some embodiments, certain application programs may be installed on the computing device 1 by its manufacturer, while other application programs may be installed by a user. As indicated in the foregoing and shown in FIG. 10, one application program 122 may implement a media player for playing audio files. In the example of FIG. 10, another application program 124 implements the control program that operates the media player in accordance with embodiments of the present invention. In another example, the application program 122 implements both the media player and the control program.

The disclosed and other embodiments and the functional operations described in this specification can be implemented in digital electronic circuitry, or in computer software, firmware, or hardware, including the structures disclosed in this specification and their structural equivalents, or in combinations of one or more of them. The disclosed and other embodiments can be implemented as one or more computer program products, i.e., one or more modules of computer program instructions encoded on a computer readable medium for execution by, or to control the operation of, a data processing apparatus. The computer readable medium may be non-transitory, including a machine-readable storage device, a machine-readable storage substrate, a memory device, a composition of matter effecting a machine-readable propagated signal, or any combination thereof. The term “data processing apparatus” encompasses all apparatus, devices, and machines for processing data, including by way of example a programmable processor, a computer, or multiple processors or computers. The apparatus can include, in addition to hardware, code that creates an execution environment for the computer program in question, e.g., code that constitutes processor firmware, a protocol stack, a database management system, an operating system, or a combination of one or more of them. A propagated signal is an artificially generated signal, e.g., a machine-generated electrical, optical, or electromagnetic signal, which is generated to encode information for transmission to suitable receiver apparatus.

A computer program (also known as a program, software, software application, script, or code) can be written in any form of programming language, including compiled or interpreted languages, and it can be deployed in any form, including as a stand-alone program or as a module, component, subroutine, or other unit suitable for use in a computing environment. A computer program does not necessarily correspond to a file in a file system. A program can be stored in a portion of a file that holds other programs or data (e.g., one or more scripts stored in a markup language document), in a single file dedicated to the program in question, or in multiple coordinated files (e.g., files that store one or more modules, sub programs, or portions of code). A computer program can be deployed to be executed on one computer or on multiple computers that

are located at one site or distributed across multiple sites and interconnected by a communication network.

The processes and logic flows described in this specification can be performed by one or more programmable processors executing one or more computer programs to perform functions by operating on input data and generating output. The processes and logic flows can also be performed by, and apparatus can also be implemented as, special purpose logic circuitry, e.g., an FPGA (field programmable gate array) or an ASIC (application specific integrated circuit).

CLAIMS

1. A method of controlling playback of speech-containing audio data (A) on a computing device (1) comprising a processor (3), said method being executed by the processor (3) in the computing device (1) and comprising:

operating a media player on the computing device (1) to play the audio data (A),

detecting a user-initiated time-shift command to step forward or backward in the audio data (A), and

after detecting the time-shift command at a current time (*tc*) in the audio data (A), identifying a starting point of a sentence in the audio data (A) and operating the media player to play the audio data (A) from the starting point.

2. The method of claim 1, wherein the starting point of the sentence is identified based on natural language processing of the audio data (A).

3. The method of claim 2, wherein the natural language processing comprises generating text corresponding to the audio data (A) by operating a speech recognition algorithm on the audio data (A), and segmenting the text into sentences by operating a sentence segmentation algorithm on the text.

4. The method of any of the preceding claims, wherein the time-shift command indicates a step backward in the audio data (A), and wherein the starting point is identified as one of:

a starting point of a set of consecutive sentences related to a current topic of the audio data (A) at the current time (*tc*);

a starting point of a set of consecutive sentences with a predefined relation to the current time (*tc*);

a starting point of a set of consecutive sentences associated with a current speaker at the current time (*tc*), or a set of consecutive sentences associated with another speaker immediately preceding the set of consecutive sentences associated with the current speaker; and

a starting point of a set of sentences that provide a content summarization of a time segment in the audio data (A) preceding the current time (*tc*).

5. The method of claim 4, wherein the predefined relation is defined such that the set of consecutive sentences includes a most recently started sentence at the current time (*tc*).

6. The method of claim 4 or 5, wherein at least one of the starting point, the number of consecutive sentences in the set of consecutive sentences, the number of sentences in the set of sentences, and the time segment is obtained as a function of a control variable (76) comprising one or more of:

a text complexity index at the current time (*tc*), the text complexity index indicating a complexity of spoken language in the audio data (A) at the current time (*tc*);

a category classification of the audio data (A);

a duration of a pausing of the media player, if the time-shift command is triggered by the pausing;

an occurrence rate of time-shifting commands at the current time (*tc*) in the audio data (A) for a population of different users; and

a user interaction with a command interface (6) of the computing device (1), such as a duration of the user interaction with the command interface (6), a degree of pressure applied to the command interface (6), or a user selection of a command element among a plurality of command elements (7A, 7B, 7C) on the command interface (6).

7. The method of any of the preceding claims, wherein the time-shift command indicates a step forward in the audio data (A), and wherein the starting point is identified as one of:

a starting point of a sentence related to a topic that differs from a current topic of the audio data (A) at the current time (*tc*);

a starting point of a sentence with a predefined relation to the current time (*tc*); and

a starting point of a sentence associated with a speaker that differs from a current speaker at the current time (*tc*).

8. The method of claim 7, wherein the predefined relation is given as a count of started sentences after the current time (*tc*).

9. The method of any one of claims 4-8, further comprising: allocating a respective topic identifier (*Ti*) to sentences (*Si*) in the audio data (*A*);

wherein the method further comprises, for identifying the starting point:

identifying the current topic by the topic identifier allocated to a most recently started sentence in the audio data (A) at the current time (*tc*), and

searching among the topic identifiers (*Ti*) based on the current topic to identify the starting point.

10. The method of claim 9 in combination with claim 3, further comprising operating a topic segmentation algorithm on the text generated by the speech recognition algorithm to allocate the respective topic identifier (*Ti*) to the sentences (*Si*) in the audio data (A).

11. The method of any one of claims 4-10, further comprising: allocating a respective speaker identifier (*SPi*) to sentences (*Si*) in the audio data (A);

wherein the method further comprises, for identifying the starting point:

identifying the current speaker by the speaker identifier allocated to a most recently started sentence in the audio data (A), and

searching among the speaker identifiers (*SPi*) based on the current speaker to identify the starting point.

12. The method of claim 11, further comprising operating a voice recognition algorithm on the audio data (A) to allocate the respective speaker identifier (*SPi*) to the sentences (*Si*) in the audio data (A).

13. The method of any one of claims 4-6 in combination with claim 3, further comprising: operating an automatic summarization algorithm on the text generated by the speech recognition algorithm, within the time segment in the audio data (A), to generate the content summarization.

14. The method of any preceding claim, further comprising:

identifying starting times (*ti*) in the audio data (A) for sentences (*Si*) of spoken language in the audio data (A), and

storing the starting times in an electronic memory (4), which is accessible to the processor (3), and

wherein the method further comprises, after detecting the time-shift command:

searching the electronic memory (4), based on the current time (*tc*) and in view of the time-shift command, to identify the starting point among the starting times (*ti*) corresponding to sentences (*Si*) of spoken language in the audio data (A), and

playing the audio data (A) at the starting point so as to play one or more sentences following upon the starting point in the audio data (A).

15. The method of claim 14 in combination with claim 3, wherein the text comprises a sequence of words, and wherein the words are stored in the electronic memory (4) in association with a respective time point, and wherein the sentence segmentation algorithm is operated on the words, before or during playback of the audio data (A), to segment the words into the sentences (*Si*) and identify the starting times (*ti*).

16. The method of any preceding claim, wherein the time-shift command is detected by detecting a user interaction with a dedicated control element (7A, 7B, 7C) in a command interface (6) of the computer device (1).

17. The method of any one of claims 1-15, wherein the time-shift command indicates a step backward in the audio data (A) and is detected by detecting an instruction to pause the playback of the audio data (A).

18. A non-transitory computer-readable medium comprising computer instructions which, when executed by a processor (3), cause the processor (3) to perform the method of any preceding claim.

19. A computing device for playback of speech-containing audio data (A), said computing device being configured to:

operate a media player on the computing device (1) to play the audio data (A),

detect a user-initiated time-shift command to step forward or backward in the audio data (A), and

after detecting the time-shift command at a current time (tc) in the audio data (A), identify a starting point of a sentence in the audio data (A) and operate the media player to play the audio data (A) from the starting point.

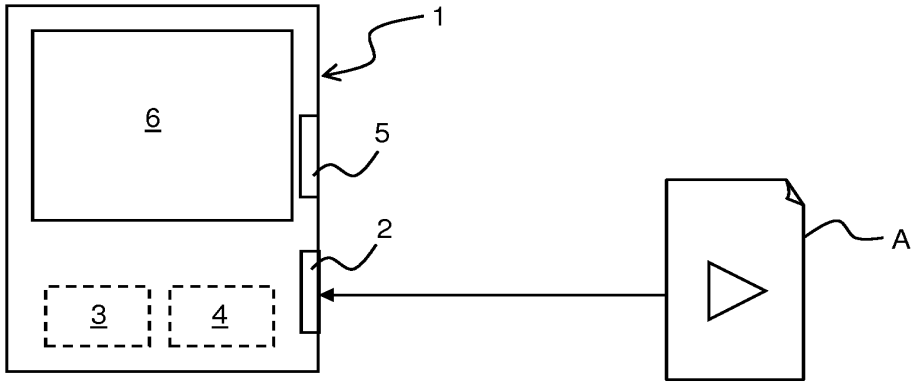


FIG. 1

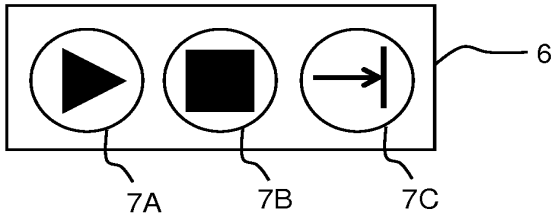


FIG. 2

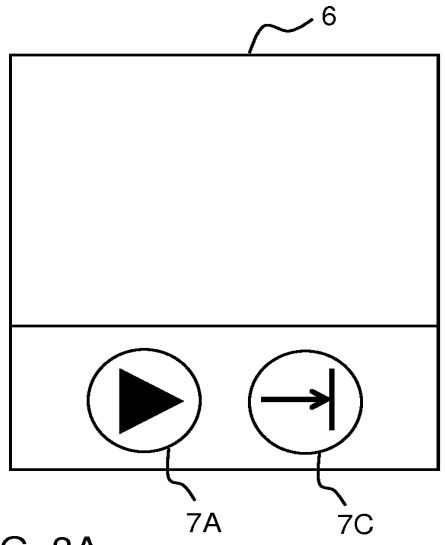


FIG. 3A

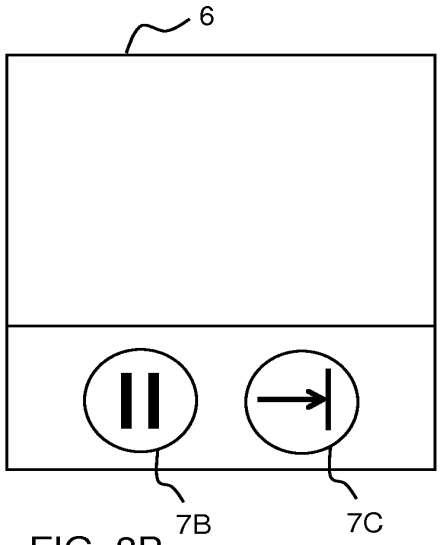


FIG. 3B

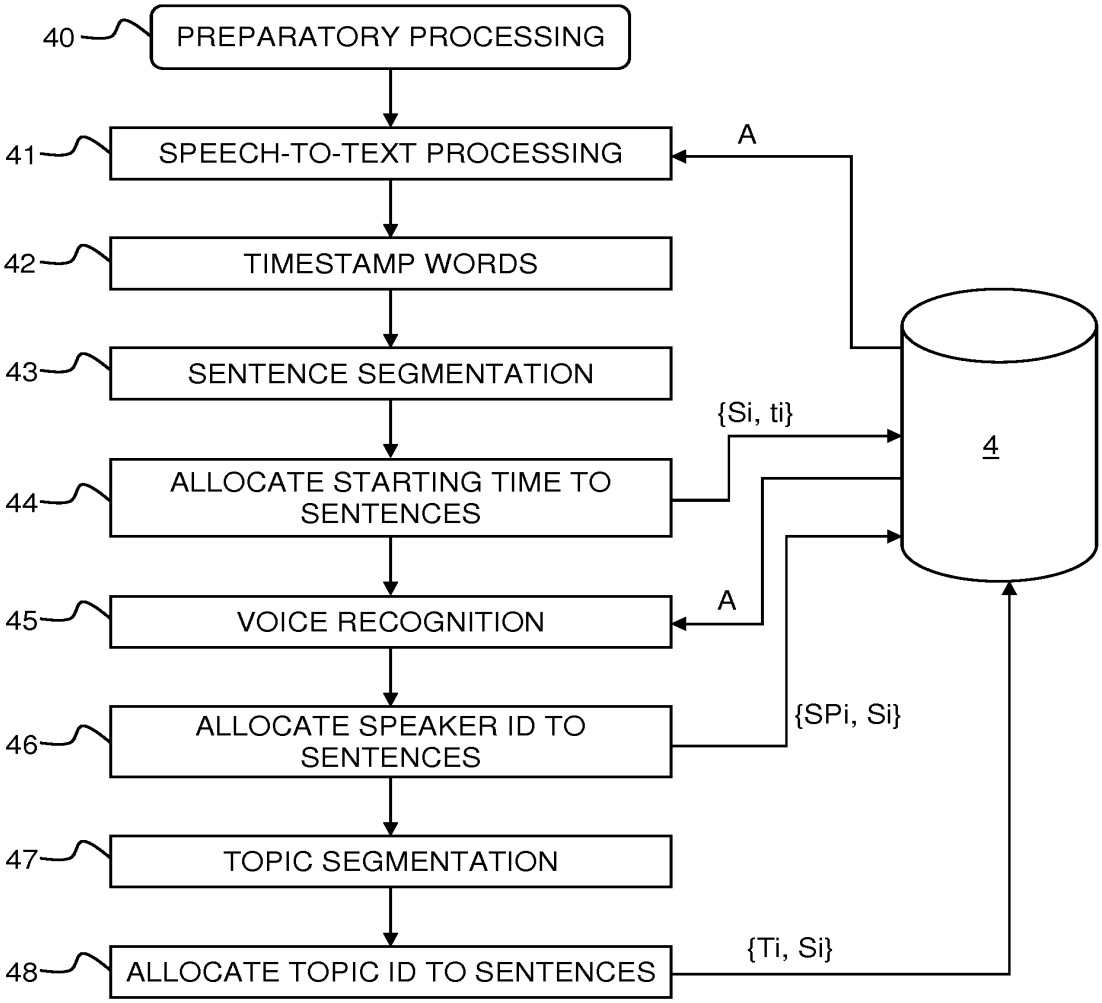

40
PREPARATORY PROCESSING
41
SPEECH-TO-TEXT PROCESSING
42
TIMESTAMP WORDS
43
SENTENCE SEGMENTATION
44
ALLOCATE STARTING TIME TO SENTENCES
45
VOICE RECOGNITION
46
ALLOCATE SPEAKER ID TO SENTENCES
47
TOPIC SEGMENTATION
48
ALLOCATE TOPIC ID TO SENTENCES
A
A
{Si, ti}
{SPi, Si}
{Ti, Si}
4

FIG. 4

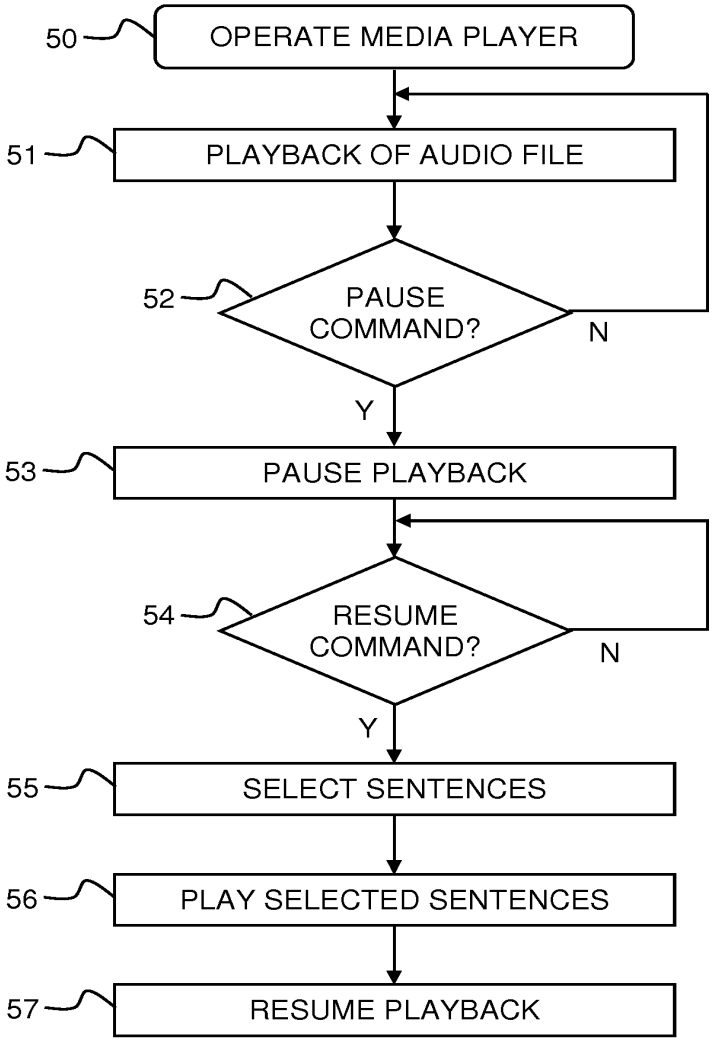

50
OPERATE MEDIA PLAYER
51
PLAYBACK OF AUDIO FILE
52
PAUSE COMMAND?
N
Y
53
PAUSE PLAYBACK
54
RESUME COMMAND?
N
Y
55
SELECT SENTENCES
56
PLAY SELECTED SENTENCES
57
RESUME PLAYBACK

FIG. 5

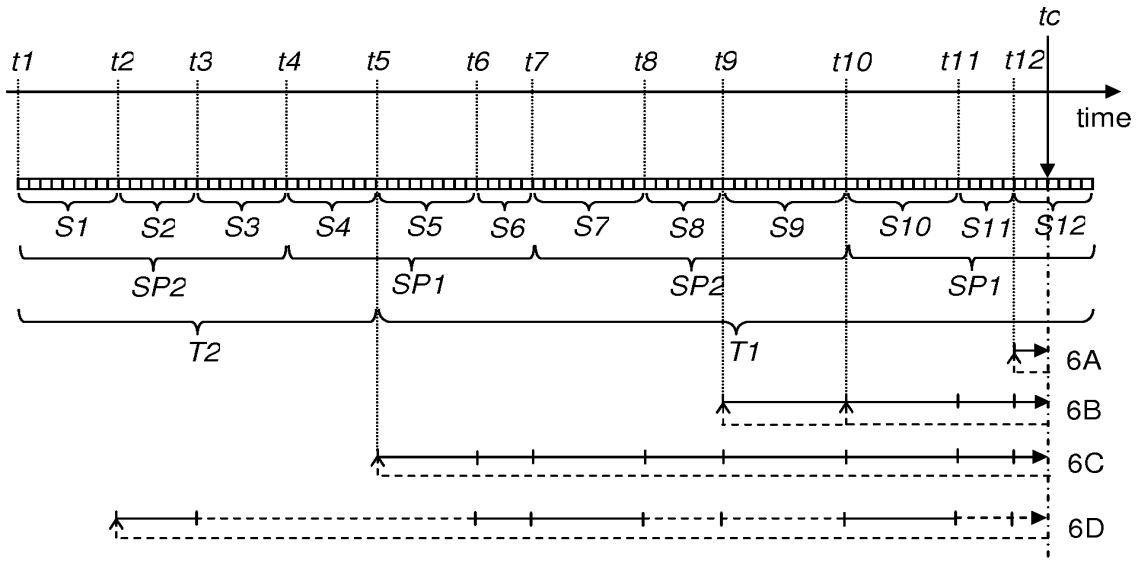

tc
t1
t2
t3
t4
t5
t6
t7
t8
t9
t10
t11
t12
time
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
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S12
SP2
SP1
SP2
SP1
T2
T1
6A
6B
6C
6D

