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Sehn

(10) **Patent No.: US 9,385,983 B1**
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(54) **GALLERY OF MESSAGES FROM INDIVIDUALS WITH A SHARED INTEREST**

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H04L 12/58	(2006.01)
H04L 29/08	(2006.01)
G06F 12/00	(2006.01)

(52) **U.S. Cl.**
CPC ***H04L 51/14*** (2013.01); ***H04L 29/08072*** (2013.01); ***H04L 51/32*** (2013.01)

(58) **Field of Classification Search**
USPC 709/203, 223–229, 231–233, 250
See application file for complete search history.

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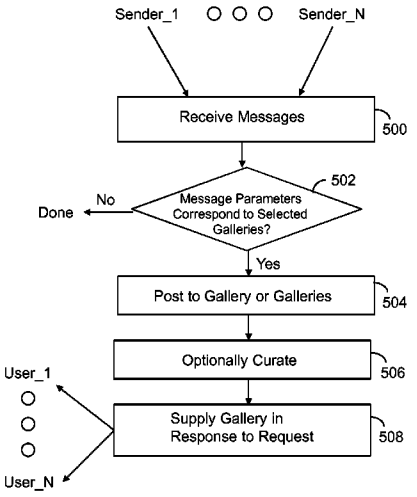
(57) **ABSTRACT**

A machine includes a processor and a memory connected to the processor. The memory stores instructions executed by the processor to receive a message and a message parameter indicative of a characteristic of the message, where the message includes a photograph or a video. A determination is made that the message parameter corresponds to a selected gallery, where the selected gallery includes a sequence of photographs or videos. The message is posted to the selected gallery in response to the determination. The selected gallery is supplied in response to a request.

20 Claims, 6 Drawing Sheets



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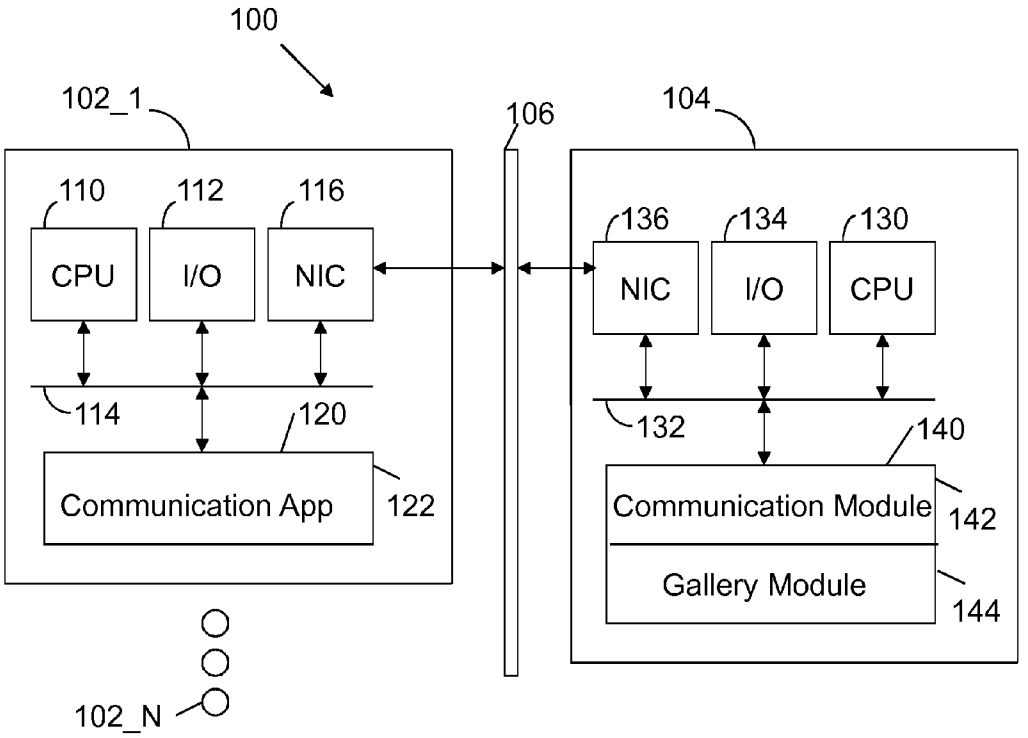
100
102_1
106
104
110
112
116
CPU
I/O
NIC
114
120
Communication App
122
102_N
136
134
130
NIC
I/O
CPU
132
140
Communication Module
142
Gallery Module
144

