(12) UK Patent Application (19) GB (11) 2 420 674 (13) A

(43) Date of A Publication 31.05.2006

(21) Application No: 0521951.4

(22) Date of Filing: 27.10.2005

(30) Priority Data:
(31) 093132811 (32) 28.10.2004 (33) TW

(71) Applicant(s):
Xcome Technology Co.,Ltd
(Incorporated in Taiwan)
7F, No.2 Ln 609 Sec 5, Chungsin Rd,
Sanchung, Taipei County, Taiwan

(72) Inventor(s):
Liang-Chern Tarn

(74) Agent and/or Address for Service:
Marks & Clerk
90 Long Acre, LONDON, WC2E 9RA,
United Kingdom

(51) INT CL:
H04L 12/58 (2006.01) G10L 15/26 (2006.01)

(52) UK CL (Edition X):
H4K KTKPC KTN

(56) Documents Cited:
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(58) Field of Search:
UK CL (Edition X) H4K
INT CL G10L, H04L
Other: EPODOC, WPI

(54) Abstract Title: **Communicating instant messages from one type to another**

(57) A system and method are provided for communicating messages from one type to another. The system includes an instant message communication module (11), a speech recognition module (12), a speech-processing module (15), a voice-processing module (14) and a dictionary module (13). The method includes a step of inputting data, a step of transforming the data from one type to another, and a step of sending the transformed data. Through the system and method, a user can communicate with a counterpart who inputs a different type of messages. System provides text to speech and speech to text conversion.

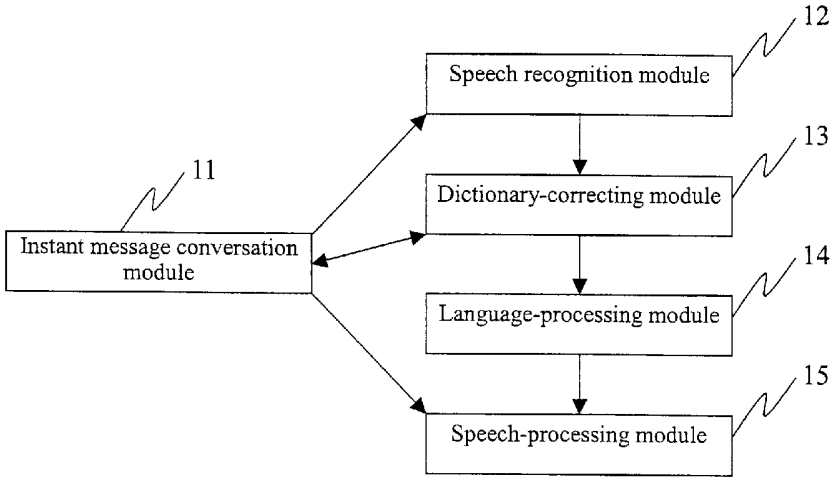

FIG.1

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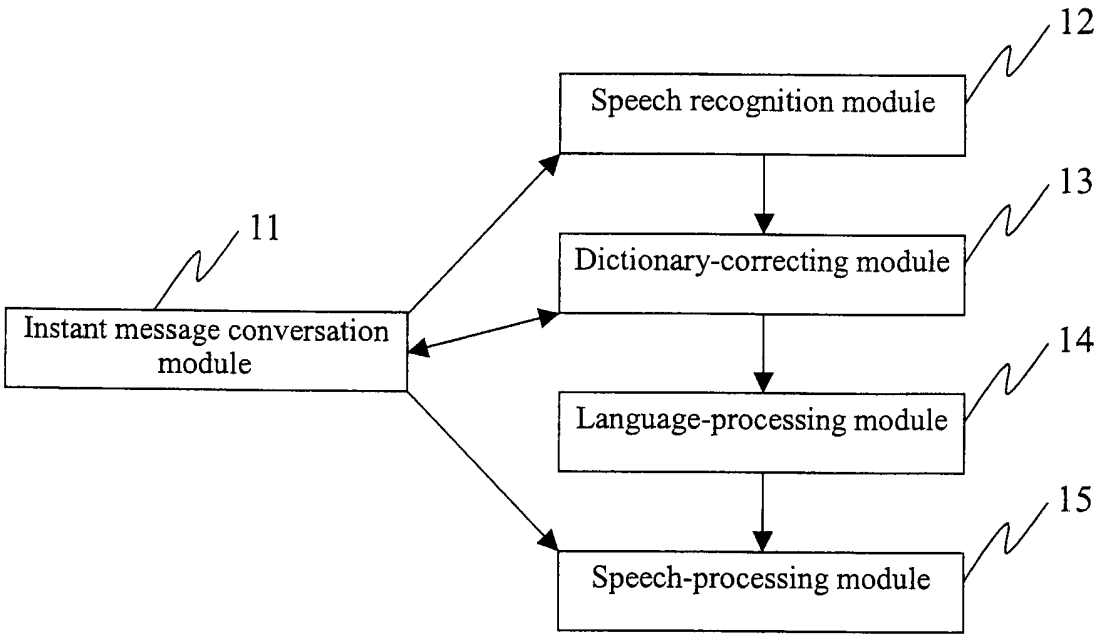
12
Speech recognition module
13
11
Dictionary-correcting module
Instant message conversation module
14
Language-processing module
15
Speech-processing module