FIG. 6

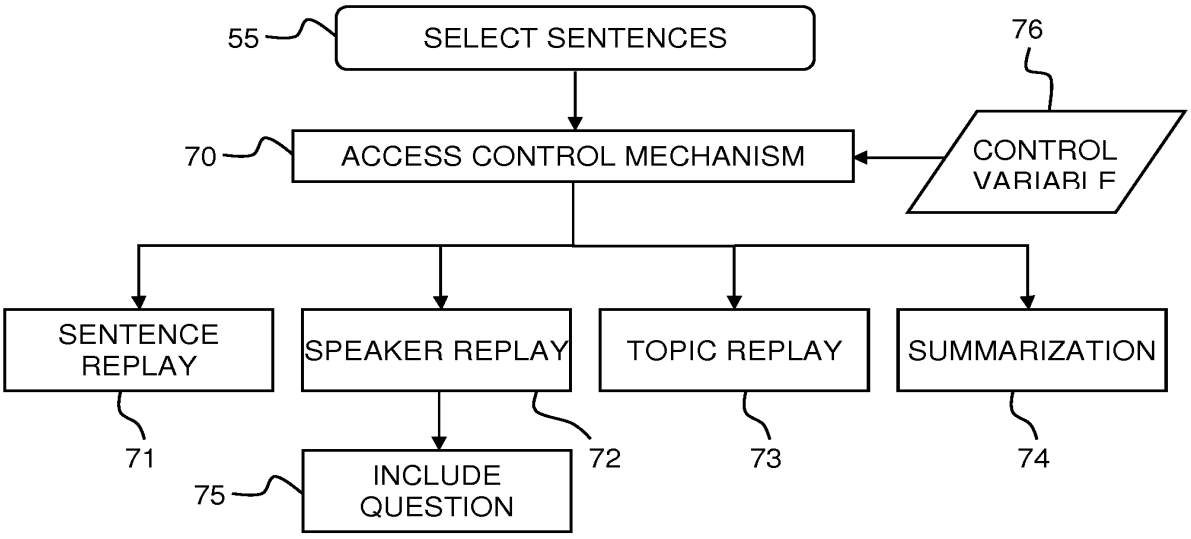

55
SELECT SENTENCES
76
70
ACCESS CONTROL MECHANISM
CONTROL VARIABLE
SENTENCE REPLAY
SPEAKER REPLAY
TOPIC REPLAY
SUMMARIZATION
71
72
73
74
75
INCLUDE QUESTION

FIG. 7

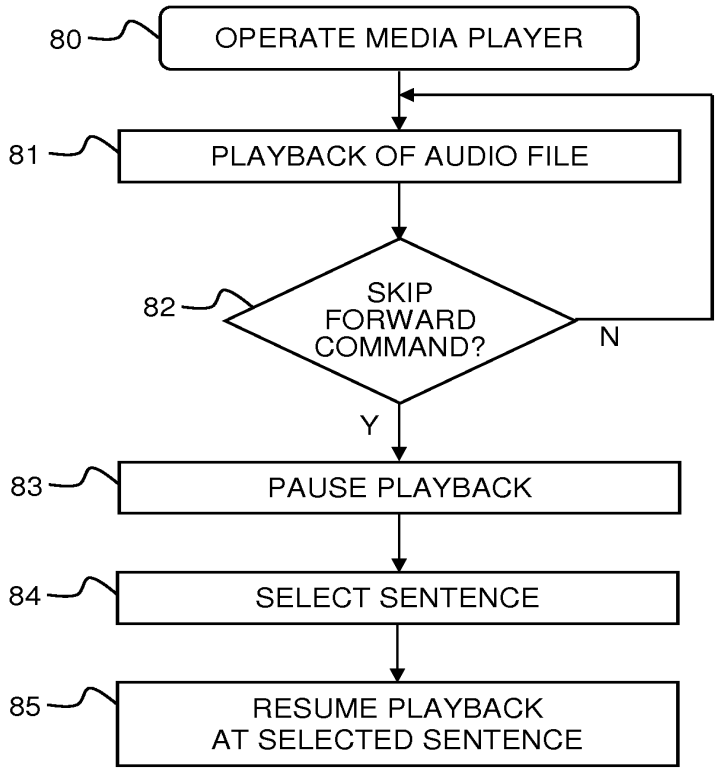

80
OPERATE MEDIA PLAYER
81
PLAYBACK OF AUDIO FILE
82
SKIP FORWARD COMMAND?
N
Y
83
PAUSE PLAYBACK
84
SELECT SENTENCE
85
RESUME PLAYBACK AT SELECTED SENTENCE

FIG. 8

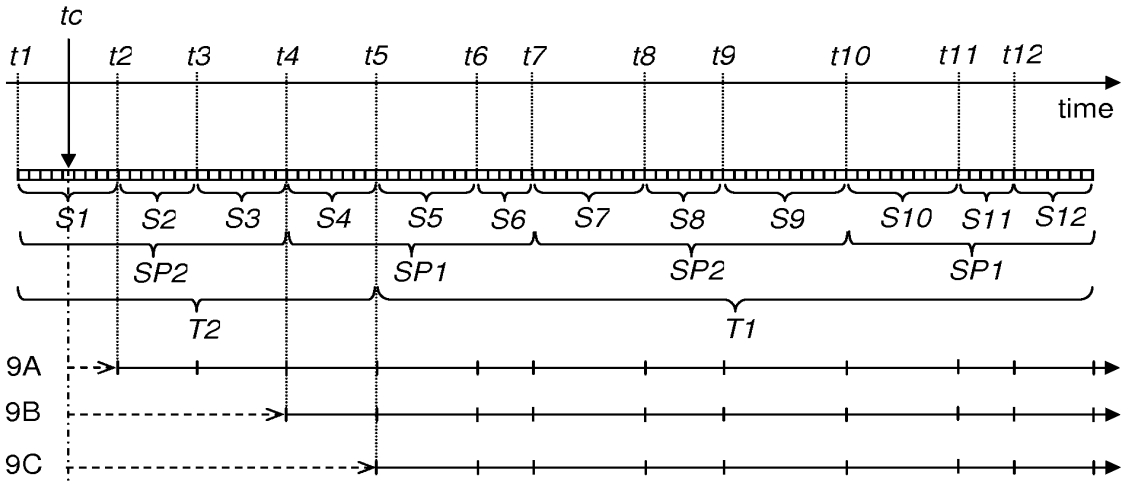

tc
t1
t2
t3
t4
t5
t6
t7
t8
t9
t10
t11
t12
time
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
SP2
SP1
SP2
SP1
T2
T1
9A
9B
9C

FIG. 9

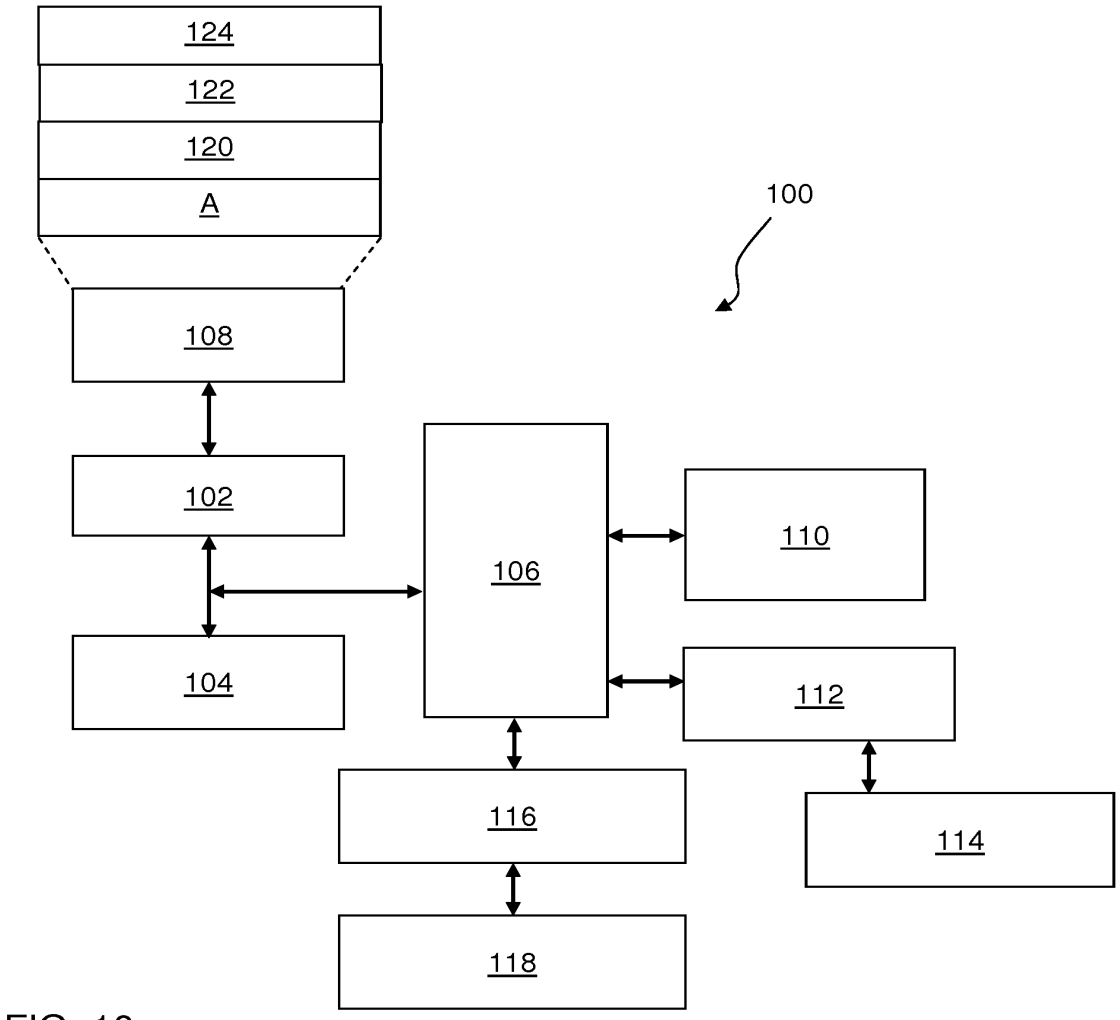


FIG. 10

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2016/055626

A. CLASSIFICATION OF SUBJECT MATTER
INV. G10L15/00 G10L15/05 G10L15/26 G10L17/00 G10L15/04
G10L15/08 G10L15/22
ADD.
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G10L

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	Best universal Audiobook Apps: ": iPad/iPhone Apps AppGuide", , 12 February 2011 (2011-02-12), XP055270729, Retrieved from the Internet: URL:http://appadvice.com/applists/show/best-universal-audiobook-apps [retrieved on 2016-05-04] abstract pages 1, 5 - page 6 -----	1-19
A	US 8 990 200 B1 (CHRISTENSEN JENS BAGGER [US] ET AL) 24 March 2015 (2015-03-24) abstract; figures 1-3 column 3 - column 6 ----- -/--	1-19

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
10 May 2016	20/05/2016

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Képesi, Marián

2

Form PCT/ISA/210 (second sheet) (April 2005)

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 526 of 644

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	VASSIL PANAYOTOV ET AL: "Librispeech: An ASR corpus based on public domain audio books", 2015 IEEE INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH AND SIGNAL PROCESSING (ICASSP), 2 April 2015 (2015-04-02), pages 5206-5210, XP055270589, DOI: 10.1109/ICASSP.2015.7178964 ISBN: 978-1-4673-6997-8 abstract; figure 1 column 1 - column 2 column 5 - column 6 -----	1-19
A	XAVIER ANGUERA MIRO ET AL: "Speaker Diarization: A Review of Recent Research", IEEE TRANSACTIONS ON AUDIO, SPEECH AND LANGUAGE PROCESSING, IEEE SERVICE CENTER, NEW YORK, NY, USA, vol. 20, no. 2, 2 February 2012 (2012-02-02), pages 356-370, XP011499338, ISSN: 1558-7916, DOI: 10.1109/TASL.2011.2125954 abstract page 4 - page 7 -----	1-19

2

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 527 of 644

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2016/055626

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 8990200 B1	24-03-2015	US 8990200 B1	24-03-2015
		US 2015193508 A1	09-07-2015

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 528 of 644

Espacenet

Bibliographic data: JP2014222290 (A) — 2014-11-27

MINUTE RECORDING DEVICE, MINUTE RECORDING METHOD, AND PROGRAM

Inventor(s): MATSUMURA TAKESHI ± (松村 武士)

Applicant(s): CANON KK ± (キヤノン株式会社)

Classification: **- international:** ***G10L13/00; G10L15/00; G10L15/04; G10L15/22***

- cooperative:

Application number: JP20130101711 20130513 Global Dossier

Priority number(s): JP20130101711 20130513

Also published as: JP6280312 (B2)

Abstract of JP2014222290 (A)

PROBLEM TO BE SOLVED: To more highly accurately associate conference voices or conference videos with memoranda recorded as a minute.SOLUTION: A text and a voice are associated with each other based on dissimilarity of the text converted into phonemes on the basis of input time of a memorandum during a conference and utterance time of a voice recorded synchronizing with a video during the conference, and phonemes obtained by voice recognition of the recorded voice. When the text recorded as the conference memorandum is selected, the recorded video or voice is reproduced from the utterance time of the voice associated with the text.

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 529 of 644

(19)日本国特許庁(JP)　(12)公開特許公報(A)　(11)特許出願公開番号
特開2014-222290
(P2014-222290A)
(43)公開日　平成26年11月27日(2014.11.27)

(51)Int.Cl.		F I			テーマコード（参考）
G10L 15/22	(2006.01)	G10L	15/22	460Z	
G10L 15/00	(2013.01)	G10L	15/00	200U	
G10L 15/04	(2013.01)	G10L	15/00	200B	
G10L 13/00	(2006.01)	G10L	15/04	200	
		G10L	13/00	100V	

審査請求 未請求　請求項の数 12　ＯＬ　（全 20 頁）　最終頁に続く

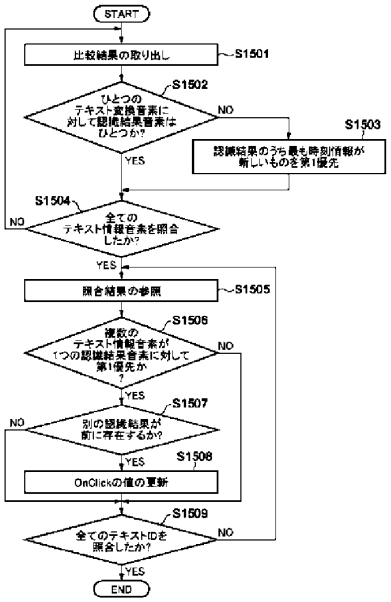
(21)出願番号　特願2013-101711 (P2013-101711)
(22)出願日　平成25年5月13日 (2013.5.13)

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弁理士　高柳　司郎
(74)代理人　100115071
弁理士　大塚　康弘
(74)代理人　100116894
弁理士　木村　秀二
(74)代理人　100130409
弁理士　下山　治
(74)代理人　100134175
弁理士　永川　行光

最終頁に続く

(54)【発明の名称】議事録記録装置、議事録記録方法及びプログラム

(57)【要約】　（修正有）
【課題】会議音声あるいは会議映像と、議事録として記録されたメモとの対応付けをより高精度に行う。
【解決手段】会議中のメモの入力時刻と、会議中の映像に同期して記録された音声の発話時刻とを基に、音韻に変換されたテキストと、記録された音声を音声認識して得た音韻との相違度に基づいて、テキストと音声とを関連付ける。会議のメモとして記録されたテキストが選択されると、そのテキストに関連付けられた音声の発話時刻から、記録されて映像または音声を再生する。
【選択図】図１３



IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 530 of 644

【特許請求の範囲】
【請求項１】
記録された音声データを区切りごとに保持する保持手段と、
入力されたテキスト情報を区切りごとに保存する編集手段と、
前記テキスト情報の区切りごとに、前記音声データの区切りと、それぞれの音韻の相違の程度に基づいて関連付け、当該関連付けを記憶する関連付け手段と
を有することを特徴とする議事録記録装置。
【請求項２】
前記保持手段は、音声データを、区切りごとに発話された日時情報と関連付けて保持し、
前記編集手段は、テキスト情報を、区切りごとに入力された日時情報と関連付けて記憶し、
前記関連付け手段は、前記テキスト情報の区切りを、該テキスト情報の区切りに関連付けられた日時情報よりも早い日時情報に関連付けられた音声データの区切りのうちから、音韻の相違の程度に基づいて選択した音声データの区切りとを関連付けることを特徴とする請求項１に記載の議事録記録装置。
【請求項３】
前記関連付け手段は、１つのテキスト情報の区切りに、複数の音声データの区切りを関連付けることができる場合には、関連付けられた日時情報が最も新しい音声データの区切りを、前記１つのテキスト情報の区切りに関連付けて記憶することを特徴とする請求項１または２に記載の議事録記録装置。
【請求項４】
前記テキスト情報の区切りは改行コードで挟まれた文字列であり、前記音声データの区切りは、当該音声データから認識された音素列であることを特徴とする請求項１乃至３のいずれか一項に記載の議事録記録装置。
【請求項５】
前記音声データは、映像データに同期して記録された音声データであることを特徴とする請求項１乃至４のいずれか一項に記載の議事録記録装置。
【請求項６】
前記テキスト情報を区切りごとに時系列に表示するユーザインタフェース手段をさらに有することを特徴とする請求項１乃至５のいずれか一項に記載の議事録記録装置。
【請求項７】
前記音声データは、映像データに同期して記録された音声データであり、
前記ユーザインタフェース手段はさらに、前記映像データを構成するフレームの一部を時系列に表示することを特徴とする請求項６に記載の議事録記録装置。
【請求項８】
前記ユーザインタフェース手段はさらに、表示した前記テキスト情報の区切りのひとつが選択されて再生が指示されると、選択された前記テキスト情報の区切りと関連付けられた前記音声データの区切りに更に関連付けられた日時情報から、前記音声データを再生することを特徴とする請求項２に記載の議事録記録装置。
【請求項９】
前記音声データは、映像データに同期して記録された音声データであり、
前記ユーザインタフェース手段はさらに、選択された前記テキスト情報の区切りと関連付けられた前記音声データの区切りに更に関連付けられた日時情報の示す時点から、前記映像データを再生することを特徴とする請求項８に記載の議事録記録装置。
【請求項１０】
前記ユーザインタフェース手段は、前記映像データを再生する際には、前記映像データにおいて再生されている時点を特定するタイムラインと、該タイムラインにおいて、前記テキスト情報の区切りそれぞれに関連付けられた音声データの区切りそれぞれに関連付けられた日時情報を示すマークとを更に表示し、該マークが指示されると、指示されたマー

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 531 of 644

クに関連付けられた日時情報の示す時点から、前記映像データを再生することを特徴とする請求項９に記載の議事録記録装置。
【請求項１１】
記録された音声データを区切りごとに保持する保持工程と、
入力されたテキスト情報を区切りごとに保存する保持工程と、
前記テキスト情報の区切りごとに、前記音声データの区切りと、それぞれの音韻の相違の程度に基づいて関連付け、当該関連付けを記憶する関連付け工程と
を有することを特徴とする議事録記録方法。
【請求項１２】
記録された音声データを区切りごとに保持する保持工程と、
入力されたテキスト情報を区切りごとに保存する保持工程と、
前記テキスト情報の区切りごとに、前記音声データの区切りと、それぞれの音韻の相違の程度に基づいて関連付け、当該関連付けを記憶する関連付け工程と
をコンピュータに実行させるためのプログラム。
【発明の詳細な説明】
【技術分野】
【０００１】
本発明は、議事録記録装置、議事録記録方法及びプログラムに関し、特に動画に含まれる音声とテキスト入力手段から入力されるテキスト情報の時間的ずれ幅を補正することができることを特徴とする。
【背景技術】
【０００２】
一般に、組織において会議での議論内容は重要な資産であり、会議の後には議事録の提出が求められることが多い。会議には記録者がいてその会議の内容を手書きで記録していたため、議事録作成者に負担がかかっていた。議事録作成を支援するための技術として、以下のようなものが提案されている。
特許文献１記載の装置では、メモ編集部により、入力される会議の進行内容を表すメモを、そのメモが記録された日時と会議映像に関連付けて保持された日時情報とにより会議映像と関連づけ、会議の進行内容及び会議中の音声に基づいて、会議の進行内容の会議映像への関連付けを保持する。議事録作成部３はこの関連付けた状態で議事録を作成し、作成した議事録を議事録表示部５により閲覧できる。こうして議事録の記述内容と会議映像との間にリンクをはることができ、記述内容が会議のどのシーンに対応するのかを後で確認することができる。
【先行技術文献】
【特許文献】
【０００３】
【特許文献１】特開２００６－２６８８００号公報
【発明の概要】
【発明が解決しようとする課題】
【０００４】
しかしながら、特許文献１に記載の装置のように、メモ編集部によって日時情報と会議映像とを関連付けるのみでは、メモとして記録されたテキストと映像との高精度の関連付けは困難である。それというのは、メモ編集部によりテキストが記録された日時と、そのテキストに対応した発言内容が収録されている会議映像の日時とではずれが生じるためである。ユーザがメモを参照してリンクをたどることでメモと関連付けられた会議映像を閲覧しようとしても、テキストが作成された日時とそのテキストに対応した映像の時刻にずれのため、ユーザが閲覧したい部分のメモをクリックしても、メモに対応しないずれた時刻の映像が表示されてしまう。
【０００５】
本発明は上記従来例に鑑みてなされたもので、テキストと映像とを、それぞれの内容に

