, it can be determined, from the statement of Claim 1, that computing or processing of specific information in accordance with its purpose of use, that is, voice dialogues in accordance with branch information included in dialogue units, is realized by specific means or specific procedures, that is, a series of information processing by a voice interactive system composed of the server and clients' devices by means of the collaboration between the computer software (data structure equivalent to the computer program) and hardware resources. The data structure is thus determined to establish an operating method of the specific information processing device in accordance with the purpose of use by means of the collaboration between the computer software and hardware resources.
　Therefore, the data structure of Claim 1 is a creation of the technical idea utilizing a law of nature and thus falls under "invention".

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〈③ Data analysis and learning〉
Examination Handbook Annex B
Chapter 1, 3.Cases, Case 2-14

Eligibility (Trained model for analyzing reputations of accommodations)

[Claim 1]
   A trained model for causing a computer to function to output quantified values of reputations of accommodations based on text data on reputations of accommodations, wherein; the model is comprised of a first neural network and a second neural network connected in a way that the said second neural network receives output from the said first neural network; the said first neural network is comprised of an input layer to intermediate layers of a feature extraction neural network in which the number of neurons of at least one intermediate layer is smaller than the number of neurons of the input layer, the number of neurons of the input layer and the number of the output layer are the same, and weights were trained in a way each value input to the input layer and each corresponding value output from output layer become equal; weights of the said second neural network were trained without changing the weights of the said first neural network; and the model causes the computer function to perform a calculation based on the said trained weights in the said first and second neural networks in response to appearance frequency of specific words obtained from the text data on reputations of accommodations input to the input layer of the said first neural network and to output the quantified values of reputations of accommodations from the output layer of the said second neural network.

Text data on reputations of accommodations

Frequency of appearance of "Like"
Frequency of appearance of "!"

First neural network   **Second neural network**

Trained model of the present invention

Quantified value of reputation of accommodation

e.g. "★10 stars".

Input layer   Intermediate layers

Text data on reputations of accommodations

Frequency of appearance of "Like"
Frequency of appearance of "!"

Feature extraction neural network

Frequency of appearance of "Like"
Frequency of appearance of "!"

Input value to input layer and output value to output layer are set at same value

Input layer   Intermediate layers   Output layer

[Detailed Description of the Invention]
   The trained model of the present invention is supposed to be utilized as a program module which constitutes a part of artificial intelligence software.
   …
   The trained model of the present invention is utilized in a computer equipped with a CPU and a memory. Specifically, the CPU of the computer operates, in accordance with instructions from the trained model stored in the memory, in a way that it performs a calculation based on trained weights and response functions in the first and second neural networks in response to data input to input layers of the first neural network (appearance frequency of specific words obtained from text data of reputations of accommodations, e.g. by performing morphological analyses) and outputs results (quantified values of reputations) from output layers of the second neural network.

Eligibility (Trained model for analyzing reputations of accommodations)

◎ **Fall under invention**

［Explanation］
　The trained model of Claim 1 is what <u>causes the computer to function to perform a calculation based on the said trained weights in the said first and second neural networks in response to appearance frequency of specific words obtained from the text data on reputations of accommodations input to the input layer of the said first neural network and to output the quantified values of reputations of accommodations from the output layer of the said second neural network.</u>
　Moreover, considering the descriptions which states that <u>"the trained model is supposed to be utilized as a program module which constitutes a part of artificial intelligence software"</u> and <u>"the CPU of the computer operates, in accordance with instructions from the trained model stored in the memory, in a way that it performs a calculation based on trained weights and response functions in the first and second neural networks in response to data input to input layers of the first neural network and outputs results from output layers of the second neural network".</u>
　Considering the Claim and detailed description of the invention, <u>it is clear that the trained model of Claim 1 is a "program" even though the claimed subject matter of Claim 1 is described as a "model.</u> (*)

　Moreover, it is determined, from the statement of Claim 1, that specific calculation or processing of specific information depending on the intended use which is accurate analysis of reputations of accommodations, is implemented by specific means or specific procedures on which software and hardware resources cooperate, which is for a computer to "function to perform a calculation based on the said trained weights in the said first and second neural networks in response to appearance frequency of specific words obtained from the text data on reputations of accommodations input to the input layer of the said first neural network and to output the quantified values of reputations of accommodations from the output layer of the said second neural network."
　For this reason, in the trained model of Claim 1, a specific information processing system depending on intended use is constructed through cooperation of software and hardware resources.

　Therefore, since the information processing by software is specifically implemented by using hardware resources, the trained model of Claim 1 is a creation of the technical idea utilizing a law of nature and thus falls under "invention".

(*) The trained model of Claim 1 is not composed only of weights (a parameter set) for the neural network, but it is a "program."

２－３． Case examples of examination regarding patentability of IoT related technologies

Inventive step (Learning system comprising on-vehicle devices and server)

Examination Handbook Annex A
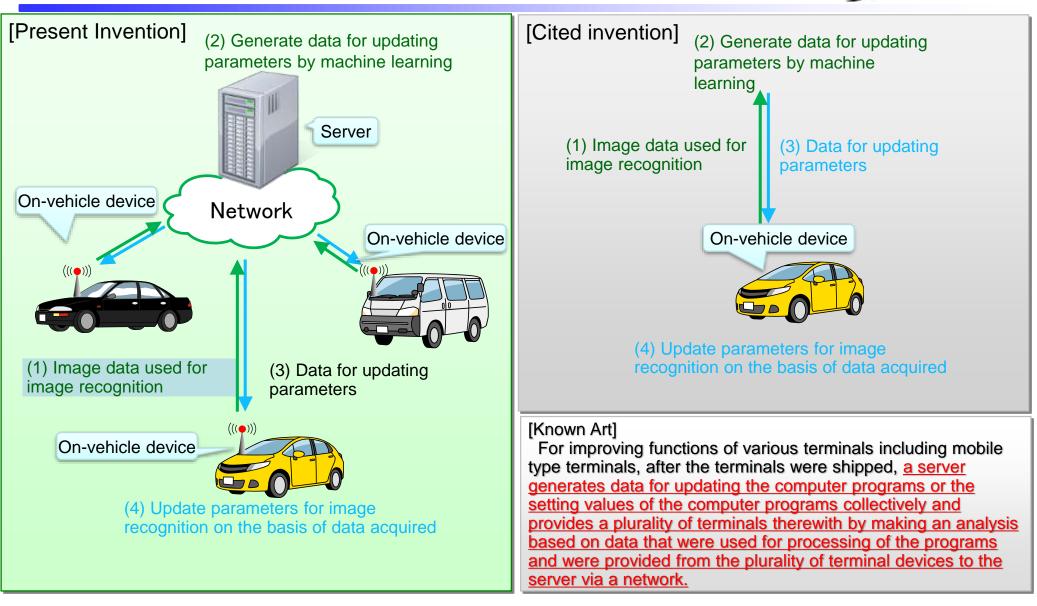5. Cases regarding inventive step　Case 31

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[Claim 1]
　A learning system comprising a plurality of on-vehicle devices mounted on a plurality of vehicles respectively and a server that communicates with the said plurality of on-vehicle devices via a network,
　wherein the said plurality of on-vehicle devices is comprised of:
　an image recognition unit that executes image recognition, based on specific parameters, using image data around the vehicle taken by an on-vehicle camera;
　a provision unit that provides the said server with the image data used for the said image recognition as data for learning;
　an acquisition unit that acquires data to update the said parameters provided from the said server; and
　an updating unit that updates the said parameters based on the said acquired data,
　wherein, the said server is comprised of:
　an acquisition unit that acquires the said data for learning provided from the said plurality of on-vehicle devices:
　a learning unit that carries out machine learning based on the said data for learning and generates data for updating the said parameters; and
　a provision unit that provides the said plurality of on-vehicle devices with the said data for updating.

[Cited Invention]
　A learning system comprising an on-vehicle device mounted on a vehicle,

　wherein the on-vehicle device is comprised of:
　an image recognition unit that executes image recognition, based on specific parameters, using image data around the vehicle taken by an on-vehicle camera;
　a provision unit that provides image data used for the said image recognition as data for learning;

　an acquisition unit that acquires the said data for learning provided;

　a learning unit that performs machine learning based on the said data for learning to generate data to update the said parameters;
　a provision unit that provides data to update the said parameters;

　an acquisition unit that acquires data to update the said parameters;
　an updating unit that updates the said parameters based on the said acquired data.

　Also, an on-vehicle device in said learning system.