FIG.1

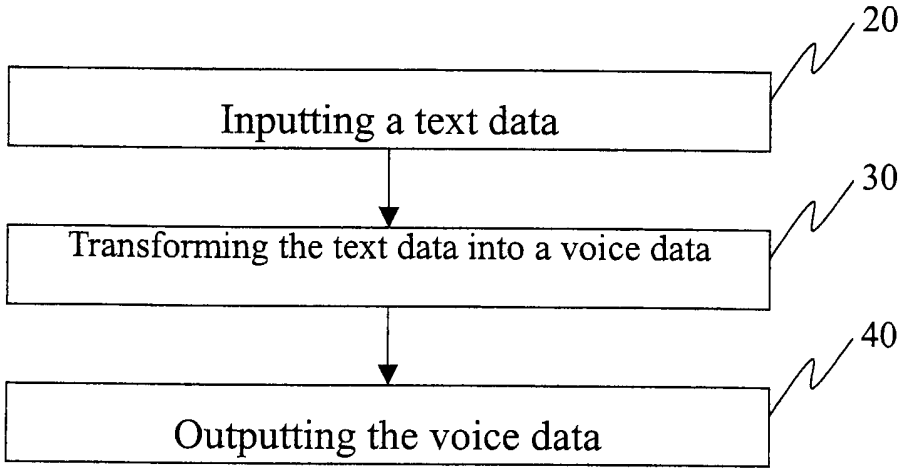
20
Inputting a text data
30
Transforming the text data into a voice data
40
Outputting the voice data

FIG. 2A

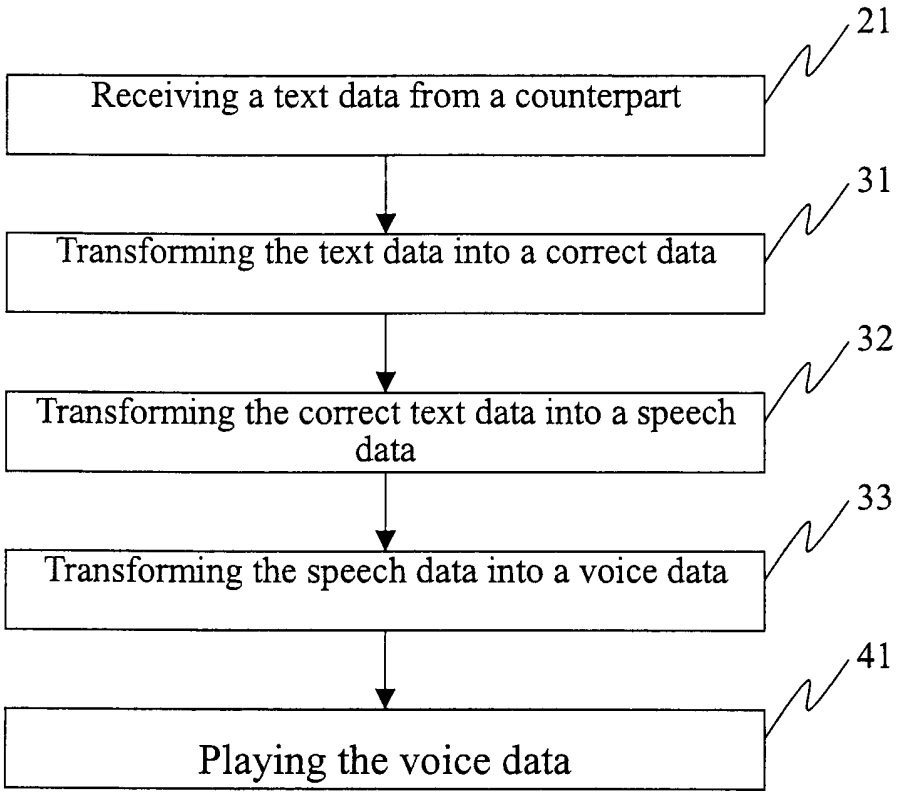
21
Receiving a text data from a counterpart
31
Transforming the text data into a correct data
32
Transforming the correct text data into a speech data
33
Transforming the speech data into a voice data
41
Playing the voice data