基づいて関連付けることで、高い精度で関連付けることを可能とした議事録記録装置及び議事録記録方法を提供する。

【課題を解決するための手段】

【０００６】

本発明は以下の構成を有する。すなわち、

記録された音声データを区切りごとに保持する保持手段と、

入力されたテキスト情報を区切りごとに保存する編集手段と、

前記テキスト情報の区切りごとに、前記音声データの区切りと、それぞれの音韻の相違の程度に基づいて関連付け、当該関連付けを記憶する関連付け手段と

を有することを特徴とする議事録記録装置。

【発明の効果】

【０００７】

本発明によれば、テキストと映像とを、それぞれの内容に基づいて関連付けることで、高い精度で関連付けることが可能となる。さらに、高精度の関連付けによりテキストと映像とを同期させて表示することができる。

【図面の簡単な説明】

【０００８】

【図１】本システムのデバイス構成例を示す図である。

【図２】本システムのテキスト入力画面の構成図を示す図である

【図３】本システムにおけるデータ管理構造と構成例を示した図である

【図４】本システムにおける議事録表示画面の構成図を示す図である。

【図５】本システムの全体構成を示す図である。

【図６】本システムにける同期制御手段部の構成を示した図である。

【図７】音声認識部の構成例を示すブロック図である。

【図８】言語モデルの例を示す図である。

【図９】音声照合部での照合処理を示す模式図である。

【図１０】テキスト変換音素列生成部でのテキスト変換音素列の生成処理を示す模式図である。

【図１１】本システムにおける同期制御手段の処理フローを示す図である。

【図１２】同期制御手段の処理結果例を示す図である。

【図１３】本システムにおける同期制御手段の照合部の処理フローを示す図である。

【図１４】本システムにおける表示部の構成例を示す図である。

【図１５】本システムにおける表示部での映像再生例を示す図である。

【図１６】議事録を閲覧する手順のフローチャートである。

【発明を実施するための形態】

【０００９】

以下、本発明を実施するための形態について、図１～図１５を参照しながら詳細に説明する。

【００１０】

［第１実施形態］

本発明の第１の実施形態は、入力された文字データに現在の時間情報を付加して記録し、音声も同時に記録し、記録された音声と文字データの時間情報を基に、時系列に対応させて表示する議事録作成再生装置である。なお時間情報は、日時情報など日時を特定するための情報である。

【００１１】

会議中に議事録の担当者や参加者が取ったメモは、会議中の話題を追いかけるのには最適な材料である。本実施形態では、そのメモの一文一文に、入力時の記入時刻（ＴＫ）を記録する。一文の入力の完了は例えば改行コードの入力により判定できる。メモが記録された記入時刻の前では、会議では、そのメモに対応する話題が議論されていたはずである。本実施形態の議事録作成再生装置では、会議の音声や映像も時間情報を付して記録し、

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 533 of 644

関心のあるメモの部分を指定することで、記録した時刻でリンクした目的の箇所の音声や映像を容易に見つけられる。なお映像データとメモとをそれぞれの記録時刻で関連付けた情報を、本実施形態ではディジタル議事録と呼ぶことにする。

【００１２】

＜議事録作成再生装置の構成＞

図１は、本実施形態における議事録作成再生装置の構成を示す概念的な構成図である。議事録記録再生装置は、クライアント端末と、映像等の入力デバイスとを接続して構成される。図１において、クライアント端末１１は、パーソナルコンピュータやタブレット端末などであり、議事録を作成し再生するための端末である。クライアント端末１１は、本実施形態では、ＣＰＵ、ＲＡＭ、ＲＯＭ、ＨＤＤ等を有する。なお、本実施形態の説明やフローチャートで示す手順は、クライアント端末１１のＲＡＭ，ＲＯＭ，ＨＤＤのいずれかの記憶手段に記憶され、ＲＡＭにロードされてＣＰＵにより実行される。マイク１２は、クライアント端末１１に接続するマイクであり、音声を音声信号に変換してクライアント端末１１に入力する。スチルカメラ１３は、クライアント端末１１に接続する静止画撮影用のカメラである。ビデオカメラ１４は、クライアント端末１１に接続する動画像撮影用のビデオカメラである。これらのカメラはそれぞれ、撮影した静止画および動画のディジタルデータをクライアント端末１１に入力する。静止画および動画のディジタルデータをそれぞれ画像データと映像データと呼ぶことにする。映像データには、音声信号をディジタル化した音声データが映像と同期して含まれている。また静止画データにも音声データを統合することもできる。この静止画データを再生すると、静止画が表示されるとともに音声が再生される。なおビデオカメラ１４には、ビデオ撮影機能を有するディジタルカメラや携帯端末なども含む。映像データ中には時間情報が記録され、例えば任意のフレームで日時を特定できる必要がある。たとえば、撮影開始日時が映像データに記録されており、またフレームごとにフレーム番号が記録されていれば、映像の任意のフレームで日時を特定できる。逆に、日時から映像のフレームを特定することもできる。なお映像と同様に音声とテキストとを関連付けることもできる。この場合には、音声データに、その任意の時点の日時を特定できる情報が含まれている必要がある。

【００１３】

図１（ａ）に示す構成では、クライアント端末１１のキーボードから文字データ（テキスト）データを入力する。入力された文字データに、入力時の時間情報であるテキスト記入時刻（ＴＫ）を付加してテキストとして記録する。この場合の入力時とは文字データひとつの入力を単位としても良いし、改行を検知したタイミングなどでも良い。マイク１２は音声を音声データとしてクライアント端末１１に入力する。入力された音声データに、入力時の時間情報を付加してＨＤＤ等の記憶部に記録する。音声データは、あとで時間情報を付加して追加することもできる。議事録表示時には、記録されたテキストを時系列で表示し、記録された音声を再生出力する。そのとき表示されたテキストの一部分が指定されると、当該部分に対応する音声を再生する。

【００１４】

図１（ｂ）に示す構成では、ビデオカメラ１４から動画像データすなわち映像データをクライアント端末１４に入力する。入力された映像データに記録時の時間情報を付加して例えばＨＤＤなどの記憶部に記録する。時間情報は、上述のように例えばフレーム単位で付加されてもよい。再生時には、記録された動画像データを再生出力する。映像データには、映像と同期した音声データが記録されている。

【００１５】

図１（ｃ）に示す構成では、複数のクライアント端末１１がネットワーク１０を介してサーバ１に接続される。別々のクライアント端末から入力されるデータをサーバ１で処理して動画像データを各クライアント上で再生出力する。これにより会議映像や議事録を複数のユーザにより共有することができる。

【００１６】

本実施形態ではクライアント端末１１のＣＰＵや記録部での処理例を表しているが、サ

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 534 of 644

ーバが存在するような構成では、その一部をサーバのＣＰＵや記録部に移行しても良い。なお記録部は、テキストを映像データや音声データと関連付けて記録する機能ユニットであり、例えば主ＣＰＵとは別の専用プロセッサなどにより実現でき、或いはＣＰＵにより記録のためのプログラムを実行することでも実現できる。

【００１７】

＜議事録作成処理＞

図５は本実施形態の議事録記録再生装置の機能ブロック図である。ユーザは、クライアント端末１１のキーボードなどのテキスト入力部５１からメモを入力する。入力されたメモには、タイマー５３により記入時刻（ＴＫ）が付加され、テキスト記録部５２により記録される。マイク１２やカメラ１３やビデオカメラ１４などの音声映像入力部５４から入力された音声や静止画や動画像は、タイマーにより時間情報が付加され、音声映像記録部５５により記録される。再生時には、同期表示制御部５６により同期がとられて、対応部分が表示部５７に表示される。同期表示制御部５６による同期制御方法については後述する。

【００１８】

次に、図２と図３を参照しながら、議事録作成時の動作を詳しく説明する。図２は、議事録作成再生装置の議事録作成時の表示画面を示す図である。この表示画面はクライアント端末１１のディスプレイに表示される。図３は、議事録作成再生装置に記録した議事録データのデータ例を示す図である。

【００１９】

まず、クライアント端末１１にマイク１２を接続する。マイク１２はクライアント端末１１に内蔵のものがあれば、当然それでもかまわない。なお、クライアント端末１１とは関係のないＩＣレコーダーなどを使って録音をして、後から音声データを追加するのであれば、クライアント端末１１に接続されたマイク１２を使用しなくてもかまわない。操作者が議事録記録用プログラムを起動すると、図２（ａ）に示すように、画面には、インジケータ部２１、映像操作部２２、書式設定部２２、テキスト入力部２４が表示される。記録者が画面の記録開始ボタンを押すと録音が開始される。録音の開始と同時に内部のタイマーがスタートし、録音開始時刻と現時点の時刻が計測される。なお本実施形態の目的のためにはタイマー５３は実時間を計時するリアルタイムクロックであってもよく、その場合にはタイマーをスタートさせる必要はない。

【００２０】

この状態で、テキスト入力部２４に文字を入力する。テキスト入力部に操作カーソルを合わせた状態でキーを叩くと、入力開始位置をテキスト入力部２４の左に表示する。入力の途中で改行を入力すると、新たな行に移動し、その時点での記入時刻（ＴＫ）を記録する。その状態でさらに入力をすると、再びその入力の時刻を記録する。ある程度入力した状態の画面が、図２（ｂ）である。この例では５つの文が入力済みである。映像操作部２２の停止ボタンを押すと録音が終了し、タイマーも停止する。この状態で、メニューから「保存」を選ぶと、議事録の名前を入力させたうえで、記録した映像データファイルおよびテキストファイルが保存される。保存されるファイルは、例えば、図３（ａ）のような構造で保存される。図３（ａ）は、２００８年１２月２４日に記録し、「Ｃｏｎｆｅｒｅｎｃｅ　１」という名前で保存した議事録データの例である。データはＤａｔａという名称のフォルダに設けられた、議事録ごとのフォルダに記録される。本例では議事録のフォルダは、記録した年月日を並べた名称が与えられる。同一の日に複数の議事録を記録する場合には、例えば年月日の後にシリアル番号や時刻を付加すればよい。各議事録のフォルダ内には以下のようなファイルが含まれる。

ｐｒｏｊｅｃｔ．ｄａｔは、議事録のファイル構成などを記録したファイルである。ファイル形式としては独自のバイナリ形式やその他のテキスト形式（ＸＭＬ、ＪＳＯＮ、独自など）でもよい。ｍｐ３形式のファイル「２００８１２２４１２３４５６．ｍｐ３」は、録音した音声で、ファイル名は、例えば録音開始時の年、月、日、時、分、秒としてあるが、これにこだわる必要はない。また、形式もｍｐ３でなくｗａｖなど、ほかの形式で

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 535 of 644

もよい。また録音開始時刻は、例えばファイル属性として記録してもよい。テキストファイル「ｍｅｍｏ．ｔｘｔ」は、入力欄に入力したテキストで、図３（ｃ）のような形式の議事録メモデータ３０２として保存される。すなわち、テキストごとにテキストＩＤ３３０が付与され、テキストＩＤごとに、その記入時刻３３１と記入されたテキスト３３２またはテキスト３３３を関連付けて記録する。テキスト３３２はサマリーメモであり、テキスト３３３はサマリーメモに属する詳細のメモ（単にメモと称する）である。サマリーメモと詳細メモの区別は、例えば入力作業者に基づく。ここでは会議中の議事録作成担当者が記載したメモをサマリーメモとし、他の出席者が記載したメモをメモとしている。

このようにメモをプレーンテキストの形式で保存することで、後で別のエディタなどで編集することができる。データの汎用性を考慮しないのであればバイナリなど別の形式でもかまわない。

以上のファイル構成は、あくまで一例であり、議事録フォルダ内のファイルすべてを１ファイルにしてもよい。テキストの入力を、例えば改行コードがなく句点で完了させるなど、１つのメモを複数ファイルに分割し、テキストファイルごとに記入時刻を関連付けてもよい。このようにすることで長文のメモに関して、入力開始と完了との時間差を小さくすることができる。また、テキストをそのほかの形にしてもかまわない。

【００２１】

図１（ｂ）のようにビデオカメラ１３を接続して、音声だけでなく映像も同時に記録できる。この画面例は、図２（ｂ）に示したものと同様である。ただし、新しい行に一度文字を書いて時間が記録されたのち、文字を削除しても、記録された時間は消えない。新しい行に何も書かずに、さらに改行した場合、改行のみのメモに対応付けて時間は記録されない。なおこの特徴は、音声のみの議事録に適用することもできる。

【００２２】

議事録作成中にビデオカメラなどで撮影した映像ファイルが議事録のファイルに含まれる場合には、その議事録データ３０１のファイル構成は、図３（ｂ）のようになる。映像ファイルを含む議事録は、「ｍｏｖｉｅ．ｍｅｔａ」という映像データのメタデータのファイルと、映像ファイルを記録した「ｍｏｖｉｅ」というフォルダとが、図３（ａ）の構造に対して付加された構造を有する。ここで、映像ファイルに記録された情報などから撮影時間を取り出すことができる。撮影時間（撮影時刻）の情報は、映像ファイルとテキストファイルとの同期をとる同期制御部５６で利用する。なお本実施形態の動画ファイルには、映像のみでなく音声データも含まれている。そして映像データと音声データとは同期がとられており、映像のみならず音声の記録された時刻も映像ファイルから特定できる。

【００２３】

＜同期制御＞

ここで同期制御部５７の詳細な説明を図６と図７を用いて行う。図６は入力された音声とテキストの対応付けを行うための同期制御手段５７の一実施形態を示すブロック図である。本実施形態の同期制御手段５７は、音声認識部６１、認識結果音素列格納部６２、テキスト変換音素列生成部６３、テキスト変換音素列格納部６４、結合部６５を備える。

【００２４】

この同期制御部の目的は図３（ｃ）の形式で格納されているテキスト情報と関連する記入時刻情報（ＴＫ）に対して、このテキスト情報が発話された時刻を、入力される音声（映像データと同期した音声を含む）に対して音声認識を行い、音声が記録された時刻（発話時刻と呼ぶ）を検出し、新たな発話時刻情報（ＴＨ）としてテキスト情報と共に格納する事である。発話時刻情報（ＴＨ）は図３（ｃ）の形式に追加的に記録してもよいし、記入時刻（ＴＫ）を上書きしてもよい。ただし追加的に記録する場合には、追加した発話時刻情報（ＴＨ）とテキストとの関連付けを明確に示す必要がある。そのためには、たとえば図３（ｃ）のように表形式であれば、対応するメモのテキストと同一行に記録すればよい。

【００２５】

同期制御部５６の構成を図６に示す。音声映像記録部５５に記録されている音声や映像

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 536 of 644

を再生する事により、音声認識部６１には音声データの入力が開始される。音声データが直接入力さる場合は、そのままの音声データが入力され、入力が映像データの場合、会議映像と共に参加者により発声された音声データが入力される。したがって、映像と音声とは時間的ずれなく取得される。これにより取得された音声データは、音声認識部６１に入力される。音声認識部６１は、入力される音声データを認識処理し、音声データに対応する認識結果音素列と発話時刻（ＴＨ）とを出力する。出力データは結合部６５に入力される。ここで発話時刻（ＴＨ）とは、認識結果音素列が発話された時刻を音声（映像）に付加されている時刻情報を元に割り出したものである。

【００２６】

＜音声認識部＞

図７は、音声認識部６１の構成例を示すブロック図である。音声認識部６１は、音声検出部７１、音響分析部７２、音響モデル格納部７３、言語モデル格納部７４および音声照合部７５を備える。この構成は、音声認識で一般的なものであるが、簡単に説明する。

【００２７】

音声検出部７１は、入力された音声データから人声を含む区間の音声を切り出して音響分析部７２に送る。音声検出部７１での音声の切り出しには、例えば、入力のパワーの大小に基づく音声検出手法を利用できる。この音声検出手法では、入力のパワーを逐次計算し、入力のパワーが予め定めた閾値を一定時間連続して上回った時点を音声の一区間の開始時点と判定し、逆に、入力のパワーが予め定めた閾値を一定時間連続して下回った時点を音声の当該区間の終了時点と判定する。音声検出部７１により切り出された音声は、音声開始時点から音声終了時点まで逐次音響分析部７２に送られる。

【００２８】

音響分析部７２は、音声検出部７１により切り出された音声の音響分析を行い、メル周波数ケプストラム係数（ＭＦＣＣ）など音声の特徴を現す音響特徴量列を音声照合部７５に送出する。

【００２９】

音響モデル格納部７３は、日本語音声を構成する単位である音素ごとに用意した隠れマルコフモデル（ＨＭＭ）などの標準パタンを格納している。この標準パタンを日本語単語・文章を構成する音素列に即して連結することで任意の日本語単語・文章に対応する標準パタンを作成することができる。

【００３０】

また、言語モデル格納部７４は、日本語の単語間、音素間などの接続関係を規定する言語モデルを格納している。この言語モデルには、（１）音節間の接続関係を規定する連続音節認識文法、（２）単語間の接続関係を規定する文法規則、（３）Ｎ個の音素の組が連続する確率を規定する統計的言語モデル、（４）Ｎ個の単語の組が連続する確率を規定する統計的言語モデルなどがある。

【００３１】

図８は、言語モデルの例を示す図である。図８（ａ）は、音節間の接続関係を規定する連続音節認識文法であり、これは、子音／ｂ／／ｄ／・・・と母音／ａ／／ｉ／・・・の接続関係を規定している。図８（ｂ）は、単語間の接続関係を規定する文法規則であり、これは、／単語１／／単語２／・・・の接続関係を規定している。

【００３２】

図９は、音声照合部７５での照合処理を示す模式図である。図９は、音響分析部７２から送出される音響特徴量列が、音声照合部７５で標準パタンと照合され、これにより照合結果として／ｓｈ／／ｉ／・・・／ｕ／が得られると共に、各音素に対応する音声区間の開始、終了時刻が取得されることを示している。この各音素の時刻情報を元に発言が開始された発話時刻（ＴＨ）を決定する。

【００３３】

図７に戻って、音声照合部７５は、言語モデルに記された接続規則に従って音響モデルを接続して標準パタンを生成すると共に、Ｖｉｔｅｒｂｉアルゴリズムを用い、音響分析

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 537 of 644

部７２から送出される音響特徴量列と標準パタンとを照合する。この照合の結果、両者の照合スコアを最大とする音声区間と標準パタンの対応が得られる。音声認識部７１での認識結果として、認識結果音素列および標準パタンを構成する各音素に対応する音声区間の開始時刻、終了時刻が取得される。これにより得られた認識結果音素列は、認識結果音素列格納部６２に格納される。なお、音声照合については、「中川聖一ら著：「確率モデルによる音声認識」電子情報通信学会」に記載されている。音素列は、例えば各音素を示すコードの列で表すことができる。音素に対応する時刻は、音素のコードに関連付けられて記録される。

【００３４】

音声認識部６１の認識結果の取得処理は、結合部６５から指示された時点で行う。その際、取得の指示があるまでは、認識結果音素列格納部６２に、照合の過程で求めた照合中間結果（部分的な照合結果）である音素とその開始時刻（あるいは終了時刻も）を保持しておくものとする。本例では、この開始時刻が当該音素の発話時刻に相当する。その上で、結合部６５からの指示に応じて、前回の認識結果取時の照合中間結果を引き継ぎ継続して照合を行う。もしくは、前回照合時に用いた照合中間結果を破棄した後に再度初期状態から照合を開始する。

【００３５】

一方、テキスト変換音素列生成部６３は、テキスト記録部５２に保存されているテキストに対応するテキスト変換音素列を生成する。ここでの入力されるテキストの単位はテキスト入力部５１から入力された単位であり、１文字単位でも文章単位でも良いが、本実施形態では先頭文字あるいは改行コードの次の文字から次の改行コードまでを単位として説明する。テキスト変換音素列は、テキスト変換音素列格納部６４に格納される。

【００３６】

図１０は、テキスト変換音素列生成部６３でのテキスト変換音素列の生成処理を示す模式図である。テキスト変換音素列生成部６３は、漢字仮名混じり文により記述されているテキストの形態素解析を行い、それを品詞に分割すると共に読みを表す仮名文字列に変換し、さらに、仮名文字から発音記号への変換規則を記載した変換表を参照して、仮名文字列を音素列に変換してテキスト変換音素列を生成する。生成された音素列は、音声認識部６１により出力される音素列と同じ形式を持つ。

【００３７】

例えば、漢字仮名混じり文により記述されているテキスト文字列が「７時のニュースです」の場合、テキスト変換音素列生成部６３は、まず、形態素解析により「７」「時」「の」「ニュース」「です」の各品詞に分割する。次に、これらを、読みを表す仮名文字列「しち」「じ」「の」「にゅーす」「です」に変換し、さらに、仮名文字列から発音記号への変換規則を記載した変換表を参照して、仮名文字列を音素列／ｓｈ／　／ｉ／　／ｃｈ／　／ｉ／　／ｊ／　／ｉ／　／ｎ／　／ｏ／　／ｎｙ／　／ｕｕ／　／ｓ／　／ｕ／　／ｄ／　／ｅ／　／ｓ／　／ｕ／に変換する。この発音記号が、音素を示すコードに相当する。

