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PROVISIONAL APPLICATION COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION under 37 C.F.R. § 1.53 (b)(2)

Docket No.		WEBL:027PZ1		Type a plus sign (+) inside this box →		+
INVENTOR(s)/APPLICANT(s)						
LAST NAME		FIRST NAME		MIDDLE INITIAL		RESIDENCE (CITY AND STATE OR COUNTRY)
Kurganov		Alex				Buffalo Grove, Illinois, USA
TITLE OF THE INVENTION (280 characters max)						
Voice-Activated Information Retrieval System						
CORRESPONDENCE ADDRESS						
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STATE	Texas	ZIP CODE	75202	COUNTRY	USA	
ENCLOSED APPLICATION PARTS (check all that apply)						
☒ Specification		Number of Pages: 7		☒ Small Entity Statement		
☒ Drawing(s)		Number of Sheets: 3		☐ Other (specify) _____		
METHOD OF PAYMENT (check one)						
☒ A check or money order is enclosed to cover the Provisional filing fees.				PROVISIONAL FILING FEE AMOUNT		\$150
☒ The Commissioner is hereby authorized to charge deficiencies and credit Deposit Account Number: 10-0447/WEBL:027PZ1						

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.
☐

Yes, the name of the U.S. Government agency and the Government contract number are: _____

Date: 2/4/00

Respectfully submitted,

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EXPRESS MAIL LABEL NO: EM340963629US
DATE OF DEPOSIT: February 4, 2000

I hereby certify that this transmittal and the documents referred to as enclosed therein are being deposited with the United States Postal Service in an envelope as "Express Mail Post Office to Addressee," under 37 CFR 1.10 on the date indicated above and is addressed to Assistant Commissioner for Patents, Attn: Box Provisional Application, Washington, D.C. 20231.

Signature: James M. Sklena

James M. Sklena

PROVISIONAL

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Alex Kurganov

Serial No.: Unknown

Filed: February 4, 1999

For: Voice-Activated Information Retrieval
System

Group Art Unit: Unknown

Examiner: Unknown

Atty. Dkt. No.: WEBL:027PZ1

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS
(37 CFR §§ 1.9(F) AND 1.27(C)) - SMALL BUSINESS CONCERN

I hereby declare that I am

- ☐ the owner of the small business concern identified below:
☒ an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF SMALL BUSINESS CONCERN: Webley Systems, Inc.
ADDRESS OF SMALL BUSINESS CONCERN: 570 Lake Cook Road
Deerfield, Illinois 60015

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 13 CFR § 121.3-18, and reproduced in 37 CFR § 1.9(d), for purposes of paying reduced fees to the United States Patent and Trademark Office, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above.

If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below* and no rights to the invention are held by any person, other than the inventor, who could not qualify as an independent inventor under 37 CFR § 1.9(c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR § 1.9(d), or a nonprofit organization under 37 CFR § 1.9(e).

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR § 1.27)

FULL NAME: _____

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ORGANIZATION

☐ SMALL BUSINESS CONCERN ☐ NONPROFIT

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I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR § 1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Signature: _____

DATE: _____

Name: Robert McConnell

Title: Chief Financial Officer
Webley Systems, Inc.

PATENT
[WEBL:027PZ1]

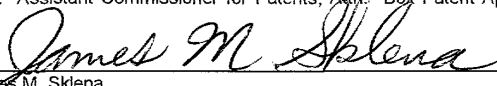
PROVISIONAL APPLICATION FOR UNITED STATES LETTERS PATENT

for

VOICE-ACTIVATED INFORMATION RETRIEVAL SYSTEM

by

Alex Kurganov

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Signature:	
	James M. Sklena

VOICE-ACTIVATED INFORMATION ACCESS SYSTEM

FIELD OF THE INVENTION

The invention relates generally to the field of providing information access. In particular, the invention relates to voice access to information and audio transmission of retrieved information.

BACKGROUND OF THE INVENTION

Standard access to information over the Internet requires the use of a personal computer (PC). Standard Internet access is thus limited to situations where personal computers are accessible—for example at a desk or at times during travel when a portable PC can be used. Portable PCs allow for Internet access in a variety of situations, but if they are to be used away from wall connectors, they must be used with costly portable modems or constant mobile phone connections. Further, the user must generally have space to place a portable PC to obtain a reasonable means of access to the Internet.