FIG. 1

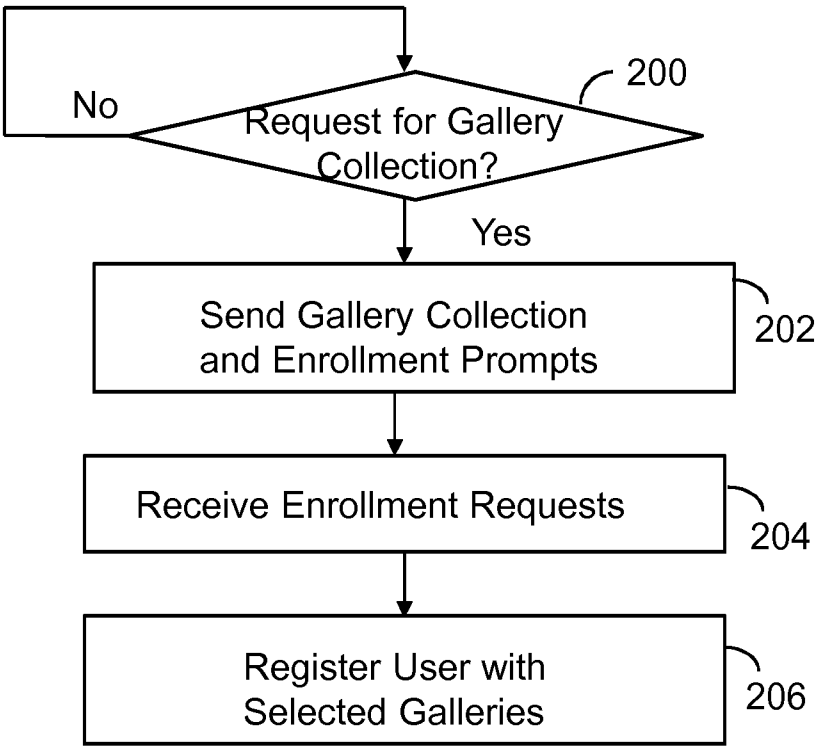
No
Request for Gallery Collection?
200
Yes
Send Gallery Collection and Enrollment Prompts
202
Receive Enrollment Requests
204
Register User with Selected Galleries
206

FIG. 2

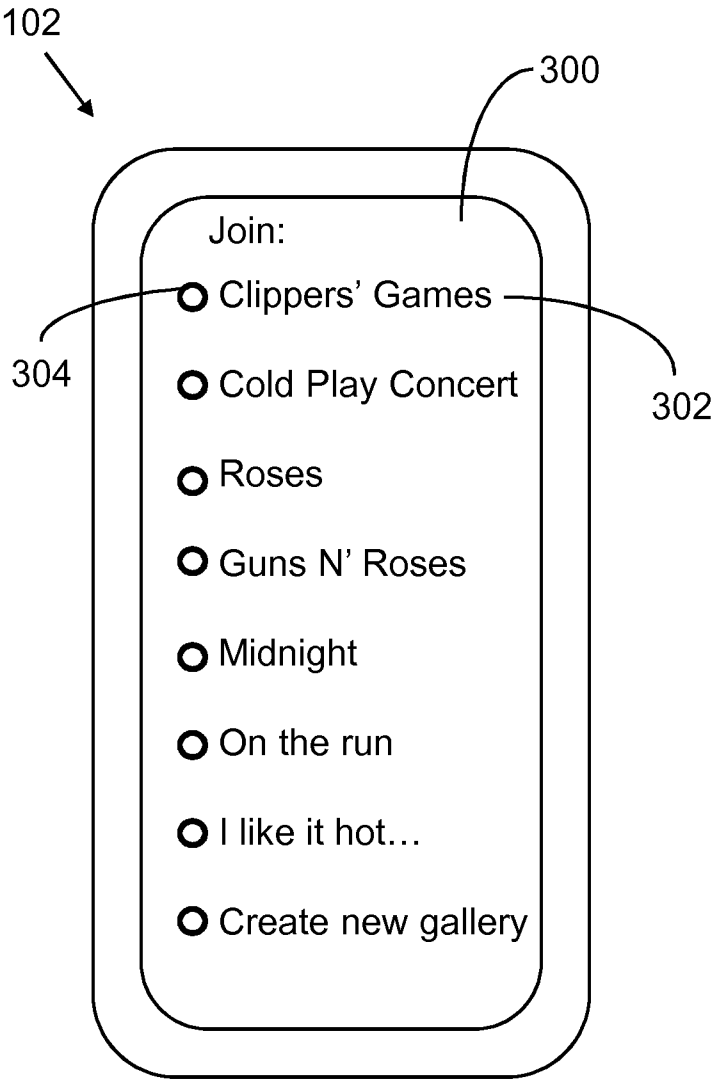
102
300
Join:
Clippers' Games
Cold Play Concert
Roses
Guns N' Roses
Midnight
On the run
I like it hot…
Create new gallery
304
302