[Present Invention]

(2) Generate data for updating parameters by machine learning

Server

On-vehicle device

Network

On-vehicle device

(1) Image data used for image recognition

(3) Data for updating parameters

On-vehicle device

(4) Update parameters for image recognition on the basis of data acquired

[Cited invention]

(2) Generate data for updating parameters by machine learning

(1) Image data used for image recognition

(3) Data for updating parameters

On-vehicle device

(4) Update parameters for image recognition on the basis of data acquired

[Known Art]
  For improving functions of various terminals including mobile type terminals, after the terminals were shipped, a server generates data for updating the computer programs or the setting values of the computer programs collectively and provides a plurality of terminals therewith by making an analysis based on data that were used for processing of the programs and were provided from the plurality of terminal devices to the server via a network.

❌ **Lack Inventive Step**

［Explanation］
(Difference between Present Invention and Cited Invention)
　The invention of Claim 1 is a learning system comprising a plurality of on-vehicle devices mounted on a plurality of vehicles respectively and a server that communicates with the said plurality of on-vehicle devices via a network, wherein, the said plurality of on-vehicle devices are comprised of a provision unit that provides the said server with data for learning and an acquisition unit that acquires data for updating parameters provided from the said server, and the said server is comprised of an acquisition unit that acquires data for learning provided from the said plurality of on-vehicle devices, a learning unit that carries out machine learning based on the said data for learning and generates data for updating the said parameters and a provision unit that provides the said plurality of on-vehicle devices with the said data for updating. On the other hand, the Cited Invention is a learning system comprising an on-vehicle device, wherein, the said on-vehicle device is comprised of a learning unit that carries out machine learning based on data for learning and generates data for updating parameters, but the on-vehicle device is not a plurality of vehicles that are mounted on a plurality of vehicles respectively and the said on-vehicle device and a server are not comprised of a provision unit and an acquisition unit to provide data each other and acquire data.

(Decision)
(Motivation to apply known art to Cited Invention)
(1) Similarity of problems to be solved (common)
　The cited invention and the well-known art have a common problem to be solved in that processing performance and functions of the computer software are improved after mobile-type devices on which the computer software is installed are shipped.
(3) Similarity of functions (common)
　The cited invention and the well-known art have a common function that they generate data for updating the computer software based on data used for the processing thereof and update it based on the said generated data.

　Thus, a person skilled in the art could have easily conceived of applying the well-known art to the cited invention and conceived of a configuration of the learning system comprising a plurality of on-vehicle devices mounted on a plurality of vehicles respectively and a server that communicates with the said plurality of on-vehicle devices via a network, wherein, the said plurality of on-vehicle devices are comprised of a provision unit that provides the said server with data for learning and an acquisition unit that acquires data for updating parameters provided from the said server, and the said server is comprised of an acquisition unit that acquires data for learning provided from the said plurality of on-vehicle devices, a learning unit that carries out machine learning based on the said data for learning and generates data for updating the said parameters and a provision unit that provides the said plurality of on-vehicle devices with the said data for updating.
　Furthermore, an effect of the invention of Claim 1 that the image recognition performance can be improved after shipment is also to the extent that a person skilled in the art can predict.

[Measures of Applicant]
　The applicant makes an amendment to add the following points: the provision unit of the on-vehicle devices provides the server with data on running conditions together with image data as data for learning, and the learning unit of the server classifies data for learning into a plurality of groups based on the said data on running conditions, carries out machine learning and generates data for updating parameters depending on each running condition.
　In addition, the applicant argues in the written opinion that high-precision image recognition can be realized even in a rare running condition for some vehicles, for example, in a running condition that a vehicle that does not usually drive on a freeway actually runs on a freeway and changes the driving lane. By these measures, the above reasons for refusal are overcome.

<③ Data Analysis and learning>

Inventive step (Quality management program of manufacturing lines) Examination Handbook Annex A
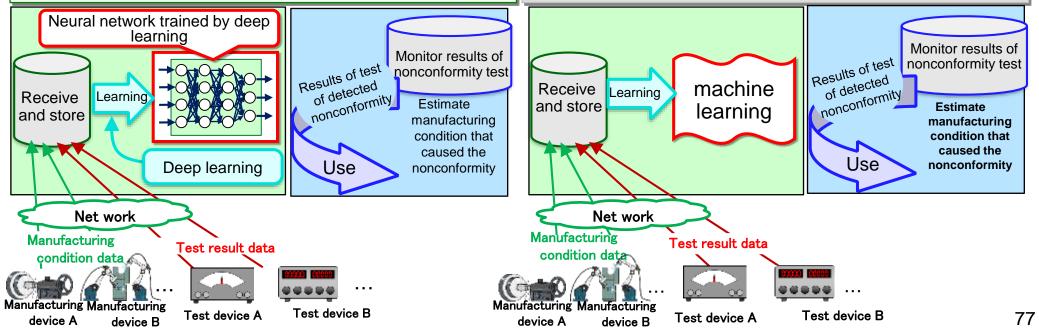5. Cases regarding inventive step   Case 32

[Claim 1]
  A quality management program of manufacturing lines causing a computer to realize:
  a function of receiving data on inspection results of products that went through predetermined manufacturing processes and were inspected with regard to each of predetermined inspection items from inspection devices via a network and of storing it in a database;
  a function of receiving data on manufacturing conditions when the products were manufactured from manufacturing devices via a network and of storing it in the said database after associating it with the said data on inspection results;
  a function of training a neural network by means of deep learning about a relationship between inspection results of the said data on inspection results stored in the said database and manufacturing conditions that caused non-conformity among the said data on manufacturing conditions;
  a function of monitoring test results data stored in the said database; and
  a function of estimating manufacturing conditions that caused the non-conformity using the said trained neural network when the non-conforming test result is found as a result of the said monitoring.

[Cited invention]
  A quality management program of manufacturing lines causing a computer to realize:
  a function of receiving data on inspection results of products that went through predetermined manufacturing processes and were inspected with regard to each of predetermined inspection items from inspection devices via a network and of storing it in a database;
  a function of receiving data on manufacturing conditions when the products were manufactured from manufacturing devices via a network and of storing it in the said databased after associating it with the said data on inspection results;
   a function of machine learning about a relationship between inspection results of the said data on inspection results stored in the said database and manufacturing conditions that caused non-conformity among the said data on manufacturing conditions;
  a function of monitoring test results data stored in the said database; and
  a function of estimating manufacturing conditions that caused the non-conformity using the said machine learning result when the non-conforming test result is found as a result of the said monitoring.

＜③ Data analysis and learning＞

Inventive step (Quality management program of manufacturing lines) Examination Handbook Annex A
5.Cases regarding inventive step Case 32

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[Well-known Art]
  In the technical field of machine learning, training a neural network by means of deep learning and making an estimation using this trained neural network.

❌ **Lack Inventive Step**

[Explanation]
(Difference between Present Invention and Cited Invention)
  The invention of Claim 1 trains a neural network by means of deep learning and estimates manufacturing conditions that caused the non-conformity using the said trained neural network, while the cited invention 1 performs machine learning and estimates manufacturing conditions that caused the non-conformity using the said machine learning result, but is not clear whether the machine learning has a neural network be trained by means of deep learning.

 (Decision)
・Motivation to apply the well-known art to the Cited Invention
(1) Similarity of problems to be solved (common)
 The cited invention and the well-known art have a common problem that they make a highly-precise estimation using machine learning results.
(3) Similarity of functions (common)
  The cited invention and the well-known art have a common function that they perform machine learning and make an estimation using the machine learning results.

  The cited invention and the well-known art have a common problem of making a highly-precise estimation using machine learning results. Moreover, they have a common function that they perform machine learning to make an estimation using the machine learning results.
  A person skilled in the art could have easily conceived of applying the well-known art to the cited invention and conceived of training a neural network by means of deep learning and estimating manufacturing conditions that caused non-conformity using the trained neural network.
  Furthermore, an effect of the invention of Claim 1 that it becomes possible to make a highly-precise estimation, because manufacturing conditions that caused non-conformity are estimated by using a trained neural network by means of deep learning, is also to the extent that a person skilled in the art can predict.