【００３８】

結合部６５は、認識結果音素列格納部６２に格納された認識結果音素列とテキスト変換音素列格納部６４に格納されたテキスト変換音素列とを照合し、音声とテキストの対応付けを行い、結果として結合させる。この処理については図１１を参照して詳述する。概略的には、認識結果音素列とテキスト変換音素列とは、テキストの記入時刻と音声の発話時刻との近似と、音素列の一致とに基づいて結合される。

【００３９】

音素列照合結果格納部６６は、結合部６５が照合過程で求めた照合中間結果（部分的な編集距離）を保持する。また、照合した結果、ひとつの音声に対して複数のテキストが対応するような場合にはこの複数の結果を全て格納する。これらの結果を格納する事により、同じ単語が発言された場合や、同じテキストが入力される場合においても、問題なく対応づける事が可能となる。

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 538 of 644

【００４０】
＜結合処理＞
ここで、結合部６５をプログラムにより実現する際の処理について図１１のフローチャートを用いて詳細に説明する。結合部６５が処理を開始する際には、まずクライアント端末１１のＣＰＵ（以下、ＣＰＵ）はテキスト変換音素列格納部６２に保存されている全テキスト変換音素列リストの取り出しを行う（Ｓ１１０１）。次にＣＰＵは音素列の生成を行うために、音声映像記録部５５に保存されている会議の音声（映像）を再生開始する（Ｓ１１０２）。音声が再生されるとＣＰＵは音声認識部６１から生成される認識結果音素列の取り出しを行い（Ｓ１１０３）、それを着目認識結果音素列として、テキスト変換音素列との比較を行う（Ｓ１１０４）。認識結果音素列は、図９で説明したように、音素列と各音素の発話時刻とを含む。この際のテキスト変換音素列内の比較対象とは、認識結果音素の発話時刻（ＴＨ）より後の記入時刻（ＴＫ）を持つテキスト変換音素列である。例えば図１２（ａ）の例では着目認識結果音素列「ｓｈｉｎｋａｉ」の発話時刻ＴＨ＝０時４０分より後の記入時刻ＴＫを持つテキスト変換音素３、４が比較対象となる。比較の結果は、第１の音素列を第２の音素列に変換するために必要な音素の挿入や削除、置換という操作の回数に応じて定義された相違度として出力される。ステップＳ１１０４では、着目認識結果音素列と比較対象のテキスト変換音素列との間のそれぞれの相違度を求める。図１２（ａ）では、テキスト変換音素３については相違度１、テキスト変換音素４については相違度が０となる。次にＣＰＵは、着目している認識結果音素列の比較対象であるテキスト変換音素列の中から、相違度が所定の値以下のテキスト変換音素列があるかの判断を行う（Ｓ１１０５）。
【００４１】
もしも該当するテキスト変換音素列があれば、該当するテキスト変換音素列に、着目認識結果音素の発話時刻（ＴＨ）を関連付ける（Ｓ１１０６）。これはテキストの内容に近い内容の音声の発話時刻（あるいは映像の時刻）を検出する事を目的としており、テキストと音声とを比較しながら内容が近い部分を検出する例である。なお、ここでは音声認識結果である音素列を基準として、それに相当するテキスト変換音素列を検出しているため、着目音声認識音素列が必ずしもメモの単位に合致しているとは限らない。そこで、Ｓ１１０６でテキストに関連づけられる発話時刻は、当該テキストの先頭（本例では改行コードが区切りとなる）の音素の発話時刻であり、それが当該テキストの発話時刻として関連付けられて記録される。
【００４２】
比較が終了すると、音声（動画）は最後まで再生されたかどうかの判断を行い（Ｓ１１０７）、最後で無い場合はＳ１１０３に分岐して次の音声認識結果の判定に移行し、この制御を再生が終了するまで繰り返す。尚、Ｓ１１０４～Ｓ１１０６の処理よりも早く次の認識結果音素が取り出せた場合には、音声（動画）の再生を一時的にストップする事とし、Ｓ１１０６が終了した後に再生開始しても良い。
【００４３】
これらの対応付けが終了した後に結合部６５では、また、１つの認識結果音素に対して複数のテキスト変換音素が対応付けされているかの判断も行い、１つのテキスト変換音素に複数の認識結果音素列が対応付けされている場合に、どの認識結果音素列の発話時刻を第一優先とするかの判断を行う。この判断では、例えば、最も発話時刻が最近の音素列を第一優先とする。ただし、閾値以下の相違度を持つテキスト認識音素列のうち、最も相違度が小さいものを第一優先とし、それが複数ある場合に発話時刻による第１優先度を決定しても良い。
【００４４】
＜相違度の算出＞
ステップＳ１１０４における相違度の算出のために、結合部６５は、認識結果音素列格納部６２に格納された認識結果音素列とテキスト変換音素列格納部６４に格納されたテキスト変換音素列を比較する。そして比較の結果として、両者の異なりの程度示す相違度を

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 539 of 644

算出する。例えば、第１の音素列“／ｓｈ／　／ｉ／　／Ｎ／　／ｋ／　／ａ／　／ｉ／”を第２の音素列“／ｔ／　／ｏ／　／ｋ／　／ａ／　／ｉ／”に変形する場合、以下に示すように、最低３回の手順が必要とされるので、相違度は３となる。

【００４５】

１．　／ｓｈ／　／ｉ／　／Ｎ／　／ｋ／　／ａ／　／ｉ／

２．　／ｔ／　／ｉ／　／Ｎ／　／ｋ／　／ａ／　／ｉ／　（“／ｓｈ／”を“／ｔ／”に置換）

３．　／ｔ／　／ｏ／　／Ｎ／　／ｋ／　／ａ／　／ｉ／（“／ｉ／”を“／ｏ／”に置換）

４．　／ｔ／　／ｏ／　／ｋ／　／ａ／　／ｉ／（“／Ｎ／”を削除して終了）。

【００４６】

相違度を求める最も簡易な手順は、音素を先頭から順に対応付けて、いずれかの音素列がの末尾まで、異なる音素の数を数える。いずれかの音素列が長ければ、その差異である音素数を、数えた異なる音素の数に加算する。得られた結果が、相違度である。もちろんこれは一例であって他の方法を適用することもできよう。

【００４７】

＜テキスト－音声対応リスト＞

図１１の処理が終了すると、図１２（ｂ）に示すような各テキスト変換音素列に対応付けされた認識結果音素列がその発話時刻の時刻情報と共に含まれるリスト１２０２が、統合部６５によって音素列結合結果格納部６６に作成される。入力されたテキストはテキストＩＤが付与されており、そのテキスト変換音素列と、テキストの記入時刻（ＴＫ）と、関連付けられた認識結果音素列及びそのＩＤと、当該認識結果音素列の発話時刻とが関連付けられて格納されている。ここでテキスト変換音素に第一優先で対応付けする事を示すフラグＯｎＣｌｉｃｋ及び、前出のテキストと重複して関連付けられた認識結果音素列であることを示すフラグＩｓＳａｍｅについては図１５の手順とともに説明する。なおテキスト－音声対応リスト１２０２は、テキストの区切りと音声の区切りとの関連付けを記憶した関連付け記憶部ということもできる。

【００４８】

＜第１優先の決定＞

図１５を参照して第１優先を決定する手順を説明する。この手順は図１１の手順の後で実行される。まず図１２（ｂ）のテキスト－音声対応リストから比較結果の取り出しを行う（Ｓ１５０１）。次に取り出したテキスト変換音素に対して認識結果音素が１つかどうかの判断と既出の認識結果音素かの判断を行う（Ｓ１５０２）。図１２（ｂ）の例だとテキストＴ．５に対応付けされている認識結果音素列はＮ．１のみであるので、第１優先度を示すフラグＯｎＣｌｉｃｋをＴＲＵＥとする。また、認識結果音素列Ｎ．１はリスト１２０２の着目欄の上部にないため、同じ認識結果音素列のＩＤがリスト１２０２の着目欄の上部に存在したことを示すフラグＩｓＳａｍｅをＦＡＬＳＥとする。換言すればＩｓＳａｍｅとは、リスト１２０２から取り出されてテスト済みのテキストと重複的に関連付けされている認識結果音素列であることを示すフラグである。

【００４９】

その後Ｓ１５０４に進み、全てのテキスト変換音素列と認識結果音素列との組を照合したかの判断を行う。この組のことをテキスト－音声と記述し、図１２を参照する際には、Ｔｘ－Ｎｙとそれぞれの識別子の組で示す。未処理のテキスト－音声が存在するなら、再度Ｓ１５０１、Ｓ１５０２を行う。次にリスト１２０２から取り出されたテキスト－音声である、テキストＴ．６に対応付けされている認識結果音素列はＮ．２とＮ．３であるため、それら認識結果のうち最も時刻情報が新しいものを第１優先とする（Ｓ１５０３）。この場合は認識結果音素列Ｎ．３の発話時刻が認識結果音素列Ｎ．２の発話時刻よりも新しいため、Ｎ．３のフラグＯｎＣｌｉｃｋをＴＲＵＥとし、認識結果音素列Ｎ．４のＯｎＣｌｉｃｋをＦＡＬＳＥとし、リストの上部にＴ．６と同じものが存在しないため、認識結果音素列Ｎ．３、Ｎ．４それぞれのＩｓＳａｍｅはいずれもＦＡＬＳＥとする。この処

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 540 of 644

理をテキストＴ．７にも同様に行うと認識結果音素列Ｎ．２、Ｎ．３のフラグＯｎＣｌｉｃｋはＦＡＬＳＥとし、認識結果音素列Ｎ．４のフラグＯｎＣｌｉｃｋはＴＲＵＥとする。またテキストＮ．４は初めての出現でなのでフラグＩｓＳａｍｅは偽（ＦＡＬＳＥ）とし、テキストＮ．２、Ｎ．３は、既に前出のテキストＴ６に関連付けられて出現しているために真（ＴＲＵＥ）とする。

【００５０】

リストの中の全てのテキスト－音声について処理を終えたならＳ１５０４に分岐して複数のテキスト情報音素が１つの認識結果音素の第１優先となっていないかの判断を行う。即ち、リスト中で、複数のテキスト変換音素列と関連付けられ、かつ複数のテキスト変換音素列についてフラグＯｎＣｌｉｃｋがＴＲＵＥになっているひとつの認識結果音素があるかどうかの判断を行う。

【００５１】

そのためにまずはこれまでの照合結果の参照を行い（Ｓ１５０５）、認識結果音素列ＩＤ毎のＯｎＣｌｉｃｋの値を読む（Ｓ１５０６）。この際にはテキスト変換音素列ＩＤの番号が大きいものの中で、認識結果音素列ＩＤが番号の大きいもの、即ち発話時刻が遅いものから順にテキスト－音声のＯｎＣｌｉｃｋフラグを参照する。図１２（ｂ）の例では、テキストＴ７に関連付けられた認識結果音素列ＩＤであるＮ２，Ｎ３は、テキストＴ６についても重複して関連付けられている。しかしいずれのフラグＯｎＣｌｉｃｋも、複数のテキスト変換音素列に対してＴＲＵＥになってはいないので、Ｓ１５０９へと移行し、全てのテキストＩＤを照合するまで同一の処理を実行する。

【００５２】

一方、Ｓ１５０６の処理において、リストの内容が図１２（ｃ）の例のような場合においては、参照している認識結果音素列Ｎ２は、テキスト変換音素列Ｔ１３とＴ１２と、Ｔ１１とについて、フラグＯｎＣｌｉｃｋがＴＲＵＥになっている。これは即ちテキスト変換音素列Ｔ．１１、Ｔ．１２、Ｔ１３において認識結果音素列Ｎ．２が第１優先として選択されている事を示す。従ってＳ１５０７に移行し、Ｓ１５０７において、参照している認識結果音素列より後に、フラグＯｎＣｌｉｃｋがＴＲＵＥであるような同一の認識結果音素列がリスト１２０２にあるか判定する。あれば参照している認識結果音素列に対応するフラグＯｎＣｌｉｃｋの値をＦＡＬＳＥに書き換える（Ｓ１５０８）。それとともに、当該テキストに関連付けられた認識結果音素列のうち、ＯｎＣＬｉｃｋの値がＦＡＬＳＥに書き換えられた認識結果音素列のひとつ前の認識結果音素列ＩＤに対応するＯｎＣｌｉｃｋの値をＴＲＵＥに変更する。この二つのＯｎＣｌｉｃｋフラグの書き換えをまとめてＯｎＣｌｉｃｋフラグの更新と呼ぶ。

【００５３】

なおＳ１５０７においては、参照している認識結果音素列より後に、フラグＯｎＣｌｉｃｋがＴＲＵＥであるような同一の認識結果音素列がリスト１２０２にあり、かつ、着目テキスト－音声では、複数の認識結果音素列がひとつのテキストに関連付けられていることを判定してもよい。一つの認識結果音素列しか関連付けられていない場合には、これを第１優先から外してしまうと、第１優先とすべき他の候補がいないためである。したがってこの場合、複数の認識結果音素列が関連付けられていれば、Ｓ１５０８に分岐して、当該テキスト－音声のＯｎＣｌｉｃｋ及びそのひとつ前のテキスト－音声のＯｎＣｌｉｃｋを更新する。

【００５４】

一方、Ｓ１５０７の条件が満たされなければＳ１５０９に分岐する。図１２（ｃ）の例では、テキスト変換音素列Ｔ．１１，Ｔ１２に関連付けられた認識結果音素列Ｎ２は、いずれもその後に出現するテキスト変換音素列Ｔ１３においてフラグＯｎＣｌｉｃｋがＴＲＵＥであるので、Ｓ１５０７からＳ１５０８に分岐してＯｎＣｌｉｃｋの値は更新される。またテキストに関連付けられた認識結果音素列も１つではないので、この条件を論理積で与えたとしてもＳ１５０８に分岐する。すなわち該当するＯｎＣｌｉｃｋフラグはＦＡＬＳＥに書き換えられる。それとともに、それぞれのテキストに関連付けられた認識結果

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 541 of 644

音素列Ｎ１（すなわちＴ１１－Ｎ１およびＴ１２－Ｎ１）のＯｎＣｌｉｃｋフラグがＴＲＵＥに書き換えられる。

【００５５】

一方、テキスト変換音素列Ｔ．１３に関連付けられた認識結果音素列Ｎ２は、その後にＯｎＣｌｉｃｋがＴＲＵＥであるような認識結果音素列Ｎ２は出現しないので、Ｓ１５０８をスキップし、そのフラグＯｎＣｌｉｃｋの値そのまま維持される。

【００５６】

図１２（ｄ）は、認識結果音素列Ｎ２については図１３の手順で第１優先のテキストが決定された状態を示す。この状態においてＳ１５０９、Ｓ１５０５でＴ．１３の次のＴ．１２の認識結果ＩＤとＴ１１の中の同一の認識結果ＩＤのＯｎＣｌｉｃｋの値の比較を行う。この状態においてもＴ．１２－Ｎ．１とＴ．１１－Ｎ．１で複数のＯｎＣｌｉｃｋがＴＲＵＥとなっているためＳ１５０７に移行するが、Ｓ１５０７の処理においてはＮ．１より小さな番号が存在しないためＳ１５０９に移行し、次にＴ．１１の認識結果ＩＤの処理に移行し処理を終了する。

【００５７】

図１２（ｃ）に示すように、これらの処理を実行した後にも複数のテキスト変換音素から第１優先で同じ認識結果音素が選択されるような状況にもなる事があるが、その状況でも本システムの動作に影響はない。以上のようにして、テキストと認識結果音素列とを関連付けたリストが完成する。このリストは、認識結果音素列の基礎となった音声議事録或いは映像議事録とメモ入力されたテキストとを関連付けるリストでもある。テキスト－音声対応リスト１２０２は議事録ごとに作成されるために、複数の議事録が記憶される場合には、議事録ごとのフォルダや固有の識別名を付して、議事録ごとに区別される。

【００５８】

＜ディジタル議事録の再生＞

次に、図４、図１４、図１５を参照しながら、ディジタル議事録の再生すなわち閲覧時の動作を説明する。操作者が再生プログラムの起動指示をすることによりＣＰＵは閲覧用のプログラムを起動する。実際には、再生用と記録用を１つのプログラムとして、起動時にモードを選択するようにしてもよい。あるいは、はじめに再生用モードで起動して、必要なときに記録用モードに変更するようにしてもよい。起動すると、議事録再生プログラムは、図４に示すように、テキスト－音声対応リスト１２０２及び図３の議事録データ３０１、議事録メモデータ３０２を参照して、画面に時刻表示部４１、資料表示部（資料ファイルがあれば）４２、テキスト表示部４３、映像場面表示部４４（ビデオファイルがあれば）、サマリー表示部４５を含むユーザインタフェース画面を表示する。ただし図１２のテキスト－音声対応リスト１２０２の例示内容と図３の議事録メモデータ３０２の例示内容及び図４、図１４の例示内容とは別々の例を示しており、関連していない。

【００５９】

さてユーザインタフェースの表示時には、まず時刻表示部４１に時刻を時系列に表示し、表示された時刻ごとに、時刻に関連付けた資料を資料表示部４２に時系列に表示する。このために、たとえば会議資料のページごとに時刻情報を付与することで、同時刻に撮影された映像フレームや記録されたメモと関連付けることができる。そして、議事録メモデータ３０２を参照して、サマリーメモ３３２およびメモ３３３をその記入時刻に基づいて、表示されたタイムラインに対応付けて表示する。またサマリーメモ３３２についてはサマリー表示部４５にも記入時刻順に表示する。さらに映像場面表示部４４には、時刻表示部４１に表示した時刻に対応付けて、撮影時刻のフレームを表示する。表示するフレームは、例えば時刻表示部４１に時刻目盛を表示するならば、その目盛に対応する時刻に応じて選べばよい。

【００６０】

このようにしてユーザインタフェース４０１を表示すると、利用者はそのうえで操作することで、メモに対応した映像を再生することができる。

【００６１】

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 542 of 644

まずサマリー表示部４５の１行がクリックされると、ＣＰＵは、クリックされたテキストのテキストＩＤと対応付けられた認識結果音素列をテキスト－音声対応リスト１２０２を参照して見出し、その中でＯｎＣｌｉｃｋフラグがＴＲＵＥとなっている発話時刻（ＴＨ）を読み、ユーザインタフェース４０１の中で、その発話時刻を含む段を強調表示する。例えば、クリックされたサマリーテキストに対応するテキスト表示部４３中のテキストと、対応する時刻表示部４１の時刻を異なる色や点滅等で強調表示する。もちろん対応する資料やフレームを強調表示してもよい。

【００６２】

資料表示部４２の１つの資料がクリックされると、クライアント端末１の画面にクリックされた資料が拡大表示される。テスト表示部４３の中のテキストがクリックされると、図１５（ａ）のようにそのテキストと対応付けられた認識結果音素の中でＯｎＣｌｉｃｋがＴＲＵＥとなっている発話時刻（ＴＨ）の時刻の音声もしくは映像がＣＰＵにより再生される。この対応付けは以下の通り行う。例えば、クリックされたテキストのテキストＩＤに対応する認識結果音素列のうち、ＯｎＣｌｉｃｋフラグがＴＲＵＥである認識結果音素列を、テキスト－音声対応リスト１２０２から見つける。それによりその発話時刻（ＴＨ）を特定できるので、議事録データ３０１に含まれる映像データから、その発話時刻に記録されたフレームから映像を再生する。また同様に映像場面表示部の１つの映像（フレーム）がクリックされた場合においても、そのフレームを先頭として映像を再生する。この画面例を図１５（ａ）に示す。映像画面１５０１の下部に、映像全体における再生時点を示すタイムライン１５０２と、巻き戻しボタン１５０３、一時停止ボタン１５０４、早送りボタン１５０５が表示される。また一時停止中には一時停止ボタン１５０４に代えて、再生ボタンが表示される。この表示は、例えばユーザインタフェース４０１とは別ウィンドウで表示される。

【００６３】

なお映像再生の際に、タイムライン１５０２に、その他の対応付けられた認識結果音素の発話時刻を示すマークを再生候補として表示しても良い。再生候補は、テキスト－音声対応リスト１２０２を参照して、ＯｎＣｌｉｃｋフラグがＴＲＵＥとなっている認識結果音素列を選択し、当該音素列に関連付けて、タイムライン１５０２上に、当該音素列の発話時刻に該当する位置にマーク１５０６（図１５（ｂ）の例ではひし形）を表示する。このマークがクリックされると、クリックされたマークに関連付けられた音素列の発話時刻から映像の再生を開始する。また、カーソルがマークにおかれたなら、テキスト－音声対応リストを参照して、マークに関連付けられた音素列に更に関連付けられたテキストを、吹き出しなどで表示してもよい。また、再生候補の表示の際にはＩｓＳａｍｅがＴＲＵＥとなっている認識結果音素列の表示を行わない事も可能とする。これは記入時刻ＴＫが早い時刻の中の同じテキスト変換音素に対応づけられている認識結果音素列の表示を行わないためである。

【００６４】

また、検索機能も備える。ユーザインタフェース４０１中の検索ウィンドウ４６を選択すると、検索語を入力する事が可能となる。検索ボタンをクリックすると、該当するテキストが存在する場所が強調表示される。