FIG. 3

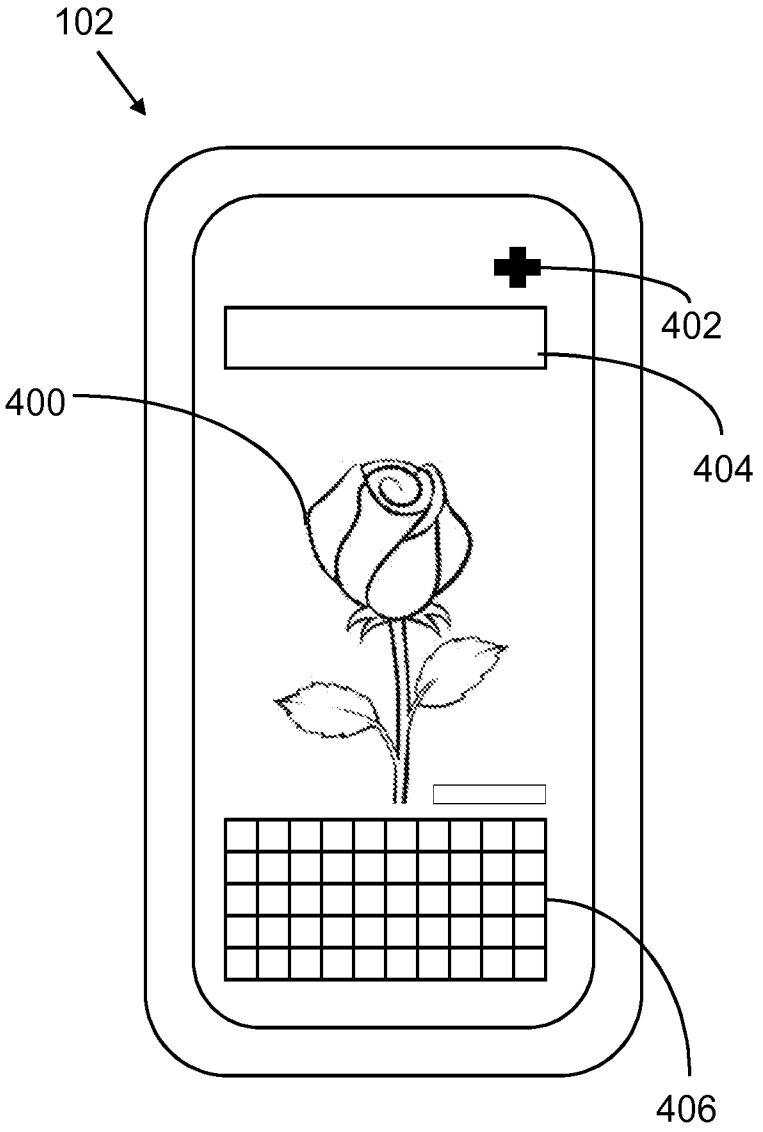

FIG. 4

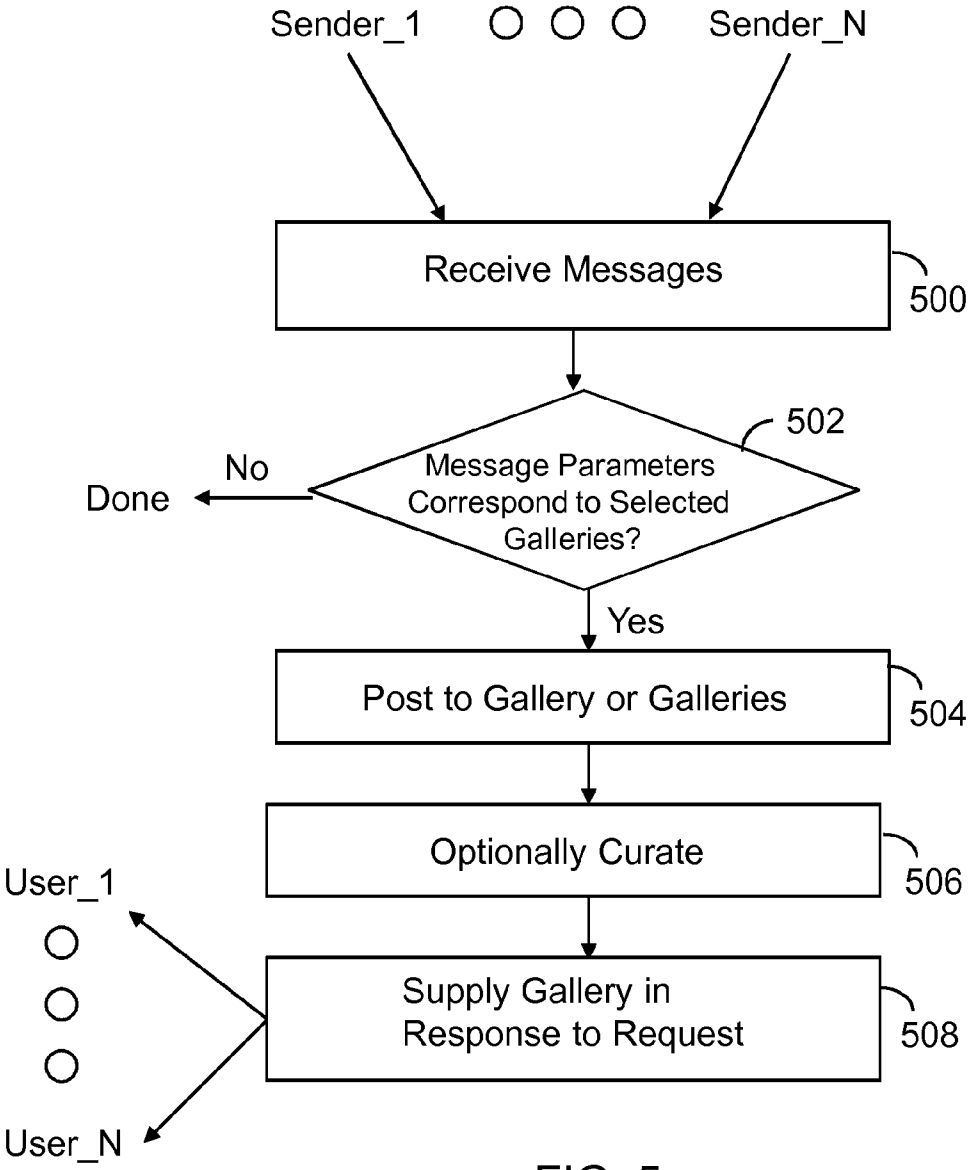
Sender_1
Sender_N
Receive Messages
500
502
Message Parameters Correspond to Selected Galleries?
No
Done
Yes
Post to Gallery or Galleries
504
Optionally Curate
506
User_1
Supply Gallery in Response to Request
508
User_N