[Measures taken by the applicant]
  The applicant makes an amendment to add the following points: a variable forgetting coefficient γ is multiplied by the weights of the neural network at the time of learning, the said forgetting coefficient γ is set by a bivariable function of γ=f(k, t1), wherein k quantitatively indicates the degree of change in characteristics of manufacturing devices across the ages and t1 indicates the time elapsed from the previous maintenance, and the said degree of change k is set by a bivariable function of k=g(α, t2), wherein α indicates a type of manufacturing devices and t2 indicates the total operating time thereof.
  In addition, the applicant argues in the written opinion that the use of such a forgetting coefficient enables construction of a more appropriate trained neural network and thus enables higher precise estimation. The reasons for refusal are thus resolved.
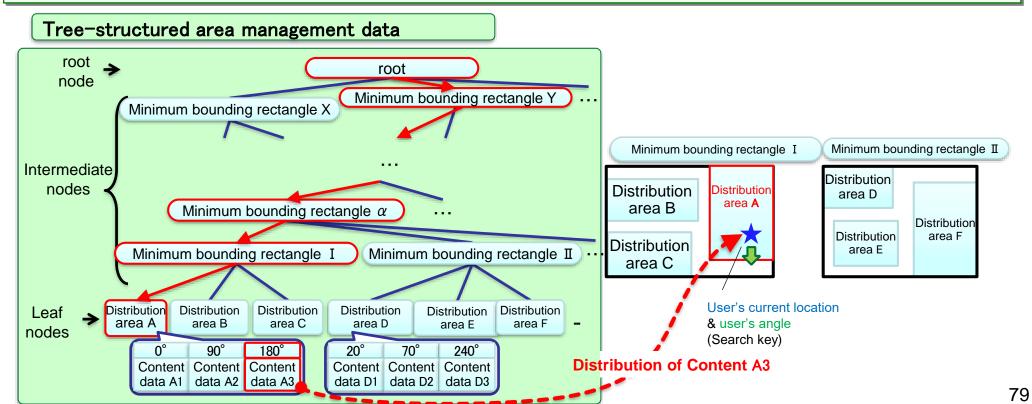
Inventive step (Tree-structured area management data)

<② Data management >
Examination Handbook Annex B
Chapter 1, 3.Cases, Case 3-4

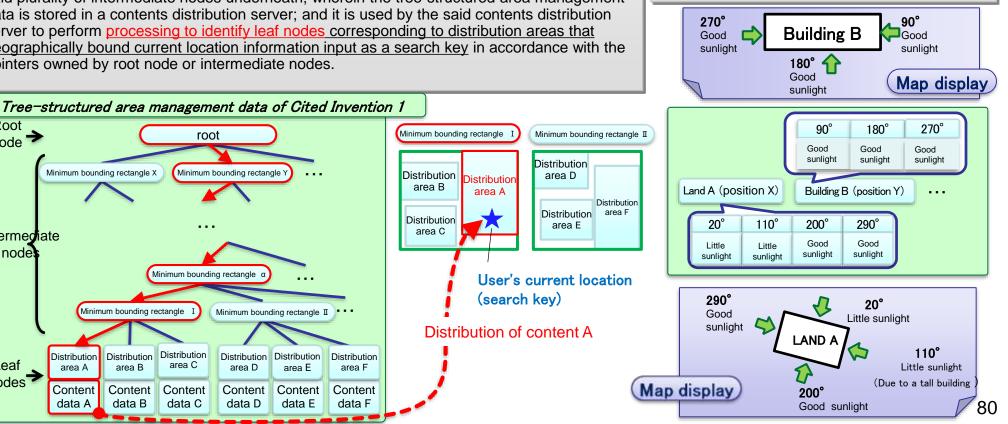特許庁 JAPAN PATENT OFFICE

[Claim 1]
　Tree-structured area management data comprising in the order of single-layer root node, multi-layer intermediate nodes and single-layer leaf nodes from the top, wherein; the said leaf nodes have location information on distribution areas and contents data associated with a plurality of angles; among the said intermediate nodes, those equipped with the said plurality of leaf nodes underneath have pointers to the said plurality of leaf nodes underneath and location information of the minimum bounding rectangle that bounds the said plurality of distribution areas corresponding to the plurality of leaf nodes underneath with the minimum area; among the said intermediate nodes, those equipped with a plurality of intermediate nodes underneath have pointers to the said plurality of intermediate nodes underneath and location information of the minimum bounding rectangle that bounds the said minimum bounding rectangle owned by the plurality of intermediate nodes underneath with the minimum area; the said root node has pointers to the said plurality of intermediate nodes underneath; wherein the tree-structured area management data is stored in a contents distribution server; and it is used by the said contents distribution server to perform processing to identify leaf nodes corresponding to distribution areas that geographically contain information on current position input as a search key in accordance with the pointers owned by a root node or intermediate nodes, and to identify contents data associated with an angle closest to angle information input as a search key among contents data owned by the said identified leaf nodes.

Tree-structured area management data

Distribution of Content A3

User's current location & user's angle (Search key)

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Inventive step (Tree-structured area management data)

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[Cited invention 1]

Tree-structured area management data comprising in the order of single-layer root node, multi-layer intermediate nodes and single-layer leaf nodes from top, wherein; the said leaf nodes have location information on distribution areas and contents data; among the said intermediate nodes, those equipped with the said plurality of leaf nodes underneath have pointers to the said plurality of leaf nodes underneath and location information having a minimum bounding rectangle that bounds the said plurality of distribution areas corresponding to the plurality of leaf nodes underneath with the minimum area; among the said intermediate nodes, those equipped with a plurality of intermediate nodes underneath have pointers to the said plurality of intermediate nodes underneath and location information having the minimum bounding rectangle that bounds the said minimum bounding rectangles owned by the plurality of intermediate nodes underneath with the minimum area; the said root node has pointers to the said plurality of intermediate nodes underneath; wherein the tree-structured area management data is stored in a contents distribution server; and it is used by the said contents distribution server to perform processing to identify leaf nodes corresponding to distribution areas that geographically bound current location information input as a search key in accordance with the pointers owned by root node or intermediate nodes.

[Cited invention 2]

Data to which location information indicating a location on a map of a geographical area, angle information indicating an angle in which the said geographical area has a surface and sunlight information indicating the condition of sunlight in the geographical area by angles, wherein, the data is used, when a map of the said geographical area is displayed on a computer display, for processing to display it by associating the said sunlight information therewith by the said angle information.

270°
Good sunlight

Building B

90°
Good sunlight

180°
Good sunlight

Map display

90°	180°	270°
Good sunlight	Good sunlight	Good sunlight

Land A (position X)　　Building B (position Y)　...

20°	110°	200°	290°
Little sunlight	Little sunlight	Good sunlight	Good sunlight

Tree-structured area management data of Cited Invention 1

Root node →

root

Minimum bounding rectangle X　Minimum bounding rectangle Y　...

Intermediate nodes

...

Minimum bounding rectangle α　...

Minimum bounding rectangle Ⅰ　Minimum bounding rectangle Ⅱ　...

Leaf nodes →

Distribution area A / Distribution area B / Distribution area C / Distribution area D / Distribution area E / Distribution area F

Content data A / Content data B / Content data C / Content data D / Content data E / Content data F

Minimum bounding rectangle Ⅰ

Distribution area B
Distribution area C
Distribution area A

Minimum bounding rectangle Ⅱ

Distribution area D
Distribution area E
Distribution area F

User's current location (search key)

Distribution of content A

290°
Good sunlight

20°
Little sunlight

LAND A

110°
Little sunlight
(Due to a tall building)

Map display

200°
Good sunlight

80

<②Data management>

Inventive step (Tree-structured area management data)

Examination Handbook Annex B
Chapter 1   3.Cases   Case 3-4

◎ Involve Inventive Step

[Explanation]

(Difference between Present Invention and Cited Invention)

  The leaf node of area management data claimed in the invention of Claim 1 has a plurality of contents data by angle associated with location information on rectangular distribution areas and a plurality of angles and is used for processing to identify contents data associated with an angle closest to angle information input as a search key. On the other hand, the leaf node of area management data claimed in the Cited Invention 1 has location information of rectangular distribution areas and one contents data and is used only for processing to identify contents data associated with a leaf node corresponding to a distribution area that geographically contains information on current location input as a search key. However, it does not have contents data by angle nor it is used for processing to identify contents data associated with an angle closest to angle information input as a search key.

(Decision)

*Motivation to apply Cited Invention 2 to Cited Invention 1
(1) Relation of technical fields (common)
  The Cited Invention 1 and the Cited Invention 2 have a common technical field in that both of them relate to a technology to manage information on geographical areas.
(2) Similarity of problems to be solved (not common)
  The problem to be solved by the Cited Invention 1 is, by identifying at high speed a distribution area that geographically contains information on current location of a user input as a search key, to identify at high speed the only contents data corresponding to the said information on current location, while the problem to be solved by the Cited Invention 2 is, when a geographical area is displayed on a map, display specific information by angle with respect to the said geographical area.
(3) Similarity of operations or functions (not common)
  The Cited Invention 1 is tree-structured data and used for processing to, by identifying at high speed a distribution area that geographically contains information on current location of a user input as a search key, to identify at high speed the only contents data corresponding to the said information on current location, through information processing in accordance with pointers owned by the root nodes and intermediate nodes. On the other hand, the Cited Invention 2 is data with which a plurality of specific information is associated by angle of geographical areas and used for processing to display the plurality of information by angle by associating it with the geographical areas, and is not used for processing to identify information based on an input search key.