FIG. 2B

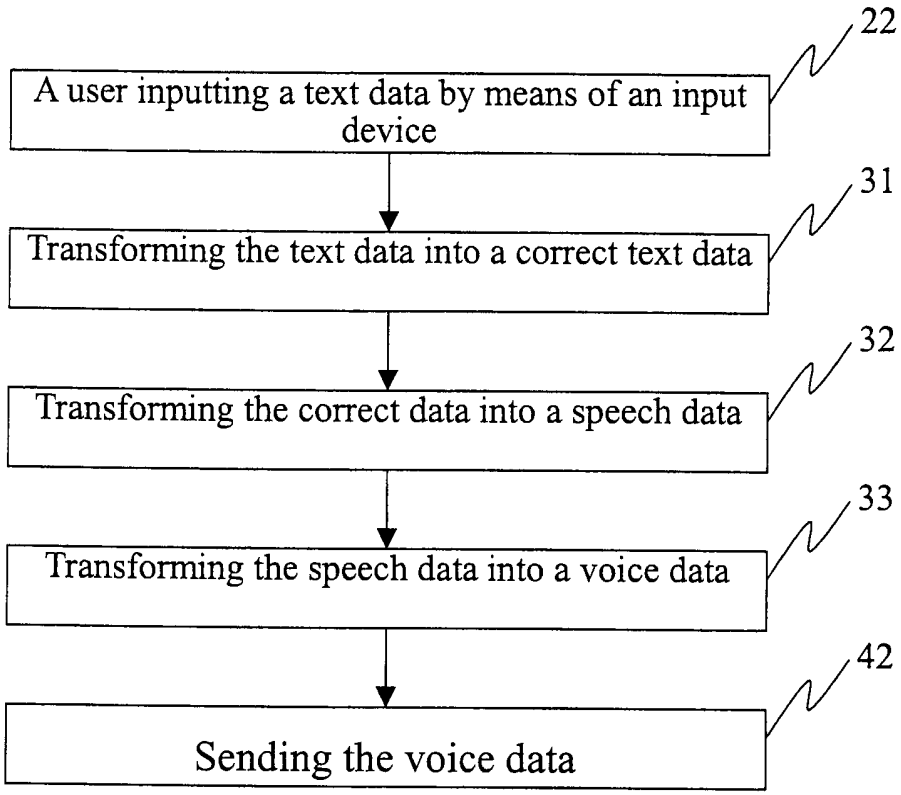
22
A user inputting a text data by means of an input device
31
Transforming the text data into a correct text data
32
Transforming the correct data into a speech data
33
Transforming the speech data into a voice data
42
Sending the voice data

FIG.2C

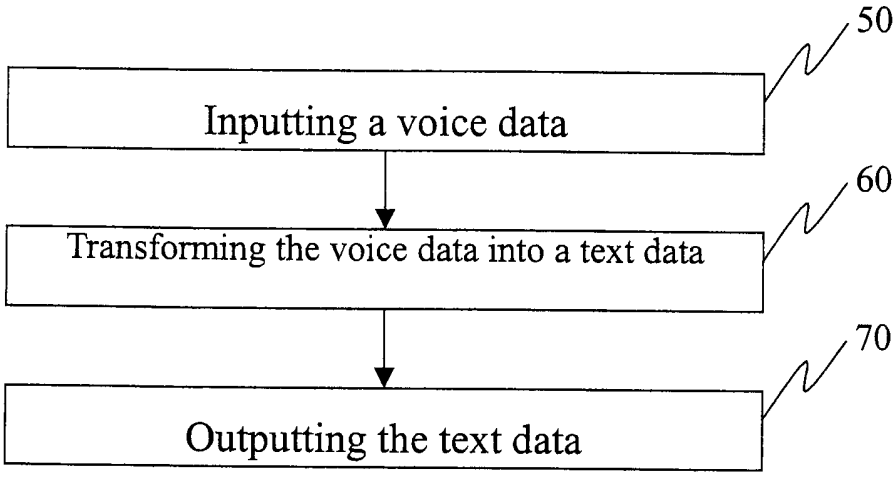
50
Inputting a voice data
60
Transforming the voice data into a text data
70
Outputting the text data