FIG. 5

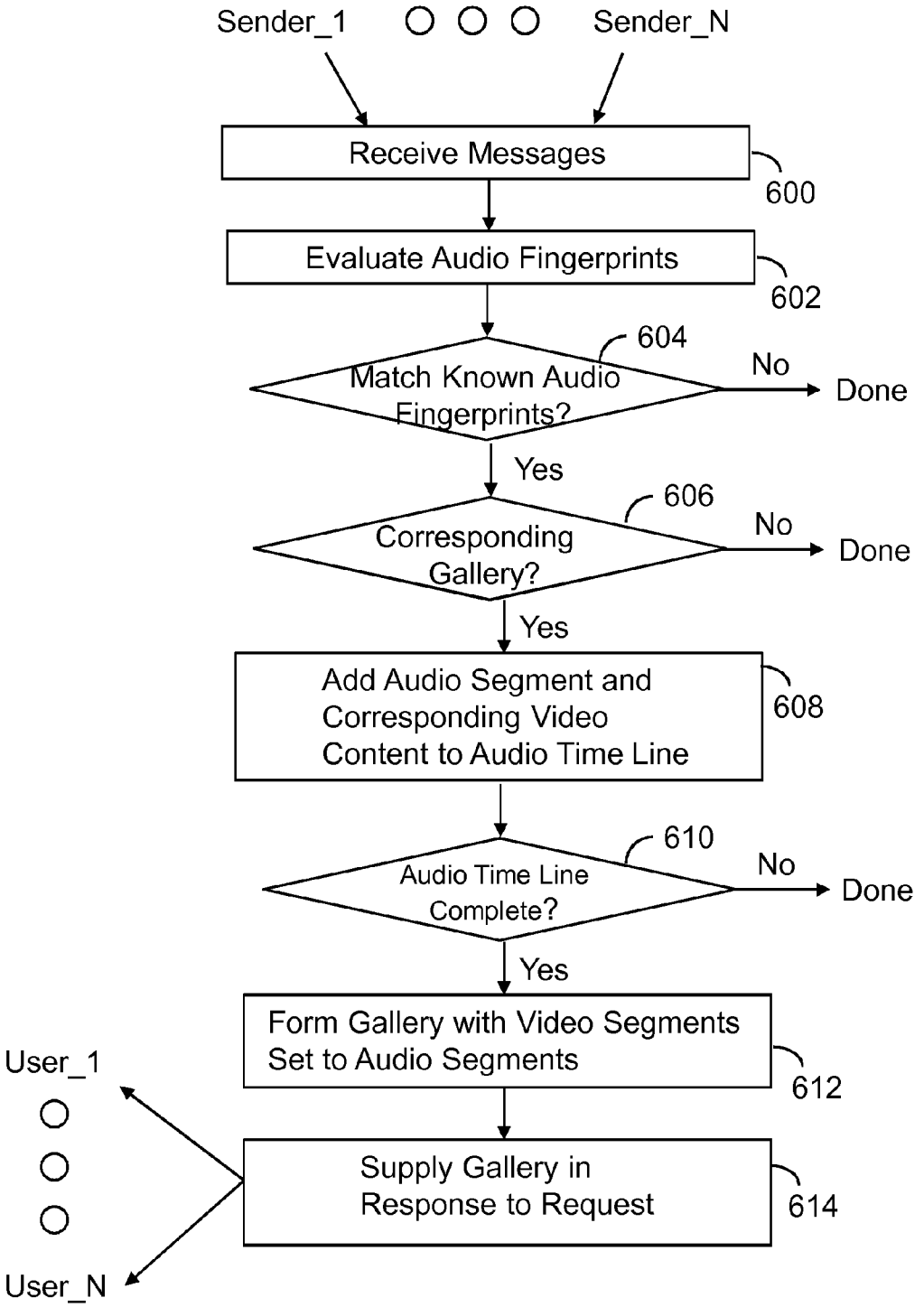
Sender_1
Sender_N
Receive Messages
600
Evaluate Audio Fingerprints
602
604
Match Known Audio Fingerprints?
No
Done
Yes
606
Corresponding Gallery?
No
Done
Yes
Add Audio Segment and Corresponding Video Content to Audio Time Line
608
610
Audio Time Line Complete?
No
Done
Yes
Form Gallery with Video Segments Set to Audio Segments
612
User_1
User_N
Supply Gallery in Response to Request
614

FIG. 6

GALLERY OF MESSAGES FROM INDIVIDUALS WITH A SHARED INTEREST

FIELD OF THE INVENTION

This invention relates generally to exchanging electronic messages in a computer network. More particularly, this invention relates to a gallery of messages associated with a shared interest.