  When considering the circumstances described from (1) to (3) above comprehensively, it is not determined that there is a motivation of applying the Cited Invention 2 to the Cited Invention 1.

  Moreover, an effect claimed in the invention of Claim 1 that the leaf node of area management data has a plurality of contents data by angle associated with plurality of angles so that different contents data may be distributed depending on angles to which users are facing even if they are in the same area is advantageous and not predicted based on the Cited Invention 1 or Cited Invention 2.

＜3D printing related technology＞

Eligibility (3D printing data of dolls and a 3D printing method of dolls)

Examination Handbook Annex A
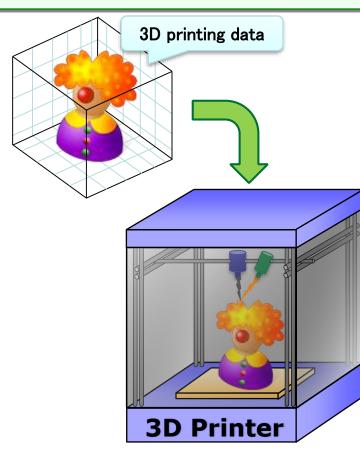3-1.Eligibility   Case 3-3

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[Claim 1]
  3D printing data of dolls read in a control unit of a 3D printer when a modeling unit of the said 3D printer models, characterized in that it includes three-dimensional shapes and color tones of dolls to be modeled.

[Claim 2]
  A 3D printing method of dolls using the said 3D printer based on the 3D printing data of dolls as described in Claim 1, comprising; a step in which the said control unit reads in the said 3D printing data; a step in which the said control unit controls the said modeling unit in a way that it dispenses modeling resin based on the three-dimensional shape included in the said 3D printing data; and a step in which the said control unit controls the said modeling unit in a way that it dispenses colorants of a plurality of colors based on the color tones included in the 3D printing data.

3D printing data

3D Printer

❌ Claim 1: Not fall under invention

⭕ Claim 2: Fall under invention

[Explanation]
- Claim 1
  Mere presentation of information does not fall under "invention" mentioned in the main paragraph of Article 29(1).
  The 3D printing data of dolls of Claim 1 does not add any technical feature to the means for or method of reading data in the control unit of the 3D printer, but it is characterized only in the content of information that "it includes three-dimensional shapes and color tones of dolls to be modeled," and its main object is to present information. Therefore, it is mere presentation of information and does not fall under "invention".

- Claim 2
  The 3D printer of the invention of Claim 2 controls a modeling unit in a way that it dispenses modeling resin and colorants of a plurality of colors based on three-dimensional shapes and color tones included in the 3D printing data. Therefore, the invention of Claim 2 is what concretely performs control of 3D printer which is an apparatus, or processing with respect to the control.
  Therefore, since the invention of Claim 2 is a creation of the technical idea utilizing a law of nature as a whole, it falls under "invention".

Eligibility (3D Printing data)

[Claim 1]

3D printing data used in a 3D printer which laminates model materials that finally constitute a 3D-modeled object and supporting materials that support the said model materials during modeling,

wherein the 3D printing data has a structure comprising in each layer of the said 3D-modeled object:

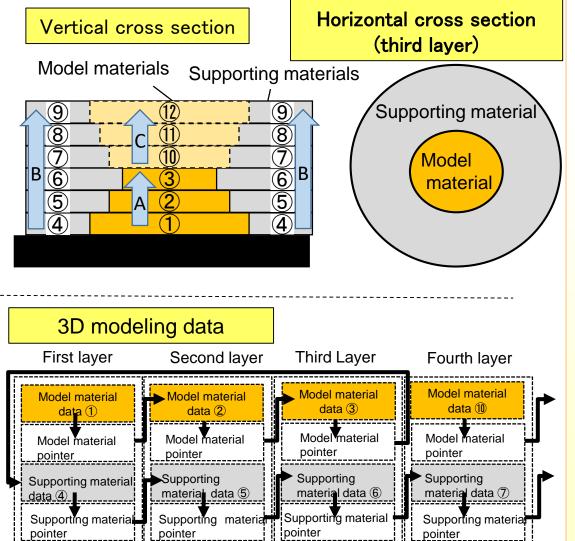model material data indicating the quantity and position of dispensation of the said model materials;

a model material pointer that points to data used for the following modeling of modeling based on the said model material data;

supporting material data indicating the quantity and position of dispensation of the said supporting materials; and

a supporting material pointer that points to data used for the following modeling of modeling based on the said supporting material data;

wherein (a) the model material pointer is set (a1) to point to the supporting material data of the lowermost layer that is not modeled at the time when modeling of the model material of the layer in which the modeling material pointer is included completed, in case where the model material of a next-higher layer has a protruding part in relation to the model material of the layer in which the model material pointer is included and where the supporting material of the same layer has not been modeled at the time when the modeling of the model material in which the model material pointer is included completed and, (a2) to point to the model material data of the next-higher layer, in case where the model material of the next-higher layer does not have the protruding part or where the supporting material of the same layer has been modeled at the time when the modeling completed, and

wherein (b) the supporting material pointer is set (b1) to point to the model material data of the lowermost layer that is not modeled at the time when modeling of the supporting material of the layer in which the supporting material pointer is included completed, in case where the supporting material of a next-higher layer has a protruding part in relation to the supporting material of the layer in which the supporting material pointer is included and where the model material of the same layer has not been modeled at the time when the modeling of the supporting material in which the supporting material pointer is included completed and, (b2) to point to the supporting material data of the next-higher layer, in case where the supporting material of the next-higher layer does not have the protruding part or where the model material of the same layer has been modeled at the time when the modeling completed; and

wherein the 3D printing data is used by a control unit of the said 3D printer for processing to acquire the model material data or the supporting material data from a memory unit of the said 3D printer in accordance with the said model material pointer or the supporting material pointer after the modeling based on the said model material data or the supporting material data.

Eligibility (3D printing data)

〈3D printing related technology〉

Examination Handbook Annex B
Chapter 1　3.Cases　Case 2-15

Vertical cross section

Model materials　　Supporting materials

Horizontal cross section (third layer)

Supporting material

Model material

3D modeling data

First layer	Second layer	Third Layer	Fourth layer
Model material data ①	Model material data ②	Model material data ③	Model material data ⑩
Model material pointer	Model material pointer	Model material pointer	Model material pointer
Supporting material data ④	Supporting material data ⑤	Supporting material data ⑥	Supporting material data ⑦
Supporting material pointer	Supporting material pointer	Supporting material pointer	Supporting material pointer

(Note): The model material of the 4th layer is modeled after the supporting material of the 6th layer is modeled.

◎　Fall under invention

It is determined that the 3D printing data of Claim 1 is, from its statement that "it comprises a model material pointer that points to data used for the following modeling of modeling based on the said model material data" and "a supporting material pointer that points to data used for the following modeling of modeling based on the said supporting material data", and "the 3D printing data is used by a control unit of the said 3D printer for processing to acquire the model material data or the supporting material data from a memory unit of the said 3D printer in accordance with the said model material pointer or the supporting material pointer after the modeling based on the said model material data or the supporting material data", data having a structure enabling the information processing by the control unit, of acquiring data used for the following modeling from the memory unit after the modeling is performed based on the model material data or the supporting material data. Thus, this 3D printing data is structured data (computer software) equivalent to the computer program, because it has characteristics similar to the computer program in that it specifies information processing by the control unit based on its own structure.

The method of concretely controlling an apparatus which is a 3D printer, or performing processing along with the control is a "creation of the technical idea utilizing a law of nature".

The invention of Claim 1, which is the computer software for causing the control unit to carry out the above method, thus falls under "invention".