Telephones and mobile phones, on the other hand, offer convenient and relatively inexpensive methods of communication. Mobile phones in particular can be used in virtually any situation or environment, and home, office, and pay telephones are almost always accessible and cost much less than mobile phones or mobile modems. Telephones and mobile phones on their own, however, do not currently allow a user voice access to information via the Internet because a useful connection generally requires some type of input device and display to give and receive information over the Internet. Thus, a need exists for an Internet information access method that makes the vast resources on the Internet available to telephone and mobile phone users without bulky and costly input devices and displays.

SUMMARY OF THE INVENTION

One object of this invention is to allow quick, efficient, and inexpensive information retrieval from the Internet or other computer networks via standard telephones, mobile phones, or other voice-based communication devices.

Another object of this invention is to provide secure and reliable retrieval of information over the Internet or other computer network in any situation where a user has access to a standard telephone or mobile phone.

In accordance with one aspect of the present invention, these and other objectives are realized by a voice-activated information access method. The voice-activated information access method comprises a user communicating with voice servers. The voice servers receive voice messages from the users and employ speech-to-text conversion programs to translate the voice messages to computer-readable requests. These computer-readable requests are then sent to information retrieval computers which access and retrieve information from sites on the Internet or other networks or information sources corresponding to the requests received from the voice servers. The information retrieval computers associate incoming requests with proper locators which can be used to access information sources. These locators are sent to access their corresponding information sources. Information from the corresponding information sources is then sent back to the retrieval computers. The retrieval computers process the information to assure the information is in a proper text-based format. This text-based information is then sent back to the voice servers. The voice servers process the text into speech recognizable by the user, and transmit a speech message with the requested information back to the user.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 displays an outgoing information request process in one embodiment of the present invention;

FIG. 2 displays the operation of a voice server for use in one embodiment of the present invention;

FIG. 3 displays the operation of an information retrieval computer for use in one embodiment of the present invention; and

FIG. 4 displays a returning information process in one embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

The present invention uses various forms of signal and data transmission to allow a user to retrieve information using audio communication. A user verbally requests information and is given the requested information in a voice message.

A user may begin interacting with the system of the present invention by placing a telephone call via a standard or mobile telephone to a voice server and verbally requesting

information available on the Internet or other computer networks. The voice server processes the request using a speech recognition program. The output of the speech recognition program is a computer-readable request that is sent to an information retrieval computer. The information retrieval computer associates the computer-readable data from the voice server with information sources, which the information retrieval computer contacts with an information request. Multiple information sources may be prioritized by the information retrieval computer so that if any one source is unavailable, other sources can be quickly contacted. When an information source receives an information request, it responds with the desired information which is transferred back to the information retrieval computer. This begins the information's return trip to the user.

The information retrieval computer processes the incoming information into a text message that is readable by a text-to-voice converter located on the voice server, and then sends this text message to the voice server. At this point, the information retrieval computer is capable of parsing incoming information from a variety of sources and in a variety of formats. The voice server receives the text message and, using a text-to-voice converter, converts it into a voice message that it sends back to the user. The user then receives the voice message containing the requested information, completing one session of the voice-based information retrieval process. If the user wishes to have more information, he starts the process again with another verbal request.

The invention can be used on a variety of systems with several types of data transmission procedures. In one application of the present invention, the user's initial call to a voice server is made over the Public Switched Telephone Network (PSTN). This call may be made using a standard telephone, a cellular phone, a digital mobile phone, or any other type of PSTN voice communication device. Following the voice recognition step in the voice server, the outgoing request may be transferred to an information retrieval computer using a variety of data communication services. For example, the outgoing request may be transmitted over the Internet using the Transmission Control Protocol/Internet Protocol (TCP/IP) model. Alternately, asynchronous transfer mode (ATM), or a frame relay service may be used to transmit the request from a voice server to an information retrieval computer. A voice server and an information retrieval computer may also be linked to each other via a local area network (LAN), a wide area network (WAN), or a wireless network, using a wide variety of network architectures.

It is presently preferred to transmit digital requests from a voice server to an information retrieval computer through a firewall, using the TCP/IP model. It is also presently preferred for information requests to pass through a firewall on their way out from information retrieval computers, and for the returning information to pass once again through a firewall on its way to an information retrieval computer.