FIG.3A

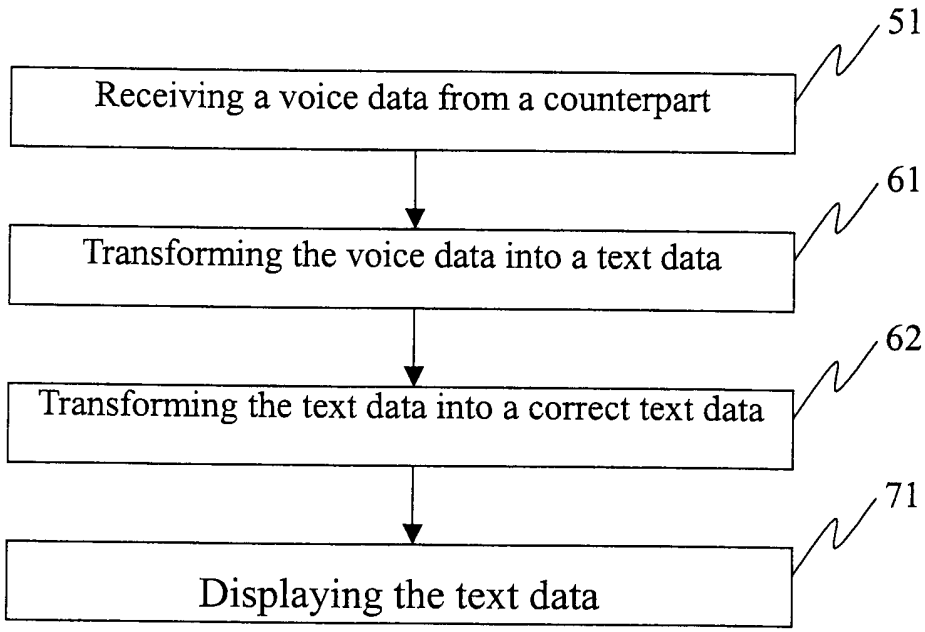
51
Receiving a voice data from a counterpart
61
Transforming the voice data into a text data
62
Transforming the text data into a correct text data
71
Displaying the text data

FIG.3B

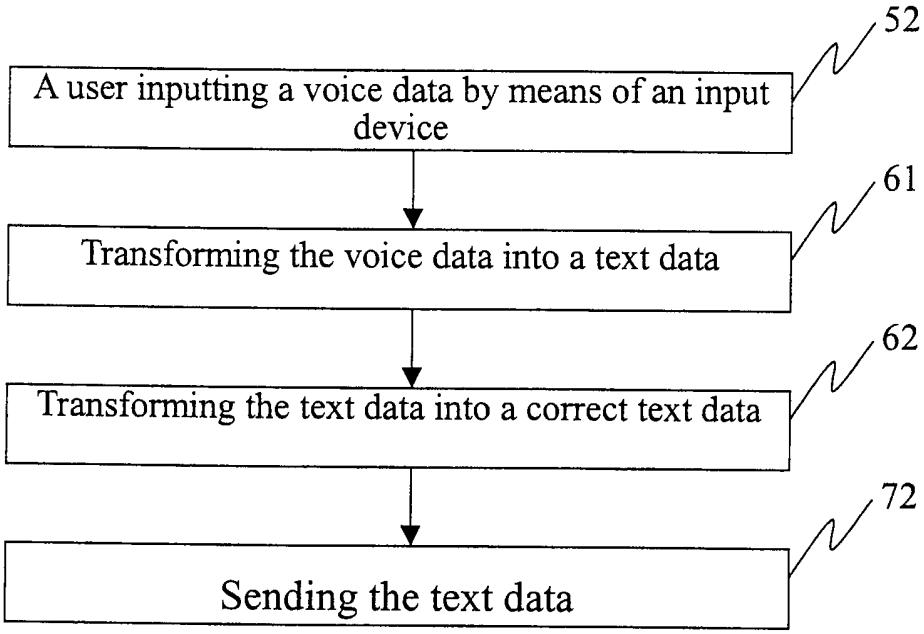
52
A user inputting a voice data by means of an input device
61
Transforming the voice data into a text data
62
Transforming the text data into a correct text data
72
Sending the text data

FIG.3C

SYSTEM AND METHOD FOR COMMUNICATING INSTANT MESSAGES FROM ONE TYPE TO ANOTHER

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to a messenger for communicating instant messages and, more particularly, to a system and method for communicating instant messages from one type to another.