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Inventive step (3D printing method and 3D printing data)

[Claim 1]
  A 3D printing method that laminates model materials that finally constitute a 3D-modeled object, supporting materials that have the lattice shape in planar view and support the said model materials during modeling and intermediate materials that are made of the same materials as the said supporting materials and are located between the said model materials and the said supporting materials during modeling,
  wherein the 3D printing method comprising in each of layers of the said 3D-modeled object:
  a step of performing a modeling by dispensing the said model materials;
  a step of performing a modeling by dispensing the said intermediate materials; and
  a step of performing a modeling by dispensing the said supporting materials; and
  wherein the 3D printing method carries out a step of,
  (A) after the step of performing a modeling by dispensing the model materials,
(A1) performing a modeling by dispensing the intermediate materials of the lowermost layer that have not been modeled at the time when the said step completed, in case where the model material of a next-higher layer has a protruding part in relation to the model material dispensed at the said step and where the intermediate material of the same layer has not been modeled at the time when the said step completed and (A2) performing a modeling by dispensing the model materials of the next-higher layer in case where it does not have a protruding part or where the intermediate material of the same layer has been modeled at the time when the said step completed,
  (B) after the step of performing a modeling by dispensing the said intermediate materials, performing a modeling by dispensing the supporting materials of the layer in which the said step was carried out; and
  (C) after the step of performing a modeling by dispensing the said supporting materials, (C1) performing a modeling by dispensing the model materials of the lowermost layer that have not been modeled at the time when the said step completed, in case where the supporting material and the intermediate material of a next-higher layer have protruding parts in relation to the supporting material and the intermediate material of the layer in which the step was carried out and where the model material of the same layer has not been modeled at the time when the said step completed and, (C2) performing a modeling by dispensing the intermediate materials of the next-higher layer in case where they do not have protruding parts or where the model material of the same layer in which the step was carried out has been modeled at the time when the said step completed.

[Cited invention 1]
  A 3D printing method that laminates model materials that finally constitute a 3D-modeled object and supporting materials that support the said model materials during modeling,

  wherein the 3D printing method comprising, in each of layers of the said 3D-modeled object:
  a step of performing a modeling by dispensing the said model materials; and

  a step of performing a modeling by dispensing the said supporting materials,
  wherein the 3D printing method carries out a step of
  (a) after the step of performing a modeling by dispensing the model materials,
(a1) performing a modeling by dispensing supporting materials of the lowermost layer that have not been modeled at the time when the said step completed, in case where the model material of a next-higher layer has a protruding part in relation to the model materials dispensed at the said step and where the supporting material of the same layer has not been modeled at the time when the said step completed and (a2) performing a modeling by dispensing model materials of the next-higher layer, in case where it does not have protruding parts or where supporting material of the same layer has not been modeled at the time when the said step completed, and

  (c) after the said step of performing a modeling by dispensing the supporting materials, (c1) performing a modeling by dispensing model materials of the lowermost layer that have not been modeled at the time when the step completed, in case where the supporting material of a next-higher layer has a protruding part in relation to the supporting materials dispensed at the said step and where the model material of the same layer has not been modeled at the time when the said step completed and, (c2) performing a modeling by dispensing the supporting materials of the next-higher layer in case where it does not have protruding parts or where the model material of the same layer has been modeled at the time when the said step completed.

<3D printing related technology>

Inventive step (3D printing method and 3D printing data)

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[Claim 2]

3D printing data used in a 3D printer that laminates model materials that finally constitute a 3D-modeled object, supporting materials that have the lattice shape in planar view and support the said model materials during modeling and intermediate materials that are made of the same material as the said supporting materials and are located between the said model materials and the said supporting materials during modeling,

wherein the 3D printing data has a structure comprising in each of layers of the said 3D-modeled object:

model material data indicating the quantity and position of dispensation of the said model materials;

a model material pointer that points to data used for a modeling following a modeling based on the said model material data;

intermediate material data indicating the quantity and position of dispensation of the said intermediate materials;

an intermediate material pointer that points to data used for a modeling following a modeling based on the said intermediate material data;

supporting material data indicating the quantity and position of dispensation of the said supporting materials;

a supporting material pointer that points to data used for a modeling following a modeling based on the said supporting material data;

wherein (A') the said model material pointer is set, (A'1) to point to the intermediate material data of the lowermost layer that is not modeled at the time when modeling of the model material of the layer in which the modeling material pointer is included completed, in case where the model material of a next-higher layer has a protruding part in relation to the model material of the layer in which the model material pointer is included and where the intermediate material of the same layer has not been modeled at the time when the modeling of the model material of the layer in which the model material pointer is included completed and, (A'2) to point to the model material data of the next-higher layer, in case where it does not have any protruded part or an intermediate material of the same layer has been modeled at the time when the modeling completed,
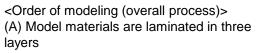
wherein (B') the said intermediate material pointer is set to point to supporting material data of the layer in which the pointer is included, and

wherein (C') the said supporting material pointer is set, (C'1) to point to the model material data of the lowermost layer that is not modeled at the time when modeling of the supporting material of the layer in which the supporting material pointer is included completed, in case where the supporting material and the intermediate material of a next-higher layer have protruding parts in relation to the supporting material and the intermediate material of the layer in which the supporting material pointer is included and where the model material of the same layer has not been modeled at the time when the modeling of the supporting material of the layer in which the supporting material pointer is included completed and, (C'2) to point to the intermediate material data of the next-higher layer, in case where they do not have any protruding parts or the model material of the same layer has been modeled at the time when the modeling completed; and

wherein the 3D printing data is used by a control unit of the said 3D printer for processing to acquire the said model material data, the intermediate data or the supporting material data from its memory unit of the said 3D printer in accordance with the said model material pointer, intermediate material pointer or supporting material pointer after the modeling based on the said model material data, intermediate material data or supporting material data.

[Cited invention 1]

A 3D printing method that laminates model materials that finally constitute a 3D-modeled object and supporting materials that support the said model materials during modeling,

wherein the 3D printing method comprising, in each of layers of the said 3D-modeled object:

a step of performing a modeling by dispensing the said model materials; and

a step of performing a modeling by dispensing the said supporting materials, and

wherein the 3D printing method carries out a step of, (a) after the step of performing a modeling by dispensing the model materials, (a1) performing a modeling by dispensing supporting materials of the lowermost layer that have not been modeled at the time when the said step completed, in case where the model material of a next-higher layer has a protruding part in relation to the model materials dispensed at the said step and where the supporting material of the same layer has not been modeled at the time when the said step completed and (a2) performing a modeling by dispensing model materials of the next-higher layer, in case where it does not have protruding parts or where supporting material of the same layer has not been modeled at the time when the said step completed and

(c) after the said step of performing a modeling by dispensing the supporting materials, (c1) performing a modeling by dispensing model materials of the lowermost layer that have not been modeled at the time when the step completed, in case where the supporting material of a next-higher layer has a protruding part in relation to the supporting materials dispensed at the said step and where the model material of the same layer has not been modeled at the time when the said step completed and, (c2) performing a modeling by dispensing the supporting materials of the next-higher layer in case where it does not have protruding parts or where the model material of the same layer has been modeled at the time when the said step completed.
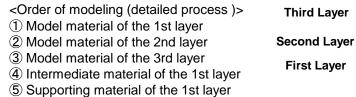
<3D printing related technology>
Examination Handbook Annex B
Chapter 1 3.Cases Case 3-5

Inventive step (3D printing method and 3D printing data)

<Order of modeling (overall process)>
(A) Model materials are laminated in three layers
(B) Intermediate materials and supporting materials are laminated in six layers
(C) Model materials are laminated in three layers

<Order of modeling (detailed process)>
① Model material of the 1st layer
② Model material of the 2nd layer
③ Model material of the 3rd layer
④ Intermediate material of the 1st layer
⑤ Supporting material of the 1st layer
⑥ Intermediate material of the 2nd layer
⑦ Supporting material of the 2nd layer
...

Vertical cross section

model materials Intermediate materials Supporting materials

⑮ ⑭ ⑱ ⑭ ⑮
⑬ ⑫ C ⑰ ⑫ ⑬
⑪ ⑩ ⑯ ⑩ ⑪

Third Layer — B ⑨ ⑧ ③ ⑧ ⑨ B
Second Layer — ⑦ ⑥ A ② ⑥ ⑦
First Layer — ⑤ ④ ① ④ ⑤

Horizontal cross section (third layer)

Supporting material
Intermediate material
model material

3D modeling data

First layer | Second layer | Third layer | Fourth layer

First layer	Second layer	Third layer	Fourth layer
Model material data ①	Model material data ②	Model material data ③	Model material data ⑯
Model material pointer	Model material pointer	Model material pointer	Model material pointer
Intermediate material data ④	Intermediate material data ⑥	Intermediate material data ⑧	Intermediate material data ⑩
Intermediate material pointer	Intermediate material pointer	Intermediate material pointer	Intermediate material pointer
Supporting material data ⑤	Supporting material data ⑦	Supporting material data ⑨	Supporting material data ⑪
Supporting material pointer	Supporting material pointer	Supporting material pointer	Supporting material pointer

(Note): The model material of the fourth layer is modeled after the supporting material of the sixth layer is modeled.