【００６５】

次に、上述した議事録を閲覧する手順の概要を、図１６を参照して説明する。この手順は上述した動作をフローチャート化したものである。まずユーザは議事録記録再生装置を操作して、表示されたユーザインタフェース４０１上でディジタル議事録の再生の指示を入力する。ユーザが議事録を閲覧する際に閲覧したい箇所に応じて、操作カーソルを合わせて操作ボタンを押下する。操作ボタンが押下された際の操作カーソルの位置を判断し（Ｓ１６０１）、サマリー表示部４５である場合は、サマリー表示部４５内のメモの１行に対応した表示列を強調する（Ｓ１６０２）。一方操作カーソルの位置がテキスト表示部４３であれば、そのテキストに関連付けられた認識結果音素列（ＯｎＣｌｉｃｋ＝ＴＲＵＥに限る）の発話時刻から映像を再生する（Ｓ１６０３）。さらに、操作カーソルの位置が

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 543 of 644

映像表示部であれば、指示されたフレームからその映像を再生する（Ｓ１６０４）。

【００６６】

このようにして、議事録担当者が記録したメモと、会議の映像や音声とを自動で対応させながら見ることができ、そのときの話題が映像等から追いかけやすくなる。議事録担当者が作成したメモの一部を指定することで、会議の映像や音声のなかからその部分に対応する個所を再生することができ、聞きたい個所を探すのが容易になる。他の手段で録音した音声を利用することができ、録音機器が故障した際などにも対応できる。会議の音声だけでなく映像も検索することができるようになり、ホワイトボードに図を描きながら説明しているような会議でも、内容がわかりやすくなる。議事録担当者が作成したメモだけではなく、会議の際に使用されていた資料などのデータも表示する事が可能となり、会議の内容を伝えやすくなる。

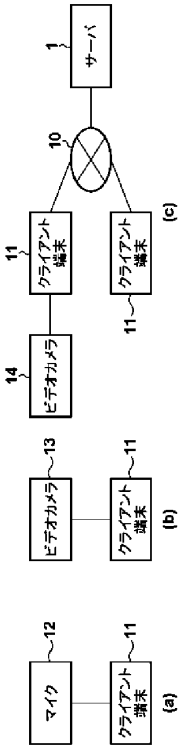
【００６７】

上記のように、本発明の実施形態では、議事録作成再生装置を、入力された文字データが入力された時間情報を付加して記録し、音声データ化したテキストと、記録された音声あるいは映像とを関連付ける。これにより、テキストの入力時刻のみならず、テキストと音声とをその音韻で関連付けることができる。そしてメモを指示すると、指示されたメモに、当該メモのテキストに音韻で関連付けられた音声を再生でき、テキストと音声或いは映像とをより高精度に関連付けることが可能となる。また再生時に、文字データの対応する位置を表示する構成としたので、簡単に目的の部分を参照できる議事録を作成することが可能となる。

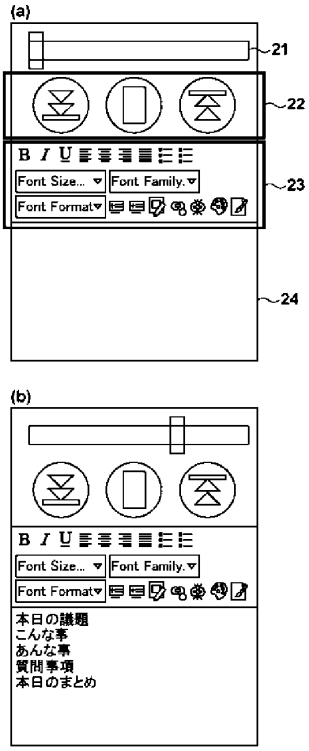
［その他の実施例］

また、本発明は、以下の処理を実行することによっても実現される。即ち、上述した実施形態の機能を実現するソフトウェア（プログラム）を、ネットワーク又は各種記憶媒体を介してシステム或いは装置に供給し、そのシステム或いは装置のコンピュータ（またはＣＰＵやＭＰＵ等）がプログラムを読み出して実行する処理である。

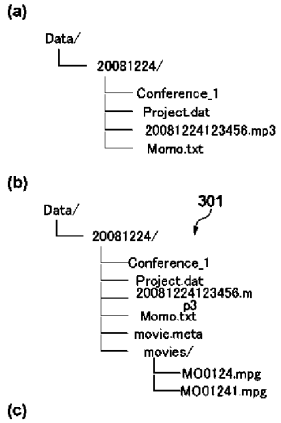
【図１】



【図２】



【図３】

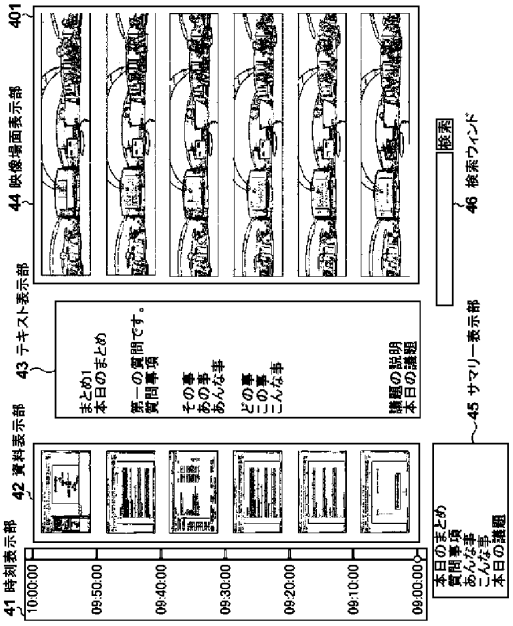


(c)

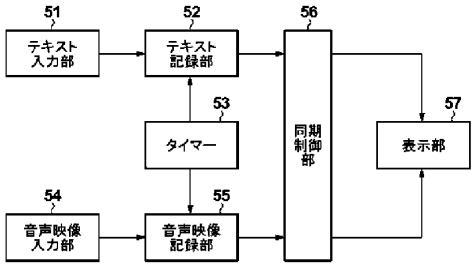
302

330 テキストID	331 記入時刻(TK)	332 サマリーメモ	333 メモ
1	9:51:43		まとめ1
2	9:50:50	本日のまとめ	
3			第一の質問です。
4	9:43:10	質問事項	
5	9:36:20		その事
6	9:34:30		あの事
7	9:32:10	あんな事	
8	9:28:15		どの事
9	9:27:25		この事
10	9:25:15	こんな事	
11	9:00:20		議題の説明
12	9:00:10	本日の議題	

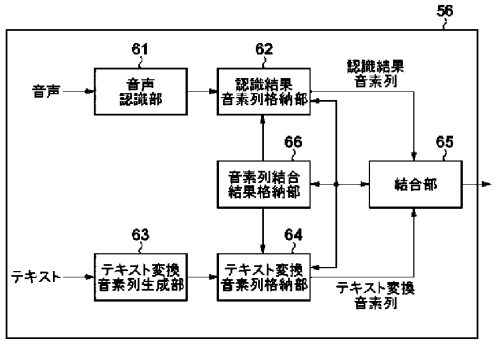
【図４】



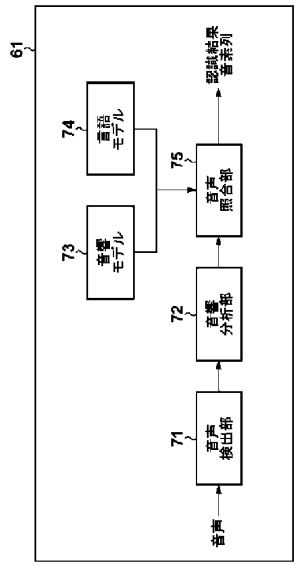
【図５】



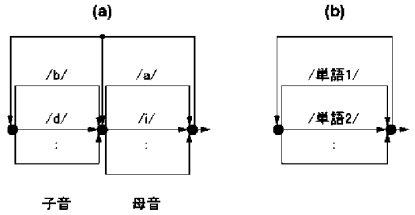
【図６】



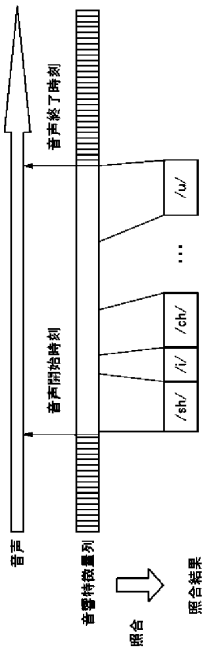
【図７】



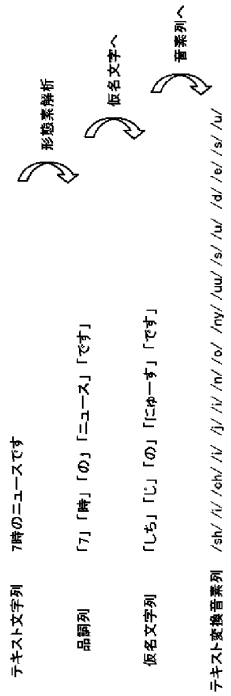
【図８】


(a)
(b)
/b/
/a/
/d/
/i/
/単語1/
/単語2/
子音
母音

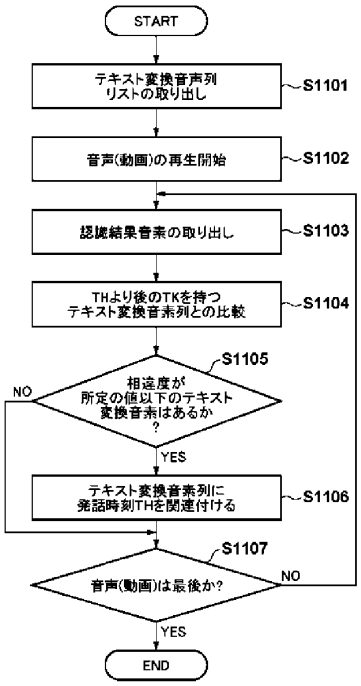
【図９】


音声終了時刻
音声開始時刻
/u/
/ch/
/i/
/sh/
音声
音響特徴量列
照合
照合結果

【図１０】


形態素解析
仮名文字へ
音素列へ
テキスト文字列 7時のニュースです
品詞列 「7」「時」「の」「ニュース」「です」
仮名文字列 「しち」「じ」「の」「にゅーす」「です」
テキスト変換音素列 /sh/ /i/ /ch/ /i/ /j/ /i/ /n/ /o/ /ny/ /uu/ /s/ /u/ /d/ /e/ /s/ /u/

【図１１】


START
テキスト変換音声列
リストの取り出し
S1101
音声(動画)の再生開始
S1102
認識結果音素の取り出し
S1103
THより後のTKを持つ
テキスト変換音素列との比較
S1104
S1105
相違度が
所定の値以下のテキスト
変換音素はあるか
?
NO
YES
テキスト変換音素列に
発話時刻THを関連付ける
S1106
S1107
音声(動画)は最後か?
NO
YES
END

【図１２】

(a)
認識結果音素列ShinKai 0　発話時刻TH=0：4

テキストID No.	変換音素	記入時刻TK	相違度	比較対象
T.1	Shinkai	0:10		No
T.2	Shinka	0:20		No
T.3	Shunkai	0:45	1	Yes
T.4	Shinkai	0:50	0	Yes

(b)

テキストID	テキスト変換音素	記入時刻TK	認識結果ID	認識結果音素列	発話時刻(TH)	OnClick	IsSame
T.5	gidai	0:30	N.1	gidai	0:01	TRUE	FALSE
T.6	onseininshiki	0:35	N.2	onseininshiki	0:05	FALSE	FALSE
			N.3	onseininshiki	0:25	TRUE	FALSE
T.7	onseininshiki	15:45	N.2	onseininshiki	0:05	FALSE	TRUE
			N.3	onseininshiki	0:25	FALSE	TRUE
			N.4.	onseininshiki	15:25	TRUE	FALSE

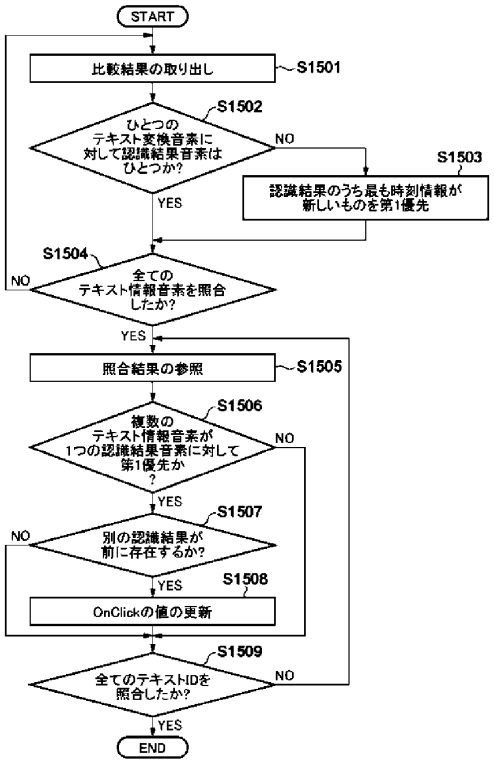
(c)　1202

テキストID	テキスト変換音素	記入時刻TK	認識結果ID	認識結果音素列	発話時刻(TH)	OnClick	IsSame
T.11	koumoku	1:35	N.1	koumoku	0:05	FALSE	FALSE
			N.2	koumoku	0:25	TRUE	FALSE
T.12	koumoku	1:55	N.1	koumoku	0:05	FALSE	TRUE
			N.2	koumoku	0:25	TRUE	TRUE
T.13	koumoku	2:55	N.1	koumoku	0:05	FALSE	TRUE
			N.2	Koumoku	0:25	TRUE	TRUE

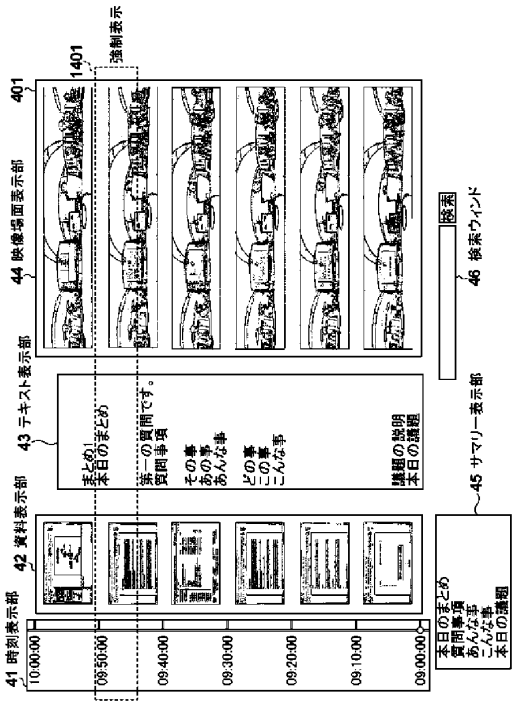
(d)　1202

テキストID	テキスト変換音素	記入時刻TK	認識結果ID	認識結果音素列	発話時刻(TH)	OnClick	IsSame
T.11	koumoku	1:35	N.1	koumoku	0:05	TRUE	FALSE
			N.2	koumoku	0:25	FALSE	FALSE
T.12	koumoku	1:55	N.1	koumoku	0:05	TRUE	TRUE
			N.2	koumoku	0:25	FALSE	TRUE
T.13	koumoku	2:55	N.1	koumoku	0:05	FALSE	TRUE
			N.2	Koumoku	0:25	TRUE	TRUE

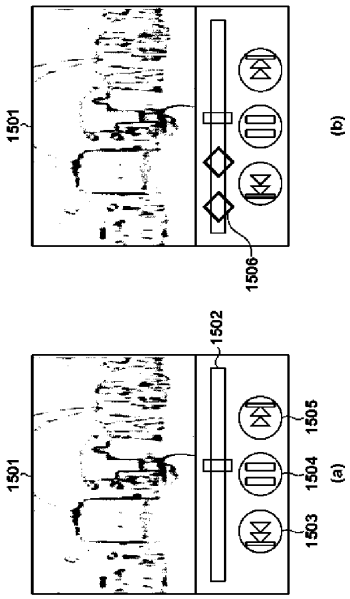
【図１３】



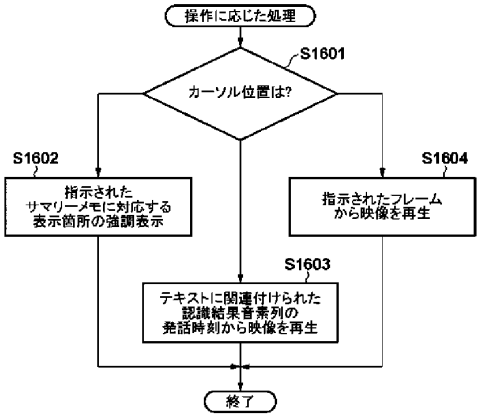
【図１４】



【図１５】



【図１６】


操作に応じた処理
S1601
カーソル位置は?
S1602
指示された
サマリーメモに対応する
表示箇所の強調表示
S1604
指示されたフレーム
から映像を再生
S1603
テキストに関連付けられた
認識結果音素列の
発話時刻から映像を再生
終了

フロントページの続き

(51)Int.Cl.	F I	テーマコード（参考）
	Ｇ１０Ｌ 13/00 １００Ｒ	

(72)発明者 松村 武士
東京都大田区下丸子３丁目３０番２号 キヤノン株式会社内

Electronic Acknowledgement Receipt

EFS ID:	39367762
Application Number:	16697190
International Application Number:	
Confirmation Number:	3872
Title of Invention:	APPARATUS, SYSTEM, AND METHOD OF DISPLAY CONTROL, AND RECORDING MEDIUM
First Named Inventor/Applicant Name:	Takuro MANO
Customer Number:	154930
Filer:	Noah K. Flaks/Sandra Miles
Filer Authorized By:	Noah K. Flaks
Attorney Docket Number:	13491US01
Receipt Date:	06-MAY-2020
Filing Date:	27-NOV-2019
Time Stamp:	14:51:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	13491US01-IDS-Transmittal-SIGNED.pdf	1034638 332ae0145571a5bffa2004632ef30c3e98e6d064	no	4
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2	Other Reference-Patent/App/Search documents	European_search_report.pdf	275641 964ddb4f1700c9a80c48917f638215bf00a6edd8	no	7
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National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/697,190	11/27/2019	Takuro MANO	13491US01

CONFIRMATION NO. 3872

154930
XSENSUS LLP
200 Daingerfield Road
Suite 201
Alexandria, VA 22314

PUBLICATION NOTICE



Title:APPARATUS, SYSTEM, AND METHOD OF DISPLAY CONTROL, AND RECORDING MEDIUM

Publication No.US-2020-0175991-A1
Publication Date:06/04/2020

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

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Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

PLUS Search Results for S/N 16697190, Searched Tue Jun 29 11:07:26 EDT 2021

The Patent Linguistics Utility System (PLUS) is a USPTO automated search system for U.S. Patents from 1971 to the present PLUS is a query-by-example search system which produces a list of patents that are most closely related linguistically to the application searched. This search was prepared by the staff of the Scientific and Technical Information Center, SIRA.

20060240393 84
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/697,190	11/27/2019	Takuro MANO	13491US01	3872

154930 7590 07/06/2021

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100 Daingerfield Road
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Alexandria, VA 22314

EXAMINER
GAUTHIER, GERALD

ART UNIT	PAPER NUMBER
2653	

NOTIFICATION DATE	DELIVERY MODE
07/06/2021	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Faith.Baggett@xsensus.com
Sandy.Miles@Xsensus.com
anaquadocketing@Xsensus.com

Office Action Summary	**Application No.** 16/697,190	**Applicant(s)** MANO, Takuro	
	Examiner GERALD GAUTHIER	**Art Unit** 2653	**AIA (FITF) Status** Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 27 November 2019.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-20 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-20 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 27 November 2019 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☑ All b)☐ Some** c)☐ None of the:

1.☑ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date 11/27/2019, 5/6/2020.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Information Disclosure Statement

2. The information disclosure statements (IDS) submitted on November 27, 2019 and May 6, 2020 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

3. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention.

4. Claim(s) 1-20 is/are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Yanagihara (US 2009/0216531 A1).

As to claim 1, Yanagihara discloses a display control apparatus [374 on FIG. 4], comprising circuitry configured to:

receive voice data [Speech], text data converted from the voice data, and time information indicating a time when the text data was generated, from a server that manages content data generated during an event [The time-coded text data may include timing information, flagging or sequence data associated with the text data. paragraph 0049];

control a display to display the text data in an order according to the time when the text data was generated, and a graphical control region that sets playback position in a total playback time of the voice data [The editing interface instructions 374 can assemble the data for presentation using a presentation engine 460 and output the data to a user interface (e.g., using GUI instructions 356). In some implementations, the presentation engine 460 can generate an output 470 to be displayed. paragraph 0054];

receive selection of particular text data from the text data being displayed [The start streaming node 510 can be a time when the user selects to enable speech input. paragraph 0056]; and

control the display to display the graphical control region at a location determined based on a time when the particular text data was generated [The textual representation, at state 740, is presented to the user. For example, a presentation engine (e.g., the presentation engine 460 of FIG. 4) can present the textual representation to the user using a display (e.g., the input window 130). paragraph 0064].