BACKGROUND OF THE INVENTION

Mobile devices, such as smartphones, are used to generate messages. The messages may be text messages, photographs (with or without augmenting text) and videos. Users can share such messages with individuals in their social network. However, there is no mechanism for automatically routing a message with content related to a shared interest to a gallery of messages.

SUMMARY OF THE INVENTION

A machine includes a processor and a memory connected to the processor. The memory stores instructions executed by the processor to receive a message and a message parameter indicative of a characteristic of the message, where the message includes a photograph or a video. A determination is made that the message parameter corresponds to a selected gallery, where the selected gallery includes a sequence of photographs or videos. The message is posted to the selected gallery in response to the determination. The selected gallery is supplied in response to a request.

BRIEF DESCRIPTION OF THE FIGURES

The invention is more fully appreciated in connection with the following detailed description taken in conjunction with the accompanying drawings, in which:

FIG. **1** illustrates a system configured in accordance with an embodiment of the invention.

FIG. **2** illustrates a registration process utilized in accordance with an embodiment of the invention.

FIG. **3** illustrates a gallery collection with enrollment prompts utilized in accordance with an embodiment of the invention.

FIG. **4** illustrates a message generation interface utilized in accordance with an embodiment of the invention.

FIG. **5** illustrates server side processing performed in accordance with an embodiment of the invention.

FIG. **6** illustrates server side processing associated with another embodiment of the invention.

Like reference numerals refer to corresponding parts throughout the several views of the drawings.

DETAILED DESCRIPTION OF THE INVENTION

FIG. **1** illustrates a system **100** configured in accordance with an embodiment of the invention. The system **100** includes a set of client devices **102**_1 through **102**_N and at least one server **104** connected via a network **106**. The network **106** may be any combination of wired or wireless networks.

Each client device **102** has standard components, such as a central processing unit **110** and input/output devices **112** connected via a bus **114**. The input/output devices **112** may include a touch display, dedicated control buttons, physical connectors, speakers and the like. A network interface circuit **116** is also connected to the bus **114** and provides connectivity to network **106**. A memory **120** is also connected to the bus **114**. The memory **120** stores a communication application **122**. The communication application **122** includes instructions executed by CPU **110** to coordinate communications with server **104** and/or other client devices. In particular, the communication application **122** is operative with server **104** to exchange messages between client devices. The client device may be in the form of a tablet, smartphone, wearable technology, laptop computer or desktop computer.

The server **104** also includes standard components, such as a central processing unit **130**, a bus **132**, input/output devices **134** and a network interface circuit **136**. A memory **140** is connected to the bus **132**. The memory **140** stores a communication module **142**. The communication module **142** includes instructions executed by the CPU **130** to coordinate communications with client devices **102**. More particularly, the communication module **142** coordinates the exchange of messages between client devices **102**. The memory **140** also stores a gallery module **144**. The gallery module **144** includes instructions executed by the CPU **130** to store messages from individuals with a shared interest or some other association. Examples of types of associations contemplated by embodiments of the invention include photos or videos taken by users that include the same or similar object(s), such as guitar from a particular manufacturer, a designer handbag, a soft drink or beer can, etc. The messages form a gallery, which may be supplied to a client device **102** in response to a request from a client device **102**. The gallery may be a sequence of photographs and/or videos. Any of a text message, user drawings/annotations, animations, photo filters may be associated with a photograph or video (e.g., as an overlay). In one embodiment, the gallery is available for a specified transitory period of time (e.g., a day, during an event, etc.).