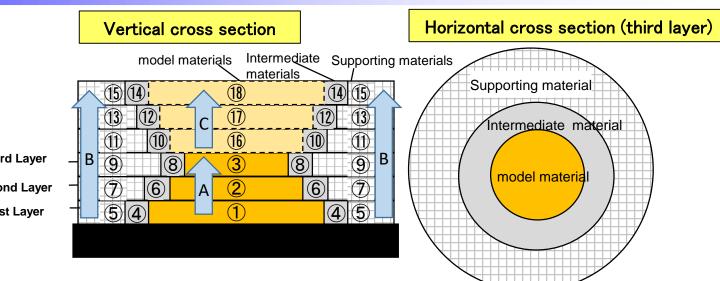## Inventive step (3D printing method and 3D printing data)

‹3D printing related technology›
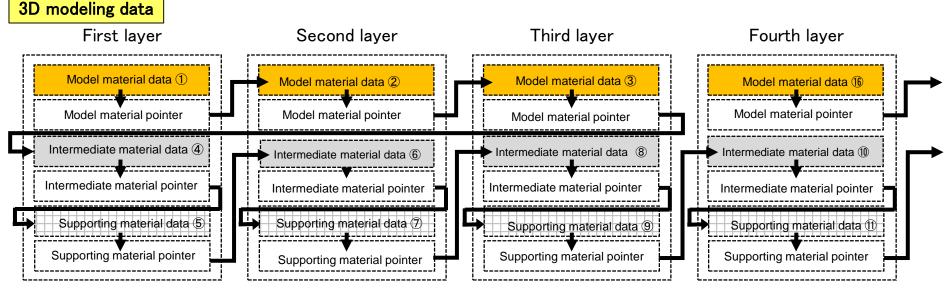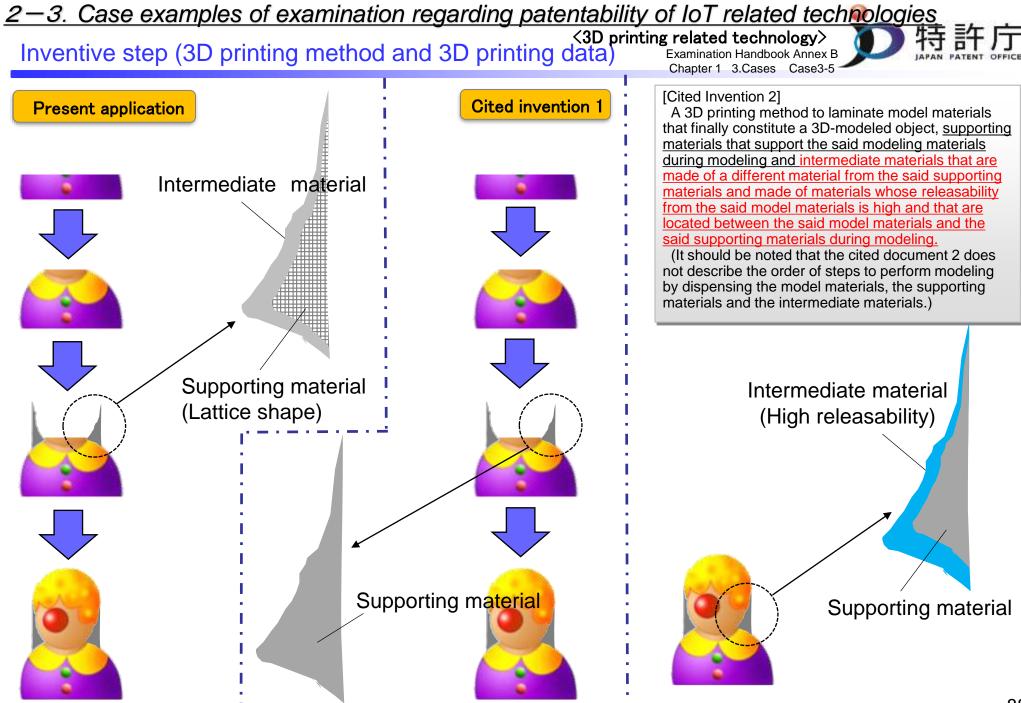Examination Handbook Annex B
Chapter 1 3.Cases Case3-5

Present application

Intermediate material

Supporting material
(Lattice shape)

Cited invention 1

Supporting material

[Cited Invention 2]
A 3D printing method to laminate model materials that finally constitute a 3D-modeled object, supporting materials that support the said modeling materials during modeling and intermediate materials that are made of a different material from the said supporting materials and made of materials whose releasability from the said model materials is high and that are located between the said model materials and the said supporting materials during modeling.
(It should be noted that the cited document 2 does not describe the order of steps to perform modeling by dispensing the model materials, the supporting materials and the intermediate materials.)

Intermediate material
(High releasability)

Supporting material

〈3D printing related technology〉

Inventive step (3D printing method and 3D printing data)

Examination Handbook Annex B
Chapter 1 3.Cases Case 3-5

⊚ **Involve inventive step**

[Explanation]
  The invention of Claim 1 laminates materials including intermediate materials that are made of the same material as supporting materials and are located between model materials and supporting materials during modeling, and, relating to a step of performing modeling by dispensing the intermediate materials, carries out a step of, (A) after the step of performing a modeling by dispensing the model materials, (A1) performing a modeling by dispensing the intermediate materials of the lowermost layer that have not been modeled at the time when the said step completed, in case where the model material of a next-higher layer has a protruding part in relation to the model material dispensed at the said step and where the intermediate material of the same layer has not been modeled at the time when the said step completed, (B) after the step of performing a modeling by dispensing the said intermediate materials, performing a modeling by dispensing the supporting materials of the layer in which the said step was carried out; and (C) after the step of performing a modeling by dispensing the said supporting materials, (C2) performing a modeling by dispensing the intermediate materials of the next-higher layer in case where they do not have protruding parts or where the model material of the same layer in which the step was carried out has been modeled at the time when the said step completed. On the other hand, the cited invention 1 does not laminate materials including intermediate materials nor specify the steps of performing a modeling by dispensing the intermediate materials.

(Decision)
*Motivation to apply Cited Invention 2 to Cited Invention 1
(1) Relation of technical fields (common)
  Both the cited invention 1 and the cited invention 2 relate to a 3D printing method to laminate model materials that finally constitute a 3D-modeled object and supporting materials that support the said model materials during modeling.
(2) Similarity of problems to be solved (common)
  Although the cited document 1 does not clearly describe a problem to be solved about the removal of supporting materials, making the removal of the supporting materials easier is an obvious problem for persons skilled in the art, because they are removed after the modeling of the 3D-modeled object completes.

  However, the cited invention 2 laminates materials including intermediate materials that are located between the model materials and the supporting materials, but the intermediate materials are made not of the same material as, but of a different material from, the supporting materials. Moreover, the cited invention 2 does not specify the order of steps of performing a modeling by dispensing model materials, support materials and intermediate materials.
  Furthermore, the cited invention 2 makes it easier to mechanically release and remove the supporting materials from the model materials by using the intermediate materials that are different from the supporting material and whose releasability from the said model materials is high. Therefore, not only making it easier to remove supporting materials and intermediate materials by means of solvents by adopting the same material for those materials and but also reducing the number of changes of materials to be dispensed by setting a specific order of carrying out the step of performing a modeling by dispensing the intermediate materials, for example, by carrying out a step of performing a modeling by dispensing the supporting materials made of the same materials after the said step for the intermediate materials are not matters persons who had contact with the cited invention 1 and the cited invention 2 could have drawn from the common general technical knowledge.
  The matter relating to the above difference could not have been conceived only by applying the cited invention 2 to the cited invention 1 considering their technical fields and common problems and it cannot be deemed as a design variation (a design variation or adoption of a matter of design variation along with the specific application of an art to solve certain problem) that could have been made at the time of applying the cited invention 2 to the cited invention 1.