As to claim 2, Yanagihara discloses the display control apparatus of claim 1, wherein the circuitry is further configured to start playback of the voice data from the time when the particular text data was generated [paragraph 0014].

As to claim 3, Yanagihara discloses the display control apparatus of claim 2, wherein the graphical control region further indicates a playback progress of the voice data [The speech to text composition server 250 can use the associated time or sequence information to synchronize and combine the non-speech input with the speech data. paragraph 0049].

As to claim 4, Yanagihara discloses the display control apparatus of claim 3, wherein the graphical control region is a seek bar [The virtual keyboard 140 graphically displays a rendition of a traditional keyboard having characters. paragraph 0015].

As to claim 5, Yanagihara discloses the display control apparatus of claim 1, wherein the circuitry is further configured to: receive, from the server that manages content data generated during the event, screenshot image data associated with the text data [The start streaming node 510 can be a time when the user selects to enable speech input. paragraph 0056]; and

control the display to further display the screenshot image data, in the order according to the time when the text data was generated [The textual representation, at state 740, is presented to the user. For example, a presentation engine (e.g., the presentation engine 460 of FIG. 4) can present the textual representation to the user using a display (e.g., the input window 130). paragraph 0064].

As to claim 6, Yanagihara discloses the display control apparatus of claim 1, wherein the circuitry is further configured to: in response to selection of the particular data, obtain, from the particular text data, a content processing identifier for identifying conversion processing that has been applied to generate the particular text data from corresponding voice data [The textual representation, at state 740, is presented to the user. For example, a presentation engine (e.g., the presentation engine 460 of FIG. 4) can present the textual representation to the user using a display (e.g., the input window 130). paragraph 0064];

obtain the time information indicating a time when the text data was generated using the content processing identifier [paragraph 0049]; and

determine the location of the graphical control region based on the time when the text data was generated [paragraph 0015].

As to claim 7, Yanagihara discloses the display control apparatus of claim 1, wherein the particular text data corresponds to one sentence of speech [paragraph 0049].

As to claim 8, Yanagihara discloses a system comprising: the display control apparatus of claim 1; a server communicably connected with the display control apparatus, the server including: a memory that stores, for each event, voice data recorded during the event, text data converted from the voice data, and time information indicating a time when the text data was generated [paragraph 0049]; and

another circuitry configured to transmit information on the event stored in the memory to the display control apparatus [paragraph 0056].

As to claim 9, Yanagihara discloses the system of claim 8, further comprising: a communication terminal communicably connected with the server and configured to transmit voice data collected during an event to the server [paragraph 0015].

As to claim 10, Yanagihara discloses a system [FIG. 4] comprising:

a server [250 on FIG. 4] including:

first circuitry [420 on FIG. 4]; and

a memory [350 on FIG. 4] that stores, for each event, voice data recorded during the event, text data converted from the voice data, and time information indicating a time when the text data was generated [The time-coded text data may include timing information, flagging or sequence data associated with the text data. paragraph 0049]; and

a display control apparatus communicably connected with the server [The editing interface instructions 374 can assemble the data for presentation using a presentation engine 460 and output the data to a user interface (e.g., using GUI instructions 356). In some implementations, the presentation engine 460 can generate an output 470 to be displayed. paragraph 0054], including second circuitry configured to:

based on information on the event stored in the memory, control a display to display text data in an order according to the time when the text data was generated, and a graphical control region that sets playback position in a total playback time of the voice data [The start streaming node 510 can be a time when the user selects to enable speech input. paragraph 0056]; and

in response to selection of particular text data from the text data being displayed, control the display to display the graphical control region at a location determined based on a time when the particular text data was generated [The textual representation, at state 740, is presented to the user. For example, a presentation engine (e.g., the presentation engine 460 of FIG. 4) can present the textual representation to the user using a display (e.g., the input window 130). paragraph 0064].

As to claim 11, Yanagihara discloses the system of claim 10, wherein the first circuitry is further configured to transmit screen data generated based on the information on the event stored in the memory to the display control apparatus, and the second circuitry displays a screen based on the screen data, the screen including the text data arranged in the order according to the time when the text data was generated, and the graphical control region that sets playback position in a total playback time of the voice data [paragraphs 0015 and 0049].

As to claim 12, Yanagihara discloses the system of claim 11, wherein the second circuitry of the display control apparatus is further configured to: in response to selection of the particular data, obtain, from the particular text data, a content processing identifier for identifying conversion processing that has been applied to generate the particular text data from corresponding voice data [paragraph 0049];

transmit the content processing identifier to the server to obtain the time information indicating a time when the text data was generated; and determine the location of the graphical control region based on the time when the text data was generated [paragraph 0049].

As to claim 13, Yanagihara discloses the system of claim 10, wherein the first circuitry is further configured to transmit the information on the event to the display control apparatus, and the second circuitry generates screen data based on the information on the event, and displays a screen based on the screen data, the screen including the text data arranged in the order according to the time when the text data was generated, and the graphical control region that sets playback position in a total playback time of the voice data [paragraphs 0015 and 0049].

As to claim 14, see claim 6's rejection above.

As to claim 15, Yanagihara discloses a display control method [paragraph 0001] comprising:

receiving voice data, text data converted from the voice data, and time information indicating a time when the text data was generated, from a server that manages content data

generated during an event [The time-coded text data may include timing information, flagging or sequence data associated with the text data. paragraph 0049];

displaying, on a display, the text data in an order according to the time when the text data was generated, and a graphical control region that sets playback position in a total playback time of the voice data [The editing interface instructions 374 can assemble the data for presentation using a presentation engine 460 and output the data to a user interface (e.g., using GUI instructions 356). In some implementations, the presentation engine 460 can generate an output 470 to be displayed. paragraph 0054];

receiving selection of particular text data, from the text data being displayed [The start streaming node 510 can be a time when the user selects to enable speech input. paragraph 0056]; and

controlling the display to display the graphical control region at a location determined based on a time when the particular text data was generated [The textual representation, at state 740, is presented to the user. For example, a presentation engine (e.g., the presentation engine 460 of FIG. 4) can present the textual representation to the user using a display (e.g., the input window 130). paragraph 0064].

As to claim 16, see claim 2's rejection above.

As to claim 17, Yanagihara discloses the display control method of claim 15, further comprising: generating screen data based on information on the event, the information on the event including the voice data, the text data converted from the voice data, and the time

information, wherein the displaying displays the text data and the graphical control region based on the screen data [paragraph 0049].

As to claim 18, see claim 5's rejection above.

As to claim 19, Yanagihara discloses the display control method of claim 15, further comprising: in response to selection of the particular data, obtaining, from the particular text data, a content processing identifier for identifying conversion processing that has been applied to generate the particular text data from corresponding voice data [The textual representation, at state 740, is presented to the user. For example, a presentation engine (e.g., the presentation engine 460 of FIG. 4) can present the textual representation to the user using a display (e.g., the input window 130). paragraph 0064];

obtaining the time information indicating a time when the text data was generated using the content processing identifier [paragraph 0049]; and

determining the location of the graphical control region based on the time when the text data was generated [paragraph 0015].

As to claim 20, Yanagihara discloses a non-transitory recording medium storing a plurality of instructions which, when executed by one or more processors [paragraph 0006], cause the processors to perform a display control method, comprising:

receiving voice data, text data converted from the voice data, and time information indicating a time when the text data was generated, from a server that manages content data

generated during an event [The time-coded text data may include timing information, flagging or sequence data associated with the text data. paragraph 0049];

displaying, on a display, the text data in an order according to the time when the text data was generated, and a graphical control region that sets playback position in a total playback time of the voice data [The editing interface instructions 374 can assemble the data for presentation using a presentation engine 460 and output the data to a user interface (e.g., using GUI instructions 356). In some implementations, the presentation engine 460 can generate an output 470 to be displayed. paragraph 0054];

receiving selection of particular text data, from the text data being displayed [The start streaming node 510 can be a time when the user selects to enable speech input. paragraph 0056]; and

controlling the display to display the graphical control region at a location determined based on a time when the particular text data was generated [The textual representation, at state 740, is presented to the user. For example, a presentation engine (e.g., the presentation engine 460 of FIG. 4) can present the textual representation to the user using a display (e.g., the input window 130). paragraph 0064].

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892 form.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GERALD GAUTHIER whose telephone number is (571)272-7539. The examiner can normally be reached on 8:00 AM to 4:30 PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, FAN TSANG can be reached on (571) 272-7547. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see https://ppair-my.uspto.gov/pair/PrivatePair. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GERALD GAUTHIER/
Primary Examiner, Art Unit 2653

June 30, 2021

Notice of References Cited	Application/Control No. 16/697,190	Applicant(s)/Patent Under Reexamination MANO, Takuro	
	Examiner GERALD GAUTHIER	Art Unit 2653	Page 1 of 2

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20200175991-A1	06-2020	MANO; Takuro	G11B27/28	1/1
*	B	US-20200294487-A1	09-2020	Donohoe; Christian Clarence	G06F3/167	1/1
*	C	US-10742939-B1	08-2020	Sommerlatt; Darrell	H04N7/186	1/1
*	D	US-20190341050-A1	11-2019	DIAMANT; Adi	G10L15/26	1/1
*	E	US-20190132372-A1	05-2019	LITSYN; Elena	H04L67/12	1/1
*	F	US-20130086051-A1	04-2013	Brahms; Jason	G06F16/13	707/723
*	G	US-20160070533-A1	03-2016	Foster; Andrew	G06F3/167	704/275
*	H	US-20120310649-A1	12-2012	Cannistraro; Alan C.	G06F16/685	704/260
*	I	US-20180239822-A1	08-2018	Reshef; Eilon	G06F40/242	1/1
*	J	US-20150169279-A1	06-2015	Duga; Brady	G06F3/165	700/94
*	K	US-20090140855-A1	06-2009	SHEMESH; Eldad	G06Q10/109	340/540
*	L	US-20050060175-A1	03-2005	Farber, Michael Allen	G09B7/02	705/321
*	M	US-20200183971-A1	06-2020	KLEIN; Gal	G10L15/26	1/1

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 568 of 644

Notice of References Cited	Application/Control No. 16/697,190	Applicant(s)/Patent Under Reexamination MANO, Takuro	
	Examiner GERALD GAUTHIER	Art Unit 2653	Page 2 of 2

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20170301073-A1	10-2017	Gao; Xiaoyu	G06K9/36	1/1
*	B	US-20160019894-A1	01-2016	TSUJIKAWA; MISAKI	G10L15/26	704/235
*	C	US-20150058007-A1	02-2015	KIM; Tai-Hyung	G06F40/166	704/235
*	D	US-20140324426-A1	10-2014	LU; Li	G10L15/26	704/242
*	E	US-20090216531-A1	08-2009	Yanagihara; Kazuhisa	G10L15/30	704/235
	F					
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FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/697,190	MANO, Takuro
	Examiner	**Art Unit**
	GERALD GAUTHIER	2653

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	06/30/2021								
	1	✓								
	2	✓								
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	17	✓								
	18	✓								
	19	✓								
	20	✓								

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 570 of 644

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/697,190	MANO, Takuro
	Examiner	Art Unit
	GERALD GAUTHIER	2653

CPC - Searched*		
Symbol	**Date**	**Examiner**
G06F 1/1686	06/30/2021	GG
G06F 3/167	06/30/2021	GG
G06F 16/953	06/30/2021	GG
G06F 40/284	06/30/2021	GG
G06K 9/00771	06/30/2021	GG
G06T 11/60	06/30/2021	GG
G11B 27/34	06/30/2021	GG
H04N 7/155	06/30/2021	GG
H04N 21/41407	06/30/2021	GG

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
340	540	06/30/2021	GG
700	94	06/30/2021	GG
704	200, 235, 242, 260, 275	06/30/2021	GG
705	321	06/30/2021	GG
707	723	06/30/2021	GG

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

/GERALD GAUTHIER/ Primary Examiner, Art Unit 2653	

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 571 of 644

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/697,190	MANO, Takuro
	Examiner	Art Unit
	GERALD GAUTHIER	2653

Search Notes		
Search Notes	**Date**	**Examiner**
G06F 1/1686 Limited by text search	06/30/2021	GG
G06F 3/167 Limited by text search	06/30/2021	GG
G06F 16/953 Limited by text search	06/30/2021	GG
G06F 40/284 Limited by text search	06/30/2021	GG
G06K 9/00771 Limited by text search	06/30/2021	GG
G06T 11/60 Limited by text search	06/30/2021	GG
G11B 27/34 Limited by text search	06/30/2021	GG
H04N 7/155 Limited by text search	06/30/2021	GG
H04N 21/41407 Limited by text search	06/30/2021	GG
PE2E-SEARCH (US-PGPUB; USPAT; USOCR; FIT; FPRS; EPO; JPO; DERWENT; IBM_TDB), CPC	06/30/2021	GG
Inventor's Name Search	06/30/2021	GG
PLUS Search	06/30/2021	GG

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**

/GERALD GAUTHIER/ Primary Examiner, Art Unit 2653	

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 572 of 644

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	41	((("MANO") near3 ("Takuro"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/06/28 03:02 PM
L2	109974	(G10L15/26 OR G06F3/167 OR G06T11/60 OR G11B27/34 OR G11B27/10 OR G11B27/28 OR G11B27/102).cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/06/28 03:35 PM
L3	1021	704/200.ccls.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/28 03:36 PM
L4	4097	(voice audio) WITH text WITH time WITH display	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/28 04:38 PM
L5	6546	(voice audio) WITH (recognition text) WITH ((time ADJ stamp) time) WITH display$3	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/28 04:42 PM
L6	264351	(play$3 playback) WITH (position location)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/28 04:56 PM
L7	345	5 SAME 6	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/28 04:56 PM
L9	75	7 AND 2	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/28 05:17 PM
L10	61	7 SAME server	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/28 05:51 PM
L11	2271	(voice audio) near3 text WITH (time timing) WITH display$3	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/28 09:22 PM
L12	334	11 SAME server	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/28 09:22 PM
L13	26	12 SAME 6	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/28 09:29 PM
L14	61	12 AND 6	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/28 09:47 PM
L15	1361	(voice audio) near3 text WITH (time timing (time ADJ stamp)) WITH server	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/29 06:31 AM
L16	29	15 SAME 6	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/29 06:32 AM
L17	212	15 AND 6	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/29 06:44 AM
L18	1117	(voice speech) near3 text WITH (time timing (time ADJ stamp)) WITH server	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/29 06:57 AM

L19	18	18 SAME 6	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/29 06:57 AM
L20	13609	(voice speech) near3 text WITH server	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/29 07:01 AM
L22	2665	20 SAME display$3	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/29 07:02 AM
L23	654	22 AND 2	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/29 07:03 AM
L25	446	22 AND 704/$.ccls.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/29 07:04 AM
L26	50	25 AND 6	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/29 07:05 AM
L27	1141	(voice speech) near3 text WITH server WITH tim$3	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/29 07:50 AM
L28	145	27 AND 6	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/29 07:50 AM
L30	48	("20060240393" "20180063332" "9380116" "20100049965" "4333436" "5640534" "20100001978" "20100110083" "4329027" "4420569" "5200738" "5483493" "5714972" "5740405" "5884315" "5963893" "5978798" "5983216" "6359910" "6404507" "6678686" "7949542" "7965921" "7949542" "7965921" "8499195" "10025784" "10867298" "20040083109" "20050105890" "20050135785" "20060262134" "20070246547" "20090109473" "20090212119" "20090212120" "20090268090" "20100313197" "20110246197" "20110314332" "20120197826" "20120299838" "20160210339" "20190354886" "20200285812" "3571579" "4248039" "4285588" "4308439" "4338677").pn.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/29 11:31 AM

L34	1	6 AND 30	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/29 11:33 AM
L35	1031	((voice speech) near3 text) SAME server SAME (tim$3 near3 (information data))	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/29 12:18 PM
L36	177	35 AND 2	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/06/29 12:19 PM

PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.

SHEET 1 OF 1

Form PTO 1449 (Modified)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY DOCKET NO.	SERIAL NO.
		13491US01	New Application
LIST OF REFERENCES CITED BY APPLICANT		APPLICANT	
		Takuro MANO	
		FILING DATE	GROUP
		Herewith	

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA	2017/0249294 A1	08/31/2017	Mototsugu EMORI			
	AB	2018/0268822 A1	09/20/2018	Takuro MANO			
	AC	2019/0114477 A1	04/18/2019	Takuro MANO			
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						
	AL						
	AM						
	AN						

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES	TRANSLATION NO
	AO	2016-105241	06/09/2016	JAPAN(corresponding to U.S.2017/0249294 A1)		×
	AP	2017-129720	07/27/2017	JAPAN(with English Abstract)		×
	AQ	2017-173768	09/28/2017	JAPAN(with English Abstract)		×
	AR					
	AS					
	AT					
	AU					
	AV					

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)

	AW	
	AX	
	AY	
	AZ	☐ Additional References sheet(s) attached

Examiner /GERALD GAUTHIER/ Date Considered 06/21/2021

*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.G/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	
	First Named Inventor	Takuro MANO
	Art Unit	
	Examiner Name	
	Attorney Docket Number	13491US01

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

■ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Noah K. Flaks/	Date (YYYY-MM-DD)	2019-11-26
Name/Print	Noah K. Flaks	Registration Number	69,541

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.G/

Bibliographic Data

Application No: 16/697,190

Foreign Priority claimed: (•) Yes ( ) No

35 USC 119 (a-d) conditions met: [✓] Yes [ ] No [ ] Met After Allowance

Verified and Acknowledged: /GERALD GAUTHIER/ Examiner's Signature | Initials

Title: APPARATUS, SYSTEM, AND METHOD OF DISPLAY CONTROL, AND RECORDING MEDIUM

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
11/27/2019	704	2653	13491US01
RULE			

APPLICANTS

INVENTORS

Takuro MANO, Kanagawa, JAPAN

CONTINUING DATA

FOREIGN APPLICATIONS

JAPAN JP2018-223360 11/29/2018

JAPAN JP2019-178481 09/30/2019

IF REQUIRED, FOREIGN LICENSE GRANTED**

12/17/2019

STATE OR COUNTRY

JAPAN

ADDRESS

XSENSUS LLP
200 Daingerfield Road
Suite 201
Alexandria, VA 22314
UNITED STATES

FILING FEE RECEIVED

$2,180

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16697190
Filing Date	2019-11-27
First Named Inventor	Takuro MANO
Art Unit	2658
Examiner Name	DORVIL, RICHEMOND
Attorney Docket Number	13491US01

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2014-222290	JP	A	2014-11-27	CANON KK	with English Abstract	
	2	3197139	EP	A1	2017-07-26	RICOH COMPANY, LTD		
	3	2017157428	WO	A1	2017-09-21	SONY MOBILE COMMUNICATIONS INC		

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.G/

Receipt date: 05/06/2020

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16697190
	Filing Date	2019-11-27
	First Named Inventor	Takuro MANO
	Art Unit	2658
	Examiner Name	DORVIL, RICHEMOND
	Attorney Docket Number	13491US01

If you wish to add additional Foreign Patent Document citation information please click the Add button [Add]

NON-PATENT LITERATURE DOCUMENTS [Remove]

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	Extended European Search Report dated April 29, 2020, issued in corresponding European Patent Application No. 19211463.5, 7 pages	

If you wish to add additional non-patent literature document citation information please click the Add button [Add]

EXAMINER SIGNATURE

Examiner Signature	/GERALD GAUTHIER/	Date Considered	06/21/2021

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.G/

Receipt date: 05/06/2020

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16697190
	Filing Date	2019-11-27
	First Named Inventor	Takuro MANO
	Art Unit	2658
	Examiner Name	DORVIL, RICHEMOND
	Attorney Docket Number	13491US01

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Noah K. Flaks/	Date (YYYY-MM-DD)	2020-05-06
Name/Print	Noah K. Flaks	Registration Number	69541

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.G/

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.G/

UNITED STATES PATENT AND TRADEMARK OFFICE

USPTO Automated Interview Request (AIR)

Oct 4 2021

This paper requesting to schedule and/or conduct an interview is appropriate because:

This submission is requested to be accepted as an authorization for this interview to communicate via the internet. Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with the undersigned concerning scheduling of the interview via video conference, instant messaging, or electronic mail, and to conduct the interview in accordance with office practice including video conferencing.

Name(s):
Noah Flaks

S-signature:
/Noah Flaks/

Registration Number:
69541

U.S. Application Number:
16697190

Confirmation Number:
3872

E-mail Address:
Noah.Flaks@Xsensus.com

Phone Number:
+1 5713766309

Proposed Time of Interview:
10-13-2021 10:00 AM ET

Alternative Proposed Time(s) of Interview:
10-13-2021 10:00 AM ET

Alternative Proposed Time(s) of Interview:
10-14-2021 11:00 AM ET

Prefered Interview Type:
Telephonic

I am the applicant or applicant's representative for this application.