The information retrieval computer is capable of using an intelligent middleware algorithm to track changes in the location and format of information so that pertinent information is consistently available to the user. For example, the information retrieval computer may scan an information source for titles, and transmit these titles back to a voice server. If the user hears a title that he believes will contain the necessary information, the user may say this title to the voice server, which transfers the title back to the information retrieval computer. Then, the information retrieval computer can send back information associated with the title. Using this system, a user may quickly negotiate a complicated information source to find the exact information he wants.

The present invention will now be described in connection with the preferred embodiments shown in the drawings. These drawings are provided to illustrate the invention and are not intended to limit the scope of the claimed invention.

Referring now to FIG. 1, it shows a block diagram of the operation of an outgoing information request in the present invention. The invention will be described in reference to a typical information request. The voice-based Internet access system 10 begins operation when a user 12 uses a telephone 14 to dial in to a voice server 16 located in a voice server bank 20. This is a standard telephone call and it is placed over the PSTN 22. The user 12 then speaks into the telephone 14 to generate a voice request 24 which is sent over the PSTN 22. For example, the user may request, "What is the weather in Chicago?" This voice request 24, travelling in the direction indicated by arrow A, enters the voice server 16 at a voice server input node 26.

Next, as shown in FIG. 2, the voice server 16 uses a voice-to-text conversion system (for example, Nuance™) 28 to convert the voice request 24 into a text message, which is encoded digitally as an outgoing digital information request 30. At this point, the request 30 may simply be a text string stating, "What is the weather in Chicago?" The outgoing digital information request 30 travels through an outgoing request node 29 away from the voice server 16 in the direction shown by arrow B. This request is sent using the TCP/IP layers

through an information retrieval firewall 34 to an information retrieval router 36. The information retrieval router 36 routes the outgoing text message in the direction shown by arrow C to one of several information retrieval computers 38.

The information retrieval computer 38 uses the outgoing digital information request 30 to issue queries to associated sources located on the Internet. First, an information retrieval computer 38 accepts an outgoing digital information request 30, travelling in the direction shown by arrow C through a digital information request input node 40 as shown in FIG. 3. The text data package 30 is operated upon by a text-to-description module 42. The text-to-description module 42 looks for preprogrammed cues in the outgoing digital information request 30. For example, it may pick out the terms "weather," and "Chicago" as preprogrammed cues. These preprogrammed cues are associated with profile websites identified by a website identifier module 44. The text-to-description module 42 modifies the outgoing digital information request 30 into a description with proper syntax to be sent to the website identifier module 44.

The website identifier module 44 contains preprogrammed associated websites for descriptions transferred from the text-to-description module 42. The website identifier module associates a preprogrammed Uniform Resource Locator (URL) with a description and sends a request 45 for this preprogrammed URL in the direction shown by arrow D. In the current example, the proper URL may read: <http://www.chicagoweathersite.com>. The request 45 passes through an outgoing URL request node 46, past an Internet firewall 48, and to the Internet 50. This completes the operation of an outgoing information request in the voice-activated information access system 10.