  The 3D printing data in the invention of Claim 2 realizes the 3D printing method in the invention of Claim 1.
  Therefore, for the same reason as the invention of Claim 1, persons skilled in the art could not have easily conceived of the invention of Claim 2.
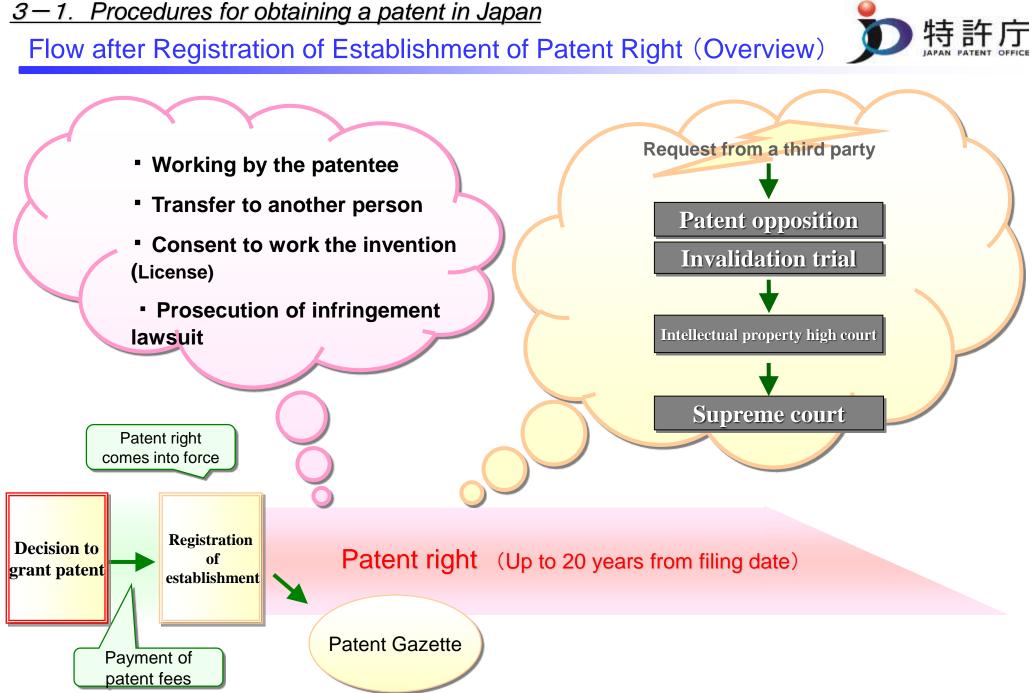
Flow after Registration of Establishment of Patent Right（Overview）

・ **Working by the patentee**

・ **Transfer to another person**

・ **Consent to work the invention (License)**

・ **Prosecution of infringement lawsuit**

Request from a third party

Patent opposition

Invalidation trial

Intellectual property high court

Supreme court

Patent right comes into force

Decision to grant patent

Registration of establishment

Payment of patent fees

Patent right （Up to 20 years from filing date）

Patent Gazette

Accelerated Examination System

Particular patent applications, such as working-related applications, internationally-filed applications, applications filed by small and medium-sized enterprises, etc., may be examined more quickly than under regular examination upon a request for accelerated examination.

- No fees are charged except the fee for requesting examination.
- Applicants are required to submit a written explanation about the circumstances regarding the filing of an accelerated examination (describing the need for accelerated examination, disclosing the prior art, explaining comparison with the invention, etc.).
- If the applicant(s) include SME(s) only, the responsibility for prior art search is reduced.

Prior art search is not always required; just listing prior art references that the applicant(s) know suffices.
(However, prior art search is required when a large company is included in the applicants.)

The pendency of patent examination is normally around 9 months from submission of a request for examination.

The application is examined in about 2 months from the request for accelerated examination.

Accelerated Examination and Accelerated Appeal Examination for patent applications:
https://www.jpo.go.jp/torikumi/t_torikumi/souki/v3souki.htm

Super Accelerated Examination System (started as a pilot program from Oct. 2008)

Patent applications which satisfy both of the requirements ① and ② may be examined more quickly than under the accelerated examination system upon a request for super accelerated examination.

① Patent applications which are working-related applications and internationally-filed applications.

② Patent applications for which all procedures have been made online from 4 weeks before the date of request.

- No fees are charged except the fee for requesting examination.
- Applicants are required to submit a written explanation about the circumstances regarding the filing of an accelerated examination (describing the need for accelerated examination, disclosing the prior art, explaining comparison with the invention, etc.).
- Applicants are required to conduct prior art search and explain comparison with the invention.

*When there is a search result by a foreign patent Office, disclosing the prior art cited in the foreign Office's search result and explaining comparison with the invention are needed.

Pendency for examination: within 1 month (In principle, it is within 2 months for international applications which have entered the national phase).
- Time limit for response from applicants or agents : within 30 days (within 2 months for residents abroad)
- Period from response to second examination：within 1 month

Expansion of the applicability of super accelerated examination:
https://www.jpo.go.jp/torikumi/t_torikumi/souki/supersoukisinsa_kakudai.htm

Green Accelerated Examination System (started as a pilot program from Nov. 2009)

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Environmental problems becoming more complicated and serious

Promoting research and development of environment-friendly "Green technologies" is needed

In order to promptly protect the benefits resulting from research and development of "Green technologies",

So as to promote further progress of the R&D activities,

Accelerated examination is applied to "Green-related applications"!

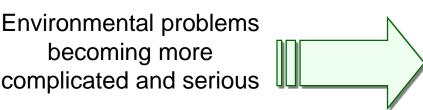Patent applications filed to obtain patents of inventions having effects like energy saving and CO_2 reduction (Green inventions)

＜Written explanation about the circumstances regarding the filing of an accelerated examination＞
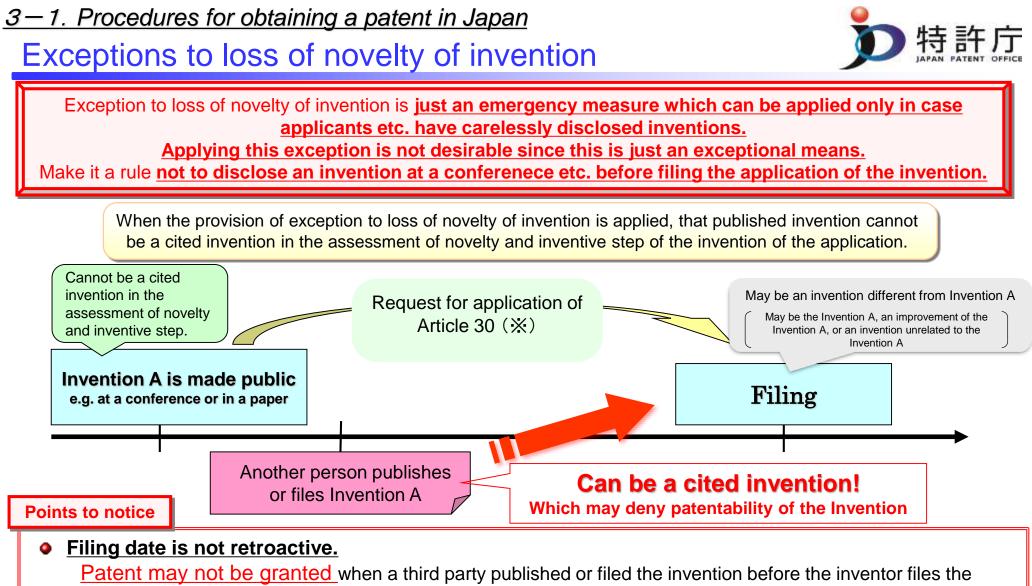
- Reasonable explanation as to how the application can be a Green invention.
- Prior art search should be conducted so as to disclose the prior art and explain comparison with the invention.

Commencement of "Green Accelerated Examination System" as a pilot program:
https://www.jpo.go.jp/torikumi/t_torikumi/souki/greensouki.htm

Exceptions to loss of novelty of invention

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Exception to loss of novelty of invention is **just an emergency measure which can be applied only in case applicants etc. have carelessly disclosed inventions.**
Applying this exception is not desirable since this is just an exceptional means.
Make it a rule **not to disclose an invention at a conferenece etc. before filing the application of the invention.**

When the provision of exception to loss of novelty of invention is applied, that published invention cannot be a cited invention in the assessment of novelty and inventive step of the invention of the application.

Cannot be a cited invention in the assessment of novelty and inventive step.

Request for application of Article 30（※）

May be an invention different from Invention A

May be the Invention A, an improvement of the Invention A, or an invention unrelated to the Invention A

Invention A is made public
e.g. at a conference or in a paper

Filing

Another person publishes or files Invention A

Can be a cited invention!
Which may deny patentability of the Invention

Points to notice

- **Filing date is not retroactive.**
  Patent may not be granted when a third party published or filed the invention before the inventor files the application.
- **Laws and regulations differ from country to country.**
  Even if an invention was patented in Japan, the invention may not always be patented in other countries.