Topic for Discussion:
Proposed amendments for responding to outstanding rejections. Please contact me if alternative dates/times are preferred.

uspto UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/697,190	11/27/2019	Takuro MANO	13491US01	3872

154930 7590 10/21/2021

XSENSUS LLP
100 Daingerfield Road
Suite 402
Alexandria, VA 22314

EXAMINER
GAUTHIER, GERALD

ART UNIT	PAPER NUMBER
2653	

NOTIFICATION DATE	DELIVERY MODE
10/21/2021	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Faith.Baggett@xsensus.com
Sandy.Miles@Xsensus.com
anaquadocketing@Xsensus.com

Applicant-Initiated Interview Summary	**Application No.** 16/697,190	**Applicant(s)** MANO, Takuro		
	Examiner GERALD GAUTHIER	**Art Unit** 2653	**AIA (First Inventor to File) Status** Yes	**Page** 1 of 1

All Participants (applicant, applicants representative, PTO personnel)	**Title**	**Type**
GERALD GAUTHIER	Primary Examiner	Telephonic
NOAH FLAKS	Attorney of Record	

Date of Interview: 15 October 2021

Issues Discussed:

35 U.S.C. 102

Applicant added limitations of the display referring to the time information apparently to overcome the current 102 rejection; the examiner discussed the issue of new matter this may raise.

/GERALD GAUTHIER/ Primary Examiner, Art Unit 2653	

Applicant is reminded that a complete written statement as to the substance of the interview must be made of record in the application file. It is the applicants responsibility to provide the written statement, unless the interview was initiated by the Examiner and the Examiner has indicated that a written summary will be provided. See MPEP 713.04
Please further see:
MPEP 713.04
Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews, paragraph (b)
37 CFR § 1.2 Business to be transacted in writing

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/697,190	Filing Date 11/27/2019	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	11/08/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 22	Minus	** 20	= 2		x $100 =	200
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	200

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/ALLYSON PURNELL/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

DOCKET NO: 13491US01

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF	:
TAKURO MANO	: EXAMINER: GAUTHIER, GERALD
SERIAL NO: 16/697,190	:
FILED: 27 NOV 2019	: GROUP ART UNIT: 2653

FOR: APPARATUS, SYSTEM, AND METHOD OF DISPLAY CONTROL, AND RECORDING MEDIUM

AMENDMENT UNDER 37 C.F.R. § 1.111 AND STATEMENT

OF SUBSTANCE OF THE INTERVIEW

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

Commissioner:

In response to the Office Action dated July 6, 2021, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 10 of this paper.

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A display control apparatus, comprising:

circuitry configured to:

receive ~~voice data,~~ text data converted from [[the]] voice data, and time information ~~indicating a time when the text data was generated,~~ from a server that manages content data generated during an event;

control a display to:

display the text data in an order according to the time ~~when the text data was generated~~ information, and

display a graphical control region, at a first display location, that sets playback position in a total playback time of the voice data;

receive selection of ~~particular~~ first text data from the text data being displayed; [[and]]

determine, by referring to the time information, a second display location which is different from the first display location, the second display location corresponding to the time information of the first text data; and

control the display to display the graphical control region at [[a]] the second display location ~~determined based on a time when the particular text data was generated~~.

Claim 2 (Currently Amended): The display control apparatus of claim 1, wherein the circuitry is further configured to start playback of the voice data from [[the]] a time ~~when the particular~~ that the first text data [[was]] is generated.

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 588 of 644

Claim 3 (Original): The display control apparatus of claim 2, wherein the graphical control region further indicates a playback progress of the voice data.

Claim 4 (Original): The display control apparatus of claim 3, wherein the graphical control region is a seek bar.

Claim 5 (Currently Amended): The display control apparatus of claim 1, wherein the circuitry is further configured to:

receive, from the server that manages content data generated during the event, screenshot image data associated with the text data; and

control the display to further display the screenshot image data, in the order according to the time ~~when the text data was generated~~ information.

Claim 6 (Currently Amended): The display control apparatus of claim 1, wherein the circuitry is further configured to:

in response to selection of the ~~particular~~ first text data, obtain, from the ~~particular~~ first text data, a content processing identifier for identifying conversion processing that has been applied to generate the ~~particular~~ first text data from corresponding voice data;

obtain the time information ~~indicating a time when the text data was generated~~ using the content processing identifier; and

determine the second display location of the graphical control region based on the time ~~when the text data was generated~~ information.

Claim 7 (Currently Amended): The display control apparatus of claim 1, wherein the ~~particular~~ first text data corresponds to one sentence of speech.

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 589 of 644

Claim 8 (Currently Amended): A system, comprising:

the display control apparatus of claim 1; and

[[a]] the server which is communicably connected with the display control apparatus, the server including:

a memory that stores, for each event, voice data recorded during the event, text data converted from the voice data, and time information ~~indicating a time when the text data was generated~~; and

another circuitry configured to transmit information on the event stored in the memory to the display control apparatus.

Claim 9 (Original): The system of claim 8, further comprising:

a communication terminal communicably connected with the server and configured to transmit voice data collected during an event to the server.

Claim 10 (Currently Amended): A system, comprising:

~~a server including:~~

~~first circuitry; and~~

a memory that stores [[,]] ~~for each event,~~ voice data recorded during the event, text data converted from the voice data, and time information ~~indicating a time when the text data was generated~~ for an event; and

~~a display control apparatus communicably connected with the server, including~~ first circuitry and second circuitry configured to cooperate together to:

~~based on information on the event stored in the memory,~~ control a display to:

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 590 of 644

display text data in an order according to the time ~~when the text data was generated~~ information, and

display a graphical control region, at a first display location, that sets playback position in a total playback time of the voice data; [[and]]

determine, by referring to the time information, a second display location which is different from the first display location, the second display location corresponding to the time information of the first text data; and

~~in response to selection of particular text data from the text data being displayed,~~ control the display to display the graphical control region at [[a]] the second display location ~~determined based on a time when the particular text data was generated~~.

Claim 11 (Currently Amended): The system of claim 10, wherein

the first circuitry is further configured to transmit screen data generated based on the information on the event stored in the memory to the ~~display control apparatus~~ second circuitry, and

the second circuitry displays a screen based on the screen data, the screen including the text data arranged in the order according to the time ~~when the text data was generated~~ information, and the graphical control region that sets playback position in a total playback time of the voice data.

Claim 12 (Currently Amended): The system of claim 11, wherein the second circuitry ~~of the display control apparatus~~ is further configured to:

in response to selection of the ~~particular~~ first text data, obtain, from the ~~particular~~ first text data, a content processing identifier for identifying conversion processing that has been applied to generate the ~~particular~~ first text data from corresponding voice data;

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 591 of 644

transmit the content processing identifier to the ~~server~~ first circuitry to obtain the time information ~~indicating a time when the text data was generated~~; and

determine the second display location of the graphical control region based on the time ~~when the text data was generated~~ information.

Claim 13 (Currently Amended): The system of claim 10, wherein

the first circuitry is further configured to transmit the information on the event to the ~~display control apparatus~~ second circuitry, and

the second circuitry generates screen data based on the information on the event, and controls the display to display ~~displays~~ a screen based on the screen data, the screen including the text data arranged in the order according to the time ~~when the text data was generated~~ information, and the graphical control region that sets playback position in a total playback time of the voice data.

Claim 14 (Currently Amended): The system of claim 13, wherein the second circuitry ~~of the display control apparatus~~ is further configured to:

in response to selection of the ~~particular~~ first text data, obtain, from the ~~particular~~ first text data, a content processing identifier for identifying conversion processing that has been applied to generate the ~~particular~~ first text data from corresponding voice data;

obtain the time information ~~indicating a time when the text data was generated~~ using the content processing identifier; and

determine the second display location of the graphical control region based on the time ~~when the text data was generated~~ information.

Claim 15 (Currently Amended): A display control method, comprising:

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 592 of 644

receiving ~~voice data,~~ text data converted from [[the]] voice data, and time information ~~indicating a time when the text data was generated,~~ from a server that manages content data generated during an event;

displaying, on a display, the text data in an order according to the time ~~when the text data was generated, and~~ information;

displaying, on the display at a first display region, a graphical control region that sets playback position in a total playback time of the voice data;

receiving selection of ~~particular~~ first text data [[,]] from the text data being displayed; [[and]]

determining, by referring to the time information, a second display location which is different from the first display location, the second display location corresponding to the time information of the first text data; and

controlling the display to display the graphical control region at [[a]] the second display location ~~determined based on a time when the particular text data was generated~~.

Claim 16 (Currently Amended): The display control method of claim 15, further comprising:

starting playback of the voice data from [[the]] a time ~~when the particular~~ that the first text data [[was]] is generated.

Claim 17 (Currently Amended): The display control method of claim 15, further comprising:

generating screen data based on information on the event, the information on the event including the voice data, the text data converted from the voice data, and the time information, wherein

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 593 of 644

the displaying ~~displays~~ the text data and the displaying the graphical control region is based on the screen data.

Claim 18 (Currently Amended): The display control method of claim 15, further comprising:

receiving, from the server that manages content data generated during the event, screenshot image data associated with the text data; and

controlling the display to further display the screenshot image data, in the order according to the time ~~when the text data was generated~~ information.

Claim 19 (Currently Amended): The display control method of claim 15, further comprising:

in response to selection of the ~~particular~~ first text data, obtaining, from the ~~particular~~ first text data, a content processing identifier for identifying conversion processing that has been applied to generate the ~~particular~~ first text data from corresponding voice data;

obtaining the time information ~~indicating a time when the text data was generated~~ using the content processing identifier; and

determining the second display location of the graphical control region based on the time ~~when the text data was generated~~ information.

Claim 20 (Currently Amended): A non-transitory recording medium storing a plurality of instructions which, when executed by one or more processors, cause the processors to perform a display control method, comprising:

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 594 of 644

receiving ~~voice data,~~ text data converted from [[the]] voice data, and time information ~~indicating a time when the text data was generated,~~ from a server that manages content data generated during an event;

displaying, on a display, the text data in an order according to the time ~~when the text data was generated, and~~ information;

displaying, on the display at a first display region, a graphical control region that sets playback position in a total playback time of the voice data;

receiving selection of ~~particular~~ first text data [[,]] from the text data being displayed; [[and]]

determining, by referring to the time information, a second display location which is different from the first display location, the second display location corresponding to the time information of the first text data; and

controlling the display to display the graphical control region at [[a]] the second display location ~~determined based on a time when the particular text data was generated~~.

Claim 21 (New): The system of claim 10, further comprising:

a server including the first circuitry; and

a display control apparatus communicably connected with the server, wherein

the display control apparatus includes the second circuitry.

Claim 22 (New): The system of claim 21, wherein the second circuitry of the display control apparatus is configured to:

control the display to display the text data in the order according to the time information, and display the graphical control region, at the first display location,

determine, by referring to the time information, the second display location; and

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 595 of 644

control the display to display the graphical control region at the second display location.

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 596 of 644

REMARKS

Favorable reconsideration of this application is respectfully requested.

Claims 1-22 are pending. Claims 1, 2, 4-8 and 10 are amended and Claims 21 and 22 are new. Support for the amendments to Claims 1, 2, 4-8 and 10 is found at least [0322]-[0328], [0345] of the publication, Figs. 43 and 46 and within the original claims. No new matter is added.

In the outstanding Office Action, Claims 1-20 are rejected under 35 U.S.C. § 102(a)(1) over Yanagihara (US 2009/0216531).

Examiner Interview

A telephone interview was conducted with Examiner Gauthier on October 15, 2021. Applicant thanks the Examiner for his time and comments at the interview. During the interview, Applicant's representative and Examiner Gauthier discussed the pending application, the disclosure of the applied references, and proposed amendments to the claims. The amendments in this response correspond with the proposed amendments discussed during the interview. Examiner Gauthier indicated that the amendments helped clarify the invention of the present application and that further search and consideration would be performed.

Rejection Under 35 U.S.C. § 103

Regarding the rejection of Claims 1-20 under 35 U.S.C. § 103, the rejection is respectfully overcome. Yanagihara does not describe or reasonably suggest the features recited in the claims. For example, Yanagihara does not describe or reasonably suggest, as recited in Claim 1:

A display control apparatus, comprising:
circuitry configured to:
receive text data converted from voice data, and time information from a server that manages content data generated during an event;
control a display to:
display the text data in an order according to the time information, and

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 597 of 644

display a graphical control region, at a first display location, that sets playback position in a total playback time of the voice data;

receive selection of first text data from the text data being displayed;

determine, by referring to the time information, a second display location which is different from the first display location, the second display location corresponding to the time information of the first text data; and

control the display to display the graphical control region at the second display location.

[Emphasis added].

Yanagihara describes a system and method for a speech input interface, allowing a user to input speech that is converted into text as well as to input non-speech symbols or other data via the user interface (see Yanagihara, Abstract and Figs. 1A and 1B). In particular, Yanagihara describes that a user may input voice speech into a microphone of a mobile device and the voice speech is converted into text displayed on the display (see Yanagihara, [0015]-[0017]).

A modified virtual keyboard is provided for entering non-speech input such as alphanumeric characters or other symbols (see Yanagihara, [0018]). Yanagihara describes that "During a speech input session, the user can tap one or more non-speech selections (e.g., symbolic characters and/or style/typeface effects) on the virtual keyboard 180 to provide additional input to the mobile device 100. In some implementations, the speech data and non-speech data can be tagged with sequence information. Sequence information can include information used to identify the sequence in which the speech data and non-speech data should be assembled. In some examples, the mobile device 100 sequence information can include a time-stamp when the non-speech selection(s) are input" (see Yanagihara, [0021]).

Yanagihara further describes that a speech to text composition server 250 may convert a received data stream, including speech and non-speech data, into formatted text data (see Yanagihara, [0049]). The speech to text composition server uses time or sequence information to synchronize and combine non-speech input with the speech data (see

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 598 of 644

Yanagihara, [0049]). Edited text data is transmitted back from text composition server 250 to editing interface instructions 374 of the mobile device (see Yanagihara, [0054]).

However, Yanagihara does not describe or reasonably suggest to *receive text data converted from voice data, and time information from a server* that manages content data generated during an event, as claimed. In Yanagihara, the voice data is received directly by a microphone of a mobile device from a user and the mobile device provides the voice data to the text composition server 250. But, text composition server 250 does not provide text data (that is converted from voice data) and time information to the mobile device. In Yanagihara, text composition server 250 only transmits edited text data back to the mobile device and does not provide time information along with the text data, as claimed.

Thus, Yanagihara does not describe or reasonably suggest circuitry configured to receive text data converted from voice data, and time information from a server that manages content data generated during an event, as recited in Claim 1.

Yanagihara also does not describe or reasonably suggest to control a display to display *a graphical control region, at a first display location, that sets playback position in a total playback time of the voice data*, as claimed. Yanagihara merely provides the following at [0054] (emphasis added):

> "[0054] After the text composition engine 440 produces text derived from the speech data and supplemented with the non-speech data, the edited text data can be returned to the editing interface instructions 374 via a link 450. *The editing interface instructions 374 can assemble the data for presentation using a presentation engine 460 and output the data to a user interface (e.g., using GUI instructions 356). In some implementations, the presentation engine 460 can generate an output 470 to be displayed. For example, the output 470 can be the text displayed in the input window 130 as shown in FIG. 1B. In some implementations, the presentation engine 460 can also provide user edit functions.* For example, the presentation engine 460 can interface with the editing interface instructions to receive user input from the virtual keyboard 140 to edit the output 470."

In other words, Yanagihara describes that the generated text data may be output by a GUI. Such disclosure at best corresponds to the claimed recitation "control a display to display the text data in an order according to the time when the text data was generated".

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 599 of 644

However, such disclosure does not correspond to the claimed control a display to "display a graphical control region, at a first display location, that sets playback position in a total playback time of the voice data".

As is evident in Claim 1, the graphical control region is a separate claim element from the text data that is being displayed. Yanagihara provides no discussion or suggestion of displaying a graphical control region. In Yanagihara, there is no graphical control region that sets playback position in a total playback time of the voice data. Moreover, this is no discussion or suggestion of the display of any material relating to a playback position in a total playback time of the voice data.

Thus, Yanagihara does not describe or reasonably suggest circuitry configured to control a display to display a graphical control region, at a first display location, that sets playback position in a total playback time of the voice data, as recited in Claim 1.

Yanagihara also does not describe or reasonably suggest to determine a second display location and control the display to display the graphical control region at the second display location, as claimed. Yanagihara merely describes the display of generated text data, but does not display a graphical control region as discussed above. Yanagihara also provides no discussion or suggestion of displaying the graphical control region at a second display location which is (1) determined by referring to the time information and (2) based on a first playback time of first voice data of the voice data and corresponding to the first text data, as claimed. As discussed above, the graphical control region is a separate claim element from the text data that is being displayed. Moreover, if the Office Action is asserting that a virtual keyboard allegedly corresponds to the graphical control region, such an assertion would be inaccurate at least because Yanagihara does not describe any change/adjustment of the position of the virtual keyboard based on the time information.

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 600 of 644

Thus, Yanagihara does not describe or reasonably suggest circuitry configured to determine, by referring to the time information, a second display location which is different from the first display location, the second display location corresponding to the time information of the first text data; and control the display to display the graphical control region at the second display location, as recited in Claim 1.

Accordingly, Yanagihara does not describe or reasonably suggest each and every feature recited in Claim 1, and Yanagihara does not describe or reasonably suggest each and every feature recited in Claims 10, 15 and 20 for substantially similar reasons. Withdrawal of the rejection is respectfully requested.

Further, a proper *prima facie* case of obviousness cannot be maintained against new Claims 21 and 22 because of their respective dependencies from Claim 10.

Conclusion

Consequently, it is respectfully submitted no issues remain pending, and this application is therefore in condition for allowance. Should the Examiner disagree, the Examiner is encouraged to contact the undersigned. Otherwise, a timely Notice of Allowance is respectfully requested.

Respectfully Submitted,

XSENSUS, L.L.P.



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IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 601 of 644

Electronic Patent Application Fee Transmittal

Application Number:	16697190
Filing Date:	27-Nov-2019
Title of Invention:	APPARATUS, SYSTEM, AND METHOD OF DISPLAY CONTROL, AND RECORDING MEDIUM
First Named Inventor/Applicant Name:	Takuro MANO
Filer:	Noah K. Flaks/Christine Grimes
Attorney Docket Number:	13491US01

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	1202	2	100	200
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Extension - 1 month with $0 paid	1251	1	220	220
Miscellaneous:				
		Total in USD ($)		**420**

Electronic Acknowledgement Receipt	
EFS ID:	44226272
Application Number:	16697190
International Application Number:	
Confirmation Number:	3872
Title of Invention:	APPARATUS, SYSTEM, AND METHOD OF DISPLAY CONTROL, AND RECORDING MEDIUM
First Named Inventor/Applicant Name:	Takuro MANO
Customer Number:	154930
Filer:	Noah K. Flaks/Christine Grimes
Filer Authorized By:	Noah K. Flaks
Attorney Docket Number:	13491US01
Receipt Date:	08-NOV-2021
Filing Date:	27-NOV-2019
Time Stamp:	13:27:18
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$420
RAM confirmation Number	E2021A8D27424208
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The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		13491US01_EOT_Response.pdf	655105 68ad43bb77a25eb719ed9c1692d1b79cec3fef8c	yes	18

Multipart Description/PDF files in .zip description

Document Description	Start	End
Transmittal Letter	1	1
Fee Worksheet (SB06)	2	2
Extension of Time	3	3
Amendment/Req. Reconsideration-After Non-Final Reject	4	4
Claims	5	13
Applicant Arguments/Remarks Made in an Amendment	14	18

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	40652 ad46ccfceaec00a05a14c56f6624dc4683b309cb	no	2

Warnings:

Information:

Total Files Size (in bytes):	695757

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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

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New International Application Filed with the USPTO as a Receiving Office

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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional): 13491US01

Application Number: 16/697,190

Filed: 27 Nov 2019

For: APPARATUS, SYSTEM, AND METHOD OF DISPLAY CONTROL, AND RECORDING MEDIUM

Art Unit: 2653

Examiner: GAUTHIER, GERALD

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

		Fee	Small Entity Fee	Micro Entity Fee	
☑	One month (37 CFR 1.17(a)(1))	$220	$110	$55	$ 220.00
☐	Two months (37 CFR 1.17(a)(2))	$640	$320	$160	$
☐	Three months (37 CFR 1.17(a)(3))	$1,480	$740	$370	$
☐	Four months (37 CFR 1.17(a)(4))	$2,320	$1,160	$580	$
☐	Five months (37 CFR 1.17(a)(5))	$3,160	$1,580	$790	$

☐ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 602325.

☐ Payment made via EFS-Web.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

☐ applicant.

☑ attorney or agent of record. Registration number 69541.

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____.