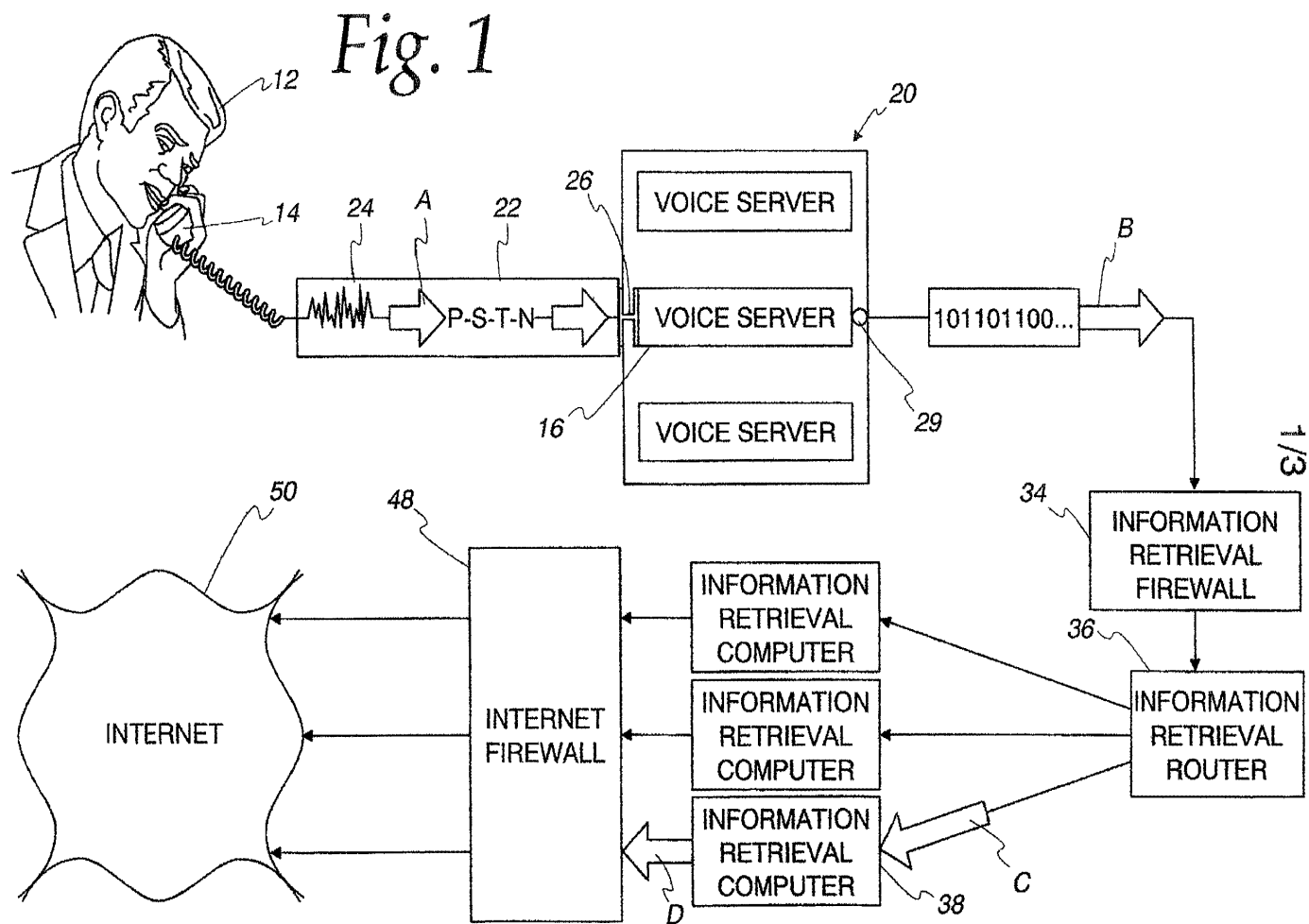
Once <http://www.chicagoweathersite.com> has been reached on the Internet 50, the information contained at that URL must be related back to the user 12. The information response 52 (seen in FIG. 3) first flows from the Internet through the Internet firewall 48 and into one of several information retrieval computers 38 in the direction shown by arrow E. The information response at this point may be a text message reading, "sunny with temperatures in the low 30s." The information response 52 travels into an information retrieval computer 38 through an incoming information response node 54. The information enters an information collection module 56 which collects and organizes the information received from URLs and places this information in a proper syntax for a text transmission module 58. The text transmission module 58 constructs an incoming text message and digitally encodes and

transmits the incoming text message 60 through an incoming text message transmission node 62 to an information retrieval router 36 in the direction shown by arrow F. Here, the incoming text message 60 may read, "In Chicago, the weather is sunny with temperatures in the low 30s."

- 5 Next, the information retrieval router 36 collects the incoming text message 60 and, using the TCP/IP layers, transmits the incoming text message 60 through the information retrieval firewall 34 to the user's associated voice server 16.

- 10 The incoming text message 60 travels in the direction indicated by arrow G to an incoming text message node 62 in the user's associated voice server 16. The incoming text message then passes into a text-to-voice conversion system 64. The text-to-voice conversion system 64 uses existing text-to-voice conversion tools to create an incoming voice message 66. The incoming voice message 66 is transmitted through a voice output node 68 over the PSTN in the direction shown by arrow H, to the telephone 14 used by the user 12. In the present example, the incoming voice message will sound like a normal human voice saying, "In
15 Chicago, the weather is sunny, with temperatures in the low 30s." Using this embodiment, the round trip from an outgoing voice request to an incoming voice response takes only seconds.

While the present invention has been described with reference to one or more preferred embodiments, those skilled in the art will recognize that many changes may be made thereto without departing from the spirit and scope of the present invention.