※Refer to "Operational Guidelines for Applicants to Seek the Application of Exceptions to loss of novelty of Invention, corresponding to the Patent Act Article 30 Revised in 2018" <http://www.jpo.go.jp/tetuzuki_e/t_tokkyo_e/e_pae_paa30.htm>

Comparison among countries of rules of exceptions to loss of novelty of invention (outline)
(as of Jun. 2018)

	Pendency (months)	Reference Date	Subject	Requesting Procedure
Japan Patent Law, Article 30	12	**Filing date or National priority date**	(i) All public disclosure acts （any disclosure modes except by being published in patent gazette etc.)	**Required** ①To file a request for application at the time of filing ②To submit a certificate at the time of filing or later
			(ii) Disclosure against the will of the applicant etc.	**Not Required** (prove during examination）
USA 35 U.S.C. 102 (b)(1)	12	**Effective filing date (*1)**	(i) All public disclosure acts	**Not Required** (prove during examination)
Europe EPC, Article 55	6	**Filing date**	(i) Display of the invention at an international exhibition which is official or officially recognized by Article relating to international exhibitions.	**Required** ①To file a request for application at the time of filing ②To submit a certificate at the time of filing or later
			(ii) Evident abuse to the applicant etc.（*2）	**Not Required** (prove during examination）
China Patent Law, Article 24, Rule11	6	**Filing date or Priority date**	(i) Display at an international exhibition held or approved by Chinese Government (ii) Publication at academic or technical meetings held by the competent authority under the State Council or national academic organizations	**Required** ①To file a request for application at the time of filing ②To submit a certificate at the time of filing or later
			(iii) Leakage by a third party without any consent of the applicant	**Not Required** (prove during examination） *Required (①,②) if the applicant knew.
Korea Patent Law, Article 30	12	**Filing date**	(i) All public disclosure acts （any disclosure modes except being published in patent gazette etc.)	**Required** ①To file a request at the time of filing or later ② To submit a certificate at the time of filing or later
			(ii) Disclosure against the will of the applicant etc.	**Not Required** (prove duriing examination）

*1. When priority is claimed based on the Paris Convention, it is the filing date of the earliest application as the basis of the priority of the claimed invention. In the case of a continuation or divisional application, etc., it is the filing date of the earliest application which shall be retroactive for the claimed invention. Otherwise, it is the actual filing date.
*2. E.g. disclosure against the wish of the person having the right. (For more details, see Guidelines for Examination in the European Patent Office, Part G, Chapter V Non-prejudicial disclosures).

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Outlines of Filing Procedures through the Paris Convention Route and the PCT Route

特許庁
JAPAN PATENT OFFICE

- The rights granted by a Japanese patent have no effect in foreign countries (the principle of territoriality)
- A person desiring protection in a particular foreign country has to obtain patent in that country.

Paris Convention Route

Basic application (for example, filed with Japan Patent Office)

PCT route

File in each country within 12 months

Internationally file within 12 months

Receiving Office

File in the form and language defined by the laws and regulations of each country

International phase

International search report and written opinion

International Publication (18 months)

Demand for preliminary examination

USA | Europe | China

Granting of rights according to laws and regulations of each country

Submit a translation to each designated country (Within 30 months from basic application)

National phase

USA | Europe | China

Granting of rights according to laws and regulations of each country

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Advantages of PCT Application

You can ensure "filing date" in all member countries by filing a single application.

The date of filing the PCT application (International filing date) is considered to be the filing date in all PCT member countries (152 states*).

*As of March 2017

You can file an application in the language of your own country.

You can file a PCT application in a language which the patent Office of each country accepts.
When you file a PCT application with the JPO, you can file it in Japanese or English.

You have 30 months from the filing date (priority date) before the entry into the national phase.
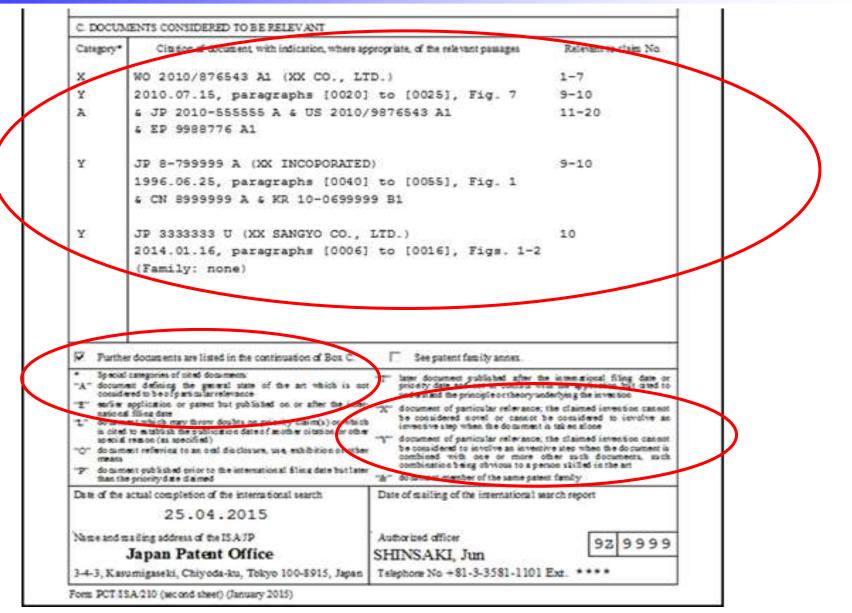
You can decide whether you wish to proceed further with your application in countries where you seek rights (whether to enter the national phase) within 30 months (with some exceptions) after the filing date (or the priority date). Accordingly, you have sufficient time to carefully consider whether to enter the national phase in each country by watching market trends and evaluating the technology, and to make preparations such as translations.
(In the Paris Route, you have to make preparations such as translations within 12 months.)

You can receive the international search report and written opinion etc.

Before entering the national phase, you will receive the international search report and written opinion to know the examiner's view about the patentability.
However, they are not the notice of allowance or of reasons for refusal. (After entering the national phase, respective countries including Japan conduct their own examination procedures and may reach different determinations.)

For more details of PCT Application (particularly, International Search Report and International Preliminary Search Report), refer to "Handbook for PCT International Search and Preliminary Examination" (PCT Handbook) (October 2015).
https://www.jpo.go.jp/shiryou/kijun/kijun2/pct_handbook.htm

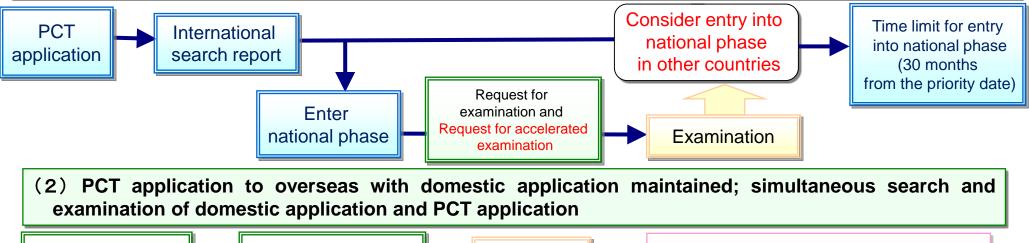* The International search report is published together with the description etc. at the time of international publication.

PCT Application and Accelerated Domestic Examination
(Integration of international search and domestic examination)

特許庁 JAPAN PATENT OFFICE

- By integrating PCT international search and domestic examination, the applicant can know the results of examination at the earlier stage, and can carefully plan the strategies regarding research and development, operations, intellectual properties, etc. for key technologies promising on overseas markets.
- The applicant can also properly decide whether he wishes to enter the national phase with overseas patent Offices.

（1）Application in Japan by PCT route: enter the national phase early in Japan and request accelerated examination

PCT application → International search report → Consider entry into national phase in other countries → Time limit for entry into national phase (30 months from the priority date)

Enter national phase → Request for examination and Request for accelerated examination → Examination

（2） PCT application to overseas with domestic application maintained; simultaneous search and examination of domestic application and PCT application

Domestic application → Request for examination → Examination

Utilize the results of examiner's examination

PCT application → International search report → Consider entry into national phase in other countries → Time limit for entry into national phase (30 months from the priority date)

➡ Refund of part of international search fee

※Regarding partial refund of search fee in PCT international filing, see

https://www.jpo.go.jp/tetuzuki/t_tokkyo/kokusai/researching_fee_return.htm

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Examination Guidelines for Patent and Utility Model in Japan

http://www.jpo.go.jp/tetuzuki_e/t_tokkyo_e/1312-002_e.htm

Examination Handbook for Patent and Utility Model in Japan

http://www.jpo.go.jp/tetuzuki_e/t_tokkyo_e/handbook_sinsa_e.htm

Examination Guidelines pertinent to IoT Related Technologies

http://www.jpo.go.jp/tetuzuki_e/t_tokkyo_e/iot_examination_e.htm

Operational Guidelines for Applicants to Seek the Application of Exceptions to loss of novelty of Invention

http://www.jpo.go.jp/tetuzuki_e/t_tokkyo_e/e_pae_paa30.htm

Handbook for PCT International Search and Preliminary Examination

http://www.jpo.go.jp/tetuzuki_e/t_tokkyo_e/pct_handbook_e.htm