/Noah K. Flaks/ — Signature

November 8, 2021 — Date

Noah K. Flaks — Typed or printed name

571-376-6333 — Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☑ * Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission	18

Application Number	16/697,190
Filing Date	27 Nov 2019
First Named Inventor	Takuro Mano
Art Unit	2653 Confirmation No. 3872
Examiner Name	GAUTHIER, GERALD
Attorney Docket Number	13491US01

ENCLOSURES *(Check all that apply)*

- [x] Fee Transmittal Form
  - [x] Fee Attached
- [x] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [x] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Reply to Missing Parts/ Incomplete Application
  - [ ] Reply to Missing Parts under 37 CFR 1.52 or 1.53
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- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
  - [ ] Landscape Table on CD
- [ ] After Allowance Communication to TC
- [ ] Appeal Communication to Board of Appeals and Interferences
- [ ] Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
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The Commissioner is hereby authorized to charge any additional fees that may be required for papers being filed herewith and for which no payment is enclosed herewith, or credit any overpayment to Deposit Account 602325.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	XSENSUS, LLP Customer Number 154930		
Signature	/Noah K. Flaks/		
Printed name	Noah K. Flaks		
Date	November 8, 2021	Reg. No.	69541

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This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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FEE TRANSMITTAL

Application Number	16/697,190
Filing Date	27 Nov 2019
First Named Inventor	Takuro Mano
Art Unit	2653
Examiner Name	GAUTHIER, GERALD
Attorney Docket Number	13491US01

☐ No additional fee is required ☐ Small entity status is claimed

	Claims Remaining After Amendment		Highest Number of Claims Previously Paid For	Current Extra Claims	Rate	Additional Fee
Total Claims	22	-	20	= 2	x $ 100.00 =	$ 200.00
Independent Claims	4	-	4	=	x $ 480.00 =	$ 0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))					$	$
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					N/A	$
					TOTAL	$ 200.00

EXTENSION OF TIME	$ 220.00
REQUEST FOR RECONSIDERATION (RCE)	$
NOTICE OF APPEAL	$
TERMINAL DISCLAIMER	$
	$
	$
TOTAL	$ 420.00

The Commissioner is hereby authorized to charge any additional fees that may be required for papers being filed herewith and for which no payment is enclosed herewith, or credit any overpayment to Deposit Account **602325**

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Customer Number:

154930

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NOTICE OF ALLOWANCE AND FEE(S) DUE

154930 7590 11/24/2021

XSENSUS LLP
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Alexandria, VA 22314

EXAMINER	
GAUTHIER, GERALD	
ART UNIT	PAPER NUMBER
2653	

DATE MAILED: 11/24/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/697,190	11/27/2019	Takuro MANO	13491US01	3872

TITLE OF INVENTION: APPARATUS, SYSTEM, AND METHOD OF DISPLAY CONTROL, AND RECORDING MEDIUM

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	02/24/2022

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 610 of 644

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

154930 7590 11/24/2021

XSENSUS LLP
100 Daingerfield Road
Suite 402
Alexandria, VA 22314

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/697,190	11/27/2019	Takuro MANO	13491US01	3872

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APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	02/24/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
GAUTHIER, GERALD	2653	704-200000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1_____
2_____
3_____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑Issue Fee ❑Publication Fee (if required) ❑Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 611 of 644

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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154930 7590 11/24/2021

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100 Daingerfield Road
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Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 02/11)

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 16/697,190	Applicant(s) MANO, Takuro	
	Examiner GERALD GAUTHIER	Art Unit 2653	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to 11/08/2021 Amendment.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 1-22 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☑ All b) ☐ Some* c) ☐ None of the:

   1. ☑ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☑ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/GERALD GAUTHIER/
Primary Examiner, Art Unit 2653

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Allowable Claims

2. **Claims 1-22** are allowed.

3. The following is an examiner's statement of reasons for allowance:

As to **claims 1, 10, 15 and 20**, in combination with other limitations of the claims, when considered as a whole, the prior art of record fails to disclose or specifically suggested receive selection of first text data from the text data being displayed, determine, by referring to the time information, a second display location which is different from the first display location, the second display location corresponding to the time information of the first text data and control the display to display the graphical control region at the second display location.

In the specific, with combined limitations recited in the claims.

Furthermore, it would not have been obvious to one of ordinary skill in the art at the time of invention to modify the prior art in order to arrive at the claim invention.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892 form.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GERALD GAUTHIER whose telephone number is (571)272-7539. The examiner can normally be reached 8:00 AM to 4:30 PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, FAN TSANG can be reached on (571) 272-7547. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GERALD GAUTHIER/
Primary Examiner, Art Unit 2653

November 17, 2021

Notice of References Cited	Application/Control No. 16/697,190	Applicant(s)/Patent Under Reexamination MANO, Takuro	
	Examiner GERALD GAUTHIER	Art Unit 2653	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-8050586-B2	11-2011	Hoshino; Naoki	G03G15/502	399/81
*	B	US-7610079-B2	10-2009	Schwarze; Werner	A61B17/2256	600/427
*	C	US-6883146-B2	04-2005	Prabhu; Prasad V.	G06F3/0481	715/854
*	D	US-20210104082-A1	04-2021	BROCHIER; Alan	G06T11/00	1/1
*	E	US-20180032305-A1	02-2018	Cameron; Paul Charles	G10L25/63	1/1
*	F	US-20140109016-A1	04-2014	Ouyang; Yu	G06F40/166	715/856
*	G	US-20050108775-A1	05-2005	Bachar, Aviv	H04M3/4936	725/135
*	H	US-20020163547-A1	11-2002	Abramson, Michael	G06T11/60	715/855
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 618 of 644

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/697,190	MANO, Takuro
	Examiner	Art Unit
	GERALD GAUTHIER	2653

CPC - Searched*		
Symbol	**Date**	**Examiner**
G06F 1/1686	06/30/2021	GG
G06F 3/167	06/30/2021	GG
G06F 16/953	06/30/2021	GG
G06F 40/284	06/30/2021	GG
G06K 9/00771	06/30/2021	GG
G06T 11/60	06/30/2021	GG
G11B 27/34	06/30/2021	GG
H04N 7/155	06/30/2021	GG
H04N 21/41407	06/30/2021	GG
G06F 40/169, 284	11/17/2021	GG
G06K 9/00671, 00771	11/17/2021	GG
G10L 15/22, 26	11/17/2021	GG
H04N 7/147, 155	11/17/2021	GG

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

/GERALD GAUTHIER/ Primary Examiner, Art Unit 2653	

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 619 of 644

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/697,190	MANO, Takuro
	Examiner	Art Unit
	GERALD GAUTHIER	2653

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
340	540	06/30/2021	GG
700	94	06/30/2021	GG
704	200, 235, 242, 260, 275	06/30/2021	GG
705	321	06/30/2021	GG
707	723	06/30/2021	GG
399	81	11/17/2021	GG
600	427	11/17/2021	GG
715	854, 855, 856	11/17/2021	GG
725	135	11/17/2021	GG

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

/GERALD GAUTHIER/ Primary Examiner, Art Unit 2653	

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 620 of 644

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	Examiner	Art Unit
	GERALD GAUTHIER	2653

Search Notes		
Search Notes	**Date**	**Examiner**
G06F 1/1686 Limited by text search	06/30/2021	GG
G06F 3/167 Limited by text search	06/30/2021	GG
G06F 16/953 Limited by text search	06/30/2021	GG
G06F 40/284 Limited by text search	06/30/2021	GG
G06K 9/00771 Limited by text search	06/30/2021	GG
G06T 11/60 Limited by text search	06/30/2021	GG
G11B 27/34 Limited by text search	06/30/2021	GG
H04N 7/155 Limited by text search	06/30/2021	GG
H04N 21/41407 Limited by text search	06/30/2021	GG
PE2E-SEARCH (US-PGPUB; USPAT; USOCR; FIT; FPRS; EPO; JPO; DERWENT; IBM_TDB), CPC	06/30/2021	GG
Inventor's Name Search	06/30/2021	GG
PLUS Search	06/30/2021	GG
G06F 40/169, 284 Limited by text search	11/17/2021	GG
G06K 9/00671, 00771 Limited by text search	11/17/2021	GG
G10L 15/22, 26 Limited by text search	11/17/2021	GG
H04N 7/147, 155 Limited by text search	11/17/2021	GG
Update PE2E-SEARCH (US-PGPUB; USPAT; USOCR; FIT; FPRS; EPO; JPO; DERWENT; IBM_TDB), CPC	11/17/2021	GG
Update Inventor's Name Search	11/17/2021	GG

/GERALD GAUTHIER/ Primary Examiner, Art Unit 2653	

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 621 of 644

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	16/697,190	MANO, Takuro
	Examiner	Art Unit
	GERALD GAUTHIER	2653

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
G06F 1	1686	11/17/2021	GG
G06F 3	167	11/17/2021	GG
G06F 16	953	11/17/2021	GG
G06F 40	169, 284	11/17/2021	GG
G06K 9	00671, 00771	11/17/2021	GG
G06T 11	60	11/17/2021	GG
G10L 15	22, 26	11/17/2021	GG
G11B 27	34	11/17/2021	GG
H04N 7	147, 155	11/17/2021	GG
H04N 21	41407	11/17/2021	GG
340	540	11/17/2021	GG
399	81	11/17/2021	GG
600	427	11/17/2021	GG
700	94	11/17/2021	GG
704	200, 235, 242, 260, 275	11/17/2021	GG
705	321	11/17/2021	GG
707	723	11/17/2021	GG
715	854, 855, 856	11/17/2021	GG
725	135	11/17/2021	GG
	Interference Search History (see attached)	11/17/2021	GG

/GERALD GAUTHIER/ Primary Examiner, Art Unit 2653	

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 622 of 644

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/697,190	MANO, Takuro
	Examiner	**Art Unit**
	GERALD GAUTHIER	2653

CPC							
Symbol						**Type**	**Version**
G10L	/	15	/	26		F	2013-01-01
G06F	/	3	/	167		I	2013-01-01
G06T	/	11	/	60		I	2013-01-01

CPC Combination Sets								
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	22	
/GERALD GAUTHIER/ Primary Examiner, Art Unit 2653	17 November 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20211117

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 623 of 644

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/697,190	MANO, Takuro
	Examiner	**Art Unit**
	GERALD GAUTHIER	2653

INTERNATIONAL CLASSIFICATION				
CLAIMED				
G10L	/	15	/	26

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**
704	200

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					
704	235	242	260	275		
715	854	855	856			

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	22	
/GERALD GAUTHIER/ Primary Examiner, Art Unit 2653	17 November 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20211117

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 624 of 644

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/697,190	MANO, Takuro
	Examiner	**Art Unit**
	GERALD GAUTHIER	2653

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	10	10	21	19										
2	2	11	11	22	20										
3	3	12	12	15	21										
4	4	13	13	16	22										
5	5	14	14												
6	6	17	15												
7	7	18	16												
8	8	19	17												
9	9	20	18												

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	22	
/GERALD GAUTHIER/ Primary Examiner, Art Unit 2653	17 November 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office Part of Paper No.: 20211117

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 625 of 644

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/697,190	MANO, Takuro
	Examiner	**Art Unit**
	GERALD GAUTHIER	2653

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	06/30/2021	11/17/2021							
1	1	✓	=							
2	2	✓	=							
3	3	✓	=							
4	4	✓	=							
5	5	✓	=							
6	6	✓	=							
7	7	✓	=							
8	8	✓	=							
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18	16	✓	=							
19	17	✓	=							
20	18	✓	=							
21	19	✓	=							
22	20	✓	=							
15	21		=							
16	22		=							

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 626 of 644

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L37	46	((("MANO") near3 ("Takuro"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/11/16 05:09 PM
L38	114763	(G10L15/26 OR G06F3/167 OR G06T11/60 OR G11B27/34 OR G11B27/10 OR G11B27/28 OR G11B27/102).cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2021/11/16 05:09 PM
L39	1021	704/200.ccls.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/16 05:09 PM
L40	354	select$3 SAME text SAME display$3 SAME time SAME location SAME graphical SAME region	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/16 05:14 PM
L41	44	receiv$3 SAME select$3 SAME text SAME display$3 SAME determin$3 SAME time SAME second SAME location SAME graphical SAME control SAME region	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/16 05:24 PM
L44	20	40 AND 38	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/16 05:26 PM
L45	9	(control$4 near3 display$3) WITH (graphical near3 region) WITH location	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/16 05:42 PM
L46	1	(receiv$3 obtain$4) WITH (choice preferenc$3 select$3) WITH (text near3 display$3) SAME (time near3 (position location region)) SAME (graphical near3 control$4 near3 (position location region))	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/17 06:43 AM
L47	1	(receiv$3 obtain$4) WITH (choice preferenc$3 select$3) WITH (text near3 display$3) AND (time near3 (position location region)) AND (graphical near3 control$4 near3	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/17 06:44 AM

		(position location region))					
L48	4	(receiv$3 obtain$4) WITH (choice preferenc$3 select$3) WITH (text near3 display$3) AND (graphical near3 control$4 near3 (position location region))	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/17 06:45 AM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N1	0	(receiv$3 SAME select$3 SAME text SAME display$3 SAME determin$3 SAME time SAME second SAME location SAME graphical SAME control SAME region).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/16 05:25 PM
N2	1	((receiv$3 obtain$4) WITH (choice preferenc$3 select$3) WITH (text near3 display$3) SAME (time near3 (position location region)) SAME (graphical near3 control$4 near3 (position location region))).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/17 06:49 AM

Bibliographic Data

Application No: 16/697,190

Foreign Priority claimed: (•) Yes ( ) No

35 USC 119 (a-d) conditions met: [✓] Yes [ ] No [ ] Met After Allowance

Verified and Acknowledged: /GERALD GAUTHIER/ Examiner's Signature | Initials

Title: APPARATUS, SYSTEM, AND METHOD OF DISPLAY CONTROL, AND RECORDING MEDIUM

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
11/27/2019	704	2653	13491US01
RULE			

APPLICANTS

INVENTORS

Takuro MANO, Kanagawa, JAPAN

CONTINUING DATA

FOREIGN APPLICATIONS

JAPAN JP2018-223360 11/29/2018

JAPAN JP2019-178481 09/30/2019

IF REQUIRED, FOREIGN LICENSE GRANTED**

12/17/2019

STATE OR COUNTRY

JAPAN

ADDRESS

XSENSUS LLP
100 Daingerfield Road
Suite 402
Alexandria, VA 22314
UNITED STATES

FILING FEE RECEIVED

$2,180

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

154930 7590 11/24/2021

XSENSUS LLP
100 Daingerfield Road
Suite 402
Alexandria, VA 22314

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/697,190	11/27/2019	Takuro MANO	13491US01	3872

TITLE OF INVENTION: APPARATUS, SYSTEM, AND METHOD OF DISPLAY CONTROL, AND RECORDING MEDIUM

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	02/24/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
GAUTHIER, GERALD	2653	704-200000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 XSENSUS LLP
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: RICOH COMPANY, LTD.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): TOKYO, JAPAN

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ☑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ☑ Issue Fee ☐ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

☒ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 602325

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Noah K. Flaks/ Date February 22, 2022

Typed or printed name Noah K. Flaks Registration No. 69,541

IPR2026-00461
Zoom Communication, Inc. Ex. 1002
Page 630 of 644

Electronic Patent Application Fee Transmittal

Application Number:	16697190
Filing Date:	27-Nov-2019
Title of Invention:	APPARATUS, SYSTEM, AND METHOD OF DISPLAY CONTROL, AND RECORDING MEDIUM
First Named Inventor/Applicant Name:	Takuro MANO
Filer:	Noah K. Flaks/Chi Park
Attorney Docket Number:	13491US01

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	1200	1200

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1200**

Electronic Acknowledgement Receipt	
EFS ID:	45053252
Application Number:	16697190
International Application Number:	
Confirmation Number:	3872
Title of Invention:	APPARATUS, SYSTEM, AND METHOD OF DISPLAY CONTROL, AND RECORDING MEDIUM
First Named Inventor/Applicant Name:	Takuro MANO
Customer Number:	154930
Filer:	Noah K. Flaks/Chi Park
Filer Authorized By:	Noah K. Flaks
Attorney Docket Number:	13491US01
Receipt Date:	22-FEB-2022
Filing Date:	27-NOV-2019
Time Stamp:	14:48:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1200
RAM confirmation Number	E20222LE48331645
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	13491US01IF_signed.pdf	290143 b78ae4966c4c6fe38035da0c16c194185a0131fd	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	37770 052b12fcd3e53132b4cc50a9d5f7ba1192b6dafe	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	327913		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/697,190	03/29/2022	11289093	13491US01	3872

154930 7590 03/09/2022

XSENSUS LLP
100 Daingerfield Road
Suite 402
Alexandria, VA 22314

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 127 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

INVENTOR(s) (Please see PAIR WEB site http://pair.uspto.gov for additional inventors):

Takuro MANO, Kanagawa, JAPAN;

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

PATENT REFERENCE NO: 13491US01

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF	
TAKURO MANO	EXAMINER: GAUTHIER, GERALD
SERIAL NO: 16/697,190	
PATENT NO. 11,289,093	
	GROUP ART UNIT: 2653
FOR: APPARATUS, SYSTEM, AND METHOD OF DISPLAY CONTROL, AND RECORDING MEDIUM	

REQUEST FOR A CERTIFICATE OF CORRECTION UNDER 37 CFR 1.323

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

Commissioner:

Applicants respectfully request a Certificate of Correction for the above-identified patent. The required fee is submitted herewith.

Respectfully Submitted,

XSENSUS, L.L.P.

Noah K. Flaks
Attorney of Record
Registration No. 69,541

CUSTOMER NO.
154930

Phone No. 571-376-6333
Fax: 571-376-6334

PTO/SB/44 (09-07)
Approved for use through 01/31/2020. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 11,289,093

APPLICATION NO.: 16/697,190

ISSUE DATE : 29 Mar 2022

INVENTOR(S) : Takuro Mano

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims

Claim 17, Column 54, Line 1, "a first display region," should read --a first display location,--.

Claim 22, Column 54, Line 52, "a first display region," should read --a first display location,--.

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):

XSENSUS, LLP
100 Daingerfield Rd Suite 402
Alexandria, VA 22314

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Patent Application Fee Transmittal

Application Number:	16697190
Filing Date:	27-Nov-2019
Title of Invention:	APPARATUS, SYSTEM, AND METHOD OF DISPLAY CONTROL, AND RECORDING MEDIUM
First Named Inventor/Applicant Name:	Takuro MANO
Filer:	Noah K. Flaks/Chi Park
Attorney Docket Number:	13491US01

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
CERTIFICATE OF CORRECTION	1811	1	160	160

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**160**

Electronic Acknowledgement Receipt	
EFS ID:	46626686
Application Number:	16697190
International Application Number:	
Confirmation Number:	3872
Title of Invention:	APPARATUS, SYSTEM, AND METHOD OF DISPLAY CONTROL, AND RECORDING MEDIUM
First Named Inventor/Applicant Name:	Takuro MANO
Customer Number:	154930
Filer:	Noah K. Flaks/Chi Park
Filer Authorized By:	Noah K. Flaks
Attorney Docket Number:	13491US01
Receipt Date:	15-SEP-2022
Filing Date:	27-NOV-2019
Time Stamp:	16:02:19
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$160
RAM confirmation Number	E20229EG02502983
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		13491US01COCREQ_signed.pdf	521421 be94f7796b4d58f49dcab143f2338d38e1da67dc	yes	2
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Request for Certificate of Correction		1	1	
	Request for Certificate of Correction		2	2	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	37870 6898a2b82d074e4c41eb13152e771b46b075cca4	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	559291		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 11,289,093 B2
APPLICATION NO. : 16/697190
DATED : March 29, 2022
INVENTOR(S) : Takuro Mano

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims

Claim 17, Column 54, Line 1, “a first display region,” should read --a first display location,--.

Claim 22, Column 54, Line 52, “a first display region,” should read --a first display location,--.

Signed and Sealed this
Eleventh Day of October, 2022

Katherine Kelly Vidal

Katherine Kelly Vidal
Director of the United States Patent and Trademark Office

AO 120 (Rev. 08/10)

TO:	Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court for the District of Delaware on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
	8/29/2025	for the District of Delaware

PLAINTIFF	DEFENDANT
RICOH COMPANY, LTD.	ZOOM COMMUNICATIONS, INC. F/K/A ZOOM VIDEO COMMUNICATIONS, INC.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	US 10,904,487 B2	1/26/2021	Ricoh Company, Ltd.
2	US 10,909,059 B2	2/2/2021	Ricoh Company, Ltd.
3	US 10,931,917 B2	2/23/2021	Ricoh Company, Ltd.
4	US 11,256,464 B2	2/22/2022	Ricoh Company, Ltd.
5	US 11,289,093 B2	3/29/2022	Ricoh Company, Ltd.

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court for the District of Delaware on the following

☑ Trademarks or ☐ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

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	8/29/2025	for the District of Delaware

PLAINTIFF	DEFENDANT
RICOH COMPANY, LTD.	ZOOM COMMUNICATIONS, INC. F/K/A ZOOM VIDEO COMMUNICATIONS, INC.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	US 11,516,278 B2	11/29/2022	Ricoh Company, Ltd.
2	US 11,546,548 B2	1/3/2023	Ricoh Company, Ltd.
3			
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5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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