50 48 38 36 34 29 26 24 22 20 16 14 12

Fig. 2

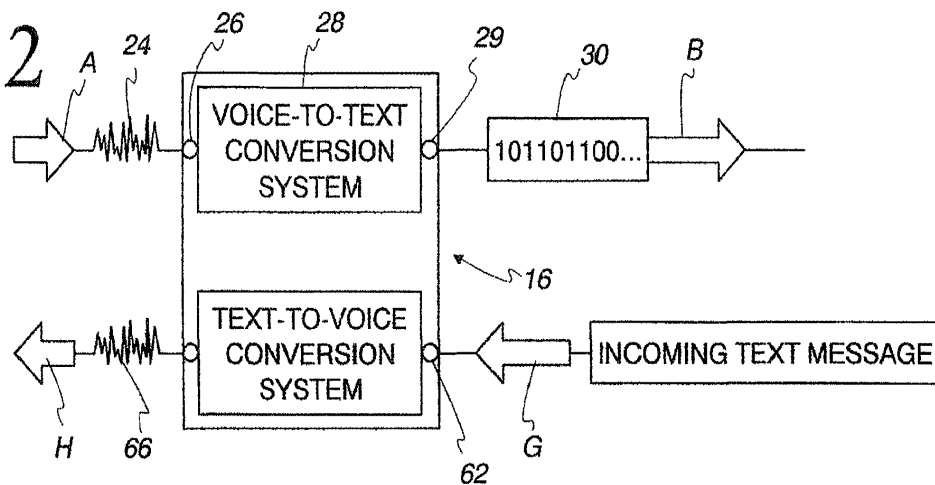
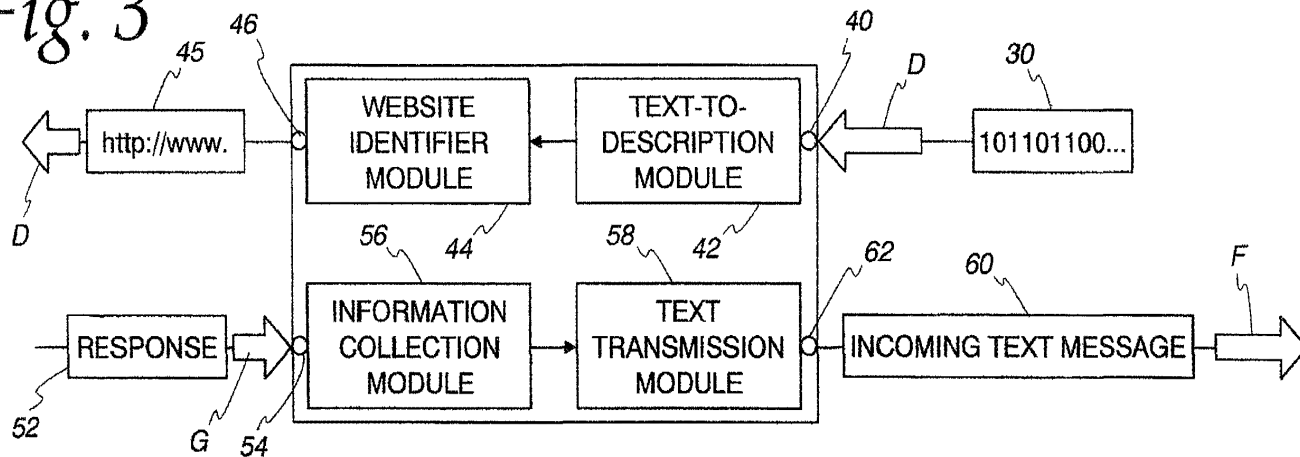


Fig. 3



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Fig. 4

12

14

22

H

26

VOICE SERVER

VOICE SERVER

VOICE SERVER

66

16

62

20

G

60

INCOMING TEXT MESSAGE

50

48

INTERNET

RESPONSE

52

INTERNET FIREWALL

48

INFORMATION RETRIEVAL COMPUTER

INFORMATION RETRIEVAL COMPUTER

INFORMATION RETRIEVAL COMPUTER

48

INCOMING TEXT MESSAGE

38

60

F

36

INFORMATION RETRIEVAL ROUTER

54

INFORMATION RETRIEVAL FIREWALL

3/3