Description of the Related Art

As network communication technology develops rapidly, various instant messengers for use on the Internet and mobile communication networks are prospering. Through these instant messengers, communication between people is not limited because of space and time. In any place, at any time, by using a desktop, notebook, palmtop computer, or even a mobile phone through the Internet (wireless or cable) and/or the mobile communication networks (high power or lower power), a user can connect with more than one counterpart. That is, through these instant messengers, using various systems and techniques based on the Internet or the mobile communication networks such as wireless local area networks (WLAN), general packet radio service (GPRS), code division multiple access (CDMA) or any other communication systems and techniques of the third generation, a user can communicate with others while stationary or moving.

At present, instant messengers can sends text, real-time voice, files and real-time video. However, it is operated in a simple mode. That is, the messages are sent and received in only one format. For example, if a user sends a text message, a counterpart

will receive a text message. If, a user sends a real-time voice message, a counterpart will receive a real-time voice message. This simple mode limits the flexibility of use. For example, if a user is driving, he will not be able to watch a display or conduct the input of text. Hence, he or she cannot read and reply to a text message from a counterpart. If a user does not have a speaker or earphone and a microphone, he will not be able to listen and reply to a voice message from a counterpart.

SUMMARY OF INVENTION

The object of the present invention is to eliminate the problems encountered in the conventional messengers; that messages cannot be transformed from one type to another because of the simple mode in which they are operated.

To achieve the foregoing object, the present invention provides a system and method for communicating messages from one type to another. The system includes an instant message conversation module, a speech recognition module, a language-processing module, a speech-processing module and a dictionary-correcting module. The method includes a step of inputting data, a step of transforming the data from one type to another, and a step of sending the transformed data.

The present invention can transfer messages from one type to another to let users communicate among each other with different types of messages, which enhances the flexibility of use for the communicating the instant messaging system.

Other objects, advantages and novel features of the invention will become more apparent from the following detailed description in conjunction with the attached drawings.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is a block diagram of a system for communicating instant messages from one type to another according to the present invention.

FIG. 2A is a flow chart of a method for transforming text data to voice data by means of the system shown in FIG.1.

FIG. 2B is a flow chart of a first aspect of the method shown in FIG. 2A.

FIG. 2C is a flow chart of a second aspect of the method shown in FIG. 2A.

FIG. 3A is a flow chart of a method for transforming voice data to text data by means of the system shown in FIG.1.

FIG. 3B is a flow chart of a first aspect of the method shown in FIG. 3A.

FIG. 3C is a flow chart of a second aspect of the method shown in FIG. 3A.

DETAILED DESCRIPTION OF EMBODIMENTS

A system for communicating instant messages from one type to another according to the present invention can be used in an electronic device such as a computer and a mobile phone connected to a network such as the Internet and the mobile communication networks.

Referring to FIG. 1, a block diagram of the system according to the present invention, the system includes an instant message conversation module 11, a speech recognition module 12, a language-processing module 14 and a speech-processing module 15.

The instant message conversation module 11 is used to initiate a message communication in order to connect a user with a counterpart. In communication, the instant message communication module 11 handles the input and output of instant messages such as receiving instant messages from a counterpart and sending instant messages to the counterpart. A user can input instant messages to the instant message communication module 11 through an input device such as a keyboard and a microphone. The instant message communication module 11 can present instant messages to a user through an output device such as a display and a speaker. The instant message communication module 11 can of course terminate an instant message communication.

The speech recognition module 12 is used to recognize and transform a speech data into a text data.

The language-processing module 14 uses a natural language processing technique to transform a text data into a speech data. The speech data includes phoneme data and prosody data.

The speech-processing module 15 is used to transform a speech data into a voice data. In detail, the phoneme data and the prosody data are filtered, compared and analyzed in a voice segment database in order to generate a corresponding voice data.