FIG. **2** illustrates a process for registering users with common interests that desire to participate in posting to a gallery. This process may be implemented by the gallery module **144**. The gallery module **144** waits for a request for a gallery collection **200** from a client device **102**. In the event of a request (**200**—Yes), a gallery collection and enrollment prompts **202** are sent from the server **104** to a client device **102**.

Embodiments contemplate that a request could include an express request sent by a user. For example, a user may request to participate in a gallery by navigating to a 'request' screen from a user interface on the device display. In these examples, the user may select from any number of existing galleries or create a new gallery by keying in or otherwise describing the gallery. Another example of an express request to participate in a gallery may include an action on the part of the user from an annotation feature offered from an image. For instance, after a picture or image has been taken, some embodiments allow a user to add text, graphics, images, etc. to the picture/video. During this annotation process, the input and detection of a particular key or swipe may be used to indicate an intent to add that picture/video to a particular gallery. As an example, the use of a hashtag ("#") or swipe added to the text "Clippers" may be used to submit the picture/video to a Clippers gallery.

In addition to express user requests to submit content to a gallery, passive requests are also contemplated. For example, the detection of a particular object in a picture or video (detected using, e.g., object recognition processes to detect an object or audio fingerprinting technologies to detect a song, etc.) could be used to prompt a user to join a gallery associated with the object or even automatically post to an existing gallery (e.g., with the user's consent). For example, if a user

takes a picture or video of a Coca Cola bottle, upon detection of the bottle, the user may be asked if he or she wishes to participate in a Coca Cola gallery. Alternatively, the user may be asked if he or she wishes to post directly to a gallery without joining. In yet other embodiments, the user's video or picture may be posted directly to the gallery (perhaps after receiving a blanket authorization at some point earlier).

In additional embodiments, a revenue sharing process may be implemented to facilitate payments to the user for use of his or her image. For example, a user image may be added to a gallery sponsored by Coca Cola and in return for contributing to Coca Cola's gallery, a user may receive compensation on a flat-fee, per view or revenue share basis.

FIG. **3** illustrates an example of a gallery collection **300** displayed on a client device **102**. The gallery collection **300** may be supplied by activating an icon (such as icon **402** of FIG. **4**). Alternately, the gallery may be supplied in accordance with the examples provided above. The gallery collection **300** includes individually listed galleries, such as **302** and an associated prompt **304**. In this example, the prompt **304** is a radio button, selection of which results in a selected gallery. Hovering over or tapping the text description **302** of the gallery may result in the display of additional information about the gallery. In the case of "Clippers' Games" a gallery is formed during the course of each basketball game played by the Clippers. Thus, the gallery is a recurring gallery. Messages associated with the Clippers are posted during the course of each basketball game. Thus, a collection of messages is available for the transitory duration of each basketball game. Of course, other examples are also possible including availability for a set amount of time after the event (e.g., twenty-four hours, one week, etc.).

The next example in the gallery collection **300** is a concert. This is a single event gallery that lasts for a set amount of time after the duration of the event. The next example in the gallery collection **300** is for a shared interest in an object, such as roses. This may be an ongoing gallery that is used by registrants to post photographs or videos of roses.

The next example in the gallery collection **300** is for the band Guns N' Roses. This gallery is constructed to receive messages from individuals with a shared interest in the band. In one embodiment, individual songs from the band may be selected. Thereafter, messages that reference or incorporate the individual songs may be posted to the gallery.

The collection may also include a theme such as midnight. Messages generated on or around midnight are posted to the gallery. The messages may be identified by a timestamp associated with the message.

The collection may also include a theme such as "on the run". This gallery is constructed to receive messages from client devices that are in motion (as measured by an accelerometer, gyroscope, GPS signal and the like associated with the client device). Messages from such devices are posted to the gallery.

The collection may also include a theme such as "I like it hot . . . " to post messages when the temperature in a geolocation associated with a message exceeds some threshold (e.g., 90° F.). The geolocation may be where the message is generated. The temperature may be obtained for the specified geolocation by any number of online weather information resources or from a thermometer device built into the device.