To obtain a correctly transformed message, the system may include a dictionary-correcting module 13 for transforming the text data into a correct text data. In detail, the text data is compared in a dictionary database in order to generate a correct text data.

FIG. 2A is a flow chart of a method for transforming text data to voice data by means of the system shown in FIG. 1. The method includes a step of inputting a text data (Step 20), a step of transforming the text data into a voice data (Step 30), and a step of outputting the voice data (Step 40).

FIG. 2B is a flow chart of a first aspect of the method shown in FIG. 2A for use in a situation that a user has a microphone while a counterpart does not have a speaker and would like to send a text data to the user. In this situation, the user has to transform the text data into a voice data.

Step 20 includes Step 21 of receiving the text data from the counterpart through the instant message conversation module 11.

Step 30 includes Steps 31 through 33. At Step 31, the text data is transformed into a correct text data by means of the dictionary-correcting module 13. Step 31 can however be omitted. At Step 32, the correct text data is transformed into a speech data by means of the speech-processing module 14. The speech data includes phoneme data and prosody data. At Step 33, the speech data is transformed into a voice data by means of the speech-processing module 15.

Step 40 includes Step 41. At Step 41, the voice data is played by means of an earphone.

FIG. 2C is a flow chart of a second aspect of the method shown in FIG. 2A for use in a situation that a user does not have a microphone and would like to send a text data to a counterpart who only has a speaker. In this situation, the user has to transform the text data into a voice data.

Step 20 includes Step 22 at which the user inputs the text data to the instant message communication module 11 by means of a keyboard.

Step 30 includes Steps 31 through 33. At Step 31, the text data is transformed into a correct text data by means of the dictionary-correcting module 13. Step 31 can however be omitted. At Step 32, the correct text data is transformed into a speech data by means of the speech-processing module 14. The speech data includes phoneme data and prosody data. At Step 33, the speech data is transformed into a voice data.

Step 40 includes Step 42. At Step 42, the voice data is sent to the counterpart by means of the instant message communication module 11.

FIG. 3A is a flow chart of a method for transforming voice data to text data by means of the system shown in FIG. 1. The method includes a step of inputting a voice data (Step 50), a step of transforming the voice data into a text data (Step 60), and a step of outputting the text data (Step 70).

FIG. 3B is a flow chart of a first aspect of the method shown in FIG. 3A for use in a situation that a user does not have a speaker while a counterpart has a microphone and would like to send a voice data to the user. In this situation, the user has to transform the voice data into a text data.

Step 50 includes Step 51. At Step 51, the voice data is received from the counterpart through the instant message communication module 11.

Step 60 includes Steps 61 and 62. At Step 61, the voice data is transformed into a text data by means of the speech recognition module 12. At Step 62, the text data is transformed into a correct text data by means of the dictionary-correcting module 13. Step 62 can however be omitted.

Step 70 includes Step 71. At Step 71, the correct text data is sent to a display from the instant message communication module 11. The correct text data is displayed by means of the display.

FIG. 3C is a flow chart of a second aspect of the method shown in FIG. 3A for use in a situation that a user has a microphone and would like to send a voice data to a counterpart who does not have a speaker. In this situation, the user has to transform the voice data into a text data.

Step 50 includes Step 52 at which the user inputs the voice data to the instant message communication module 11 by means of a microphone.

Step 60 includes Steps 61 and 62. At Step 61, the voice data is transformed into a text data by means of the speech recognition module 12. At Step 62, the text data is transformed into a correct text data by means of the dictionary-correcting module 13. Step 62 can however be omitted.

Step 70 includes Step 72. At Step 72, the correct text data is sent to the counterpart by means of the instant message communication module 11.

As discussed above, by means of the system and method for communicating instant messages from one type into another, a user can communicate with a counterpart who inputs a different type of message.

The present invention has been described via detailed illustration of the preferred embodiment. Those skilled in the art can derive variations from the preferred embodiment without departing from the scope of the present invention. Therefore, the preferred embodiment shall not limit the scope of the present invention defined in the claims.

CLAIMS

1. A system for communicating a message from one type into another, the system comprising:

an instant message conversation module for initiating and terminating an instant message communication through a network and for processing the input and output of an instant message during the instant message communication;

a speech recognition module for transforming a voice data into a text data;

a language-processing module for transforming a text data into a speech data; and

a speech-processing module for transforming a speech data into a voice data.