A final option shown in FIG. **3** is a request to create a new gallery. Activating the associated radio button **304** may result in a set of prompts that allows a user to define a new gallery. The definition may include a gallery name, keywords associated with the gallery, objects associated with the gallery, and the like.

Returning to FIG. **2**, the gallery module **144** receives enrollment or participation requests **204**. In response to such requests, a user is registered with one or more selected galleries. Thus, a user registers with one or more selected galleries **206**. Thereafter, any message relevant to a selected gallery is automatically routed to the selected gallery. This may be accomplished without the user separately designating the gallery as a destination for the message. A single message may be automatically routed to several galleries if the message has indicia relevant to each of the several galleries.

FIG. **4** illustrates a client device **102** that has taken a picture of a rose **400**. The communication application **122** and/or gallery module **144** may be configured with instructions executed by the processor to recognize the rose (e.g., machine vision may be used to designate the object as a rose). If the user is registered with the rose gallery, the message is automatically routed to the rose gallery. An icon **402** may be supplied to annotate a message. Activation of the icon **402** may result in a text entry box **404** being supplied, along with a keyboard. The user may designate that the message includes a rose or may type in any other type of message. A message recipient list may be invoked through the icon **402** or through a swiping motion. The message recipient list is an existing list of contacts for the user. Each contact selected will receive a copy of the message via routing through the communication module **142**. Thus, for this message there are intentionally designated message recipients. However, depending upon the number of galleries that a user is registered with, the message may be automatically forwarded to relevant galleries without the user designating such galleries for the message.

FIG. **5** illustrates operations associated with an embodiment of the gallery module **144**. The top of the figure illustrates a set of message senders, i.e., Sender_**1** through Sender_N. Each message sender is associated with a client device **102**.

The server **104** receives messages **500** from any number of senders. Each message is evaluated to determine whether message parameters correspond to selected galleries **502**. For example, if the user has registered for the roses gallery and generates the message shown in FIG. **4**, then the message corresponds to a selected gallery (**502**—Yes). Any number of message parameters may be used. For example, in the case of the rose picture in FIG. **4**, the rose may be a designated object from machine vision operations performed by the gallery module. Alternately, or in addition, text associated with the message may be a parameter that is evaluated for relevance to a selected gallery. For example, optical character recognition or word matching techniques may be used to link a message with a gallery. Each gallery may have an associated collection of key words and/or designated objects that are used to determine correspondence between a message and a gallery. Other message parameters may include a time stamp (relevant to the midnight gallery), speed indicia (relevant to the "on the run" gallery) and temperature (relevant to the "I like it hot . . . " gallery).

If the message does not have a parameter relevant to a selected gallery (**502**—No), then processing by the gallery module **144** is completed. The message is then routed in a standard manner by the communication module **142**. If the message does have a parameter corresponding to a selected gallery (**502**—Yes), the message is posted to one or more galleries **504**.

The gallery module **144** may include a curation interface that allows a gallery administrator to optionally curate the gallery **506**. For example, the curation interface may allow the administrator to delete inappropriate or redundant messages. Alternately, machine vision and content rules may be used to

automatically curate the gallery. In embodiments that include compensation to be paid to a user, the curation interface may be configured to make automatic payments to the users for the use of their pictures or videos. The final operation of FIG. **5** is to supply the gallery in response to requests **508** from any number of users.

Embodiments of the invention utilize galleries with specified transitory periods of time (e.g., a day, or during an event). Each gallery may include individual messages shown in sequence, where the individual messages are photographs or videos. Text may accompany a photograph or video, as shown in connection with FIG. **4**.

An embodiment of the invention has a gallery with content set to an audio time line. In some embodiments, the audio time line could be a song or a video clip. As discussed in connection with FIG. **3**, a band may have a designated gallery with a selectable song. If a user registers with a song then a message that incorporates the song may be posted to the gallery. Embodiments of the invention utilize short (e.g., 3-6 seconds) video messages. Therefore, a collection of messages can be constructed for different segments of the audio time line associated with a song. As a result, a single song may have an associated mash-up of video segments. Observe here that the audio time line determines the video content. Typically, video content is used to establish a sequence of videos. The use of the audio time line as a guiding factor