2. A system as claimed in claim 1, wherein the instant message conversation module receives and sends the instant message through the network.

3. A system as claimed in claim 1 or claim 2, wherein the instant message conversation module can display the instant message through a display.

4. A system as claimed in any preceding claim, wherein the instant message conversation module receives the instant message from an input device.

5. A system as claimed in any preceding claim, wherein the speech data includes phoneme data and prosody data.

6. A system as claimed in any preceding claim, wherein the speech-processing module compares the speech data in a database in order to generate the voice data.

7. A system as claimed in any preceding claim, comprising a dictionary-correcting module for transforming the text data into a correct text data.

8. A system as claimed in claim 7, wherein the dictionary-correcting module compares the text data with a dictionary database in order to generate the correct text data.

9. A method for use in a system for communicating an instant message from one type into another, the method comprising the steps of:

inputting a text data;

transforming the text data into a voice data; and

outputting the voice data.

10. A method as claimed in claim 9, wherein the step of transforming the text data into a voice data further comprises the steps of:

transforming the text data into a speech data; and

transforming the speech data into the voice data.

11. A method as claimed in claim 9 or claim 10, comprises a step of correcting the text data.

12. A method as claimed in any of claims 9 to 11, wherein the step of inputting a text data comprises a step of the system receiving a text data from a counterpart.

13. A method as claimed in any of claims 9 to 12, wherein the step of sending the voice data comprises a step of playing the voice data through a voice-generating device.

14. A method as claimed in any of claims 9 to 13, wherein the step of inputting a text data comprises a step of a user inputting a text data to the system through an input device.

15. A method as claimed in claim 9, wherein the step of sending the voice data comprises a step of sending the voice data to a counterpart.

16. A method for use in a system for communicating an instant message from one type into another, the method comprising the steps of :

inputting a voice data;

transforming the voice data into a text data; and

outputting the text data.

17. A method as claimed in claim 16, wherein the step of transforming the voice data into a text data comprises a step of transforming the voice data into a text data by means of a speech recognition technique.

18. A method as claimed in claim 16 or claim 17, comprising a step of correcting the text data.

19. A method as claimed in any of claims 16 to 18, wherein the step of inputting a voice data comprises a step of the system receiving a voice data from a counterpart.

20. A method as claimed in any of claims 16 to 19, wherein the step of sending the text data comprises a step of displaying the text data through a display.

21. A method as claimed in claim 16, wherein the step of inputting a voice data comprises a step of a user inputting a voice data to the system through an input device.

22. A method as claimed in claim 16, wherein the step of sending the text data comprises a step of outputting the text data to a counterpart.

23. A system for communicating a message from one type into another, substantially as hereinbefore described with reference to the accompanying drawings.

24. A method for use in a system for communicating an instant message from one type into another, substantially as hereinbefore described with reference to the accompanying drawings.

The Patent Office

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Application No: GB0521951.4 **Examiner:** Dr Andrew Courtenay

Claims searched: 1 to 24 **Date of search:** 24 March 2006

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X,Y	X: 1 to 4, 9, 10, 12 to 17, and 19 to 22. Y: 5 to 8, 11 and 18	US 2003/039340 A1 (INTEL CORP) Whole document relevant.
X,Y	X: 1 to 4, 9, 10, 12 to 17, and 19 to 22. Y: 5 to 8, 11 and 18	WO 2003/085941 A1 (WORLDCOM INC) See whole document, especially paragraphs 51 and 84 to 91.
X	9, 10, and 12 to 15	WO 2003/061227 A2 (AVAYA TECHNOLOGY CORP) Whole document relevant.
X	9, 10 and 12 to 15	GB 2376610 A (HEWLETT PACKARD CO) See whole document.
X,P	9, 10 and 14 to 15	WO 2005/002160 A1 (NORTEL NETWORKS) See abstract and figure 1.
X,P	16 to 22	WO 2005/076528 A1 (SIEMENS COMMUNICATIONS) See whole document.
X,P	16 to 22	WO 2005/098817 A2 (RAO) See abstract.
Y	5 to 8, 11 and 18	US 6847931 B1 (LESSAC TECHNOLOGY INC) See figure 1.

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^{X} :

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G10L; H04L

The following online and other databases have been used in the preparation of this search report

EPODOC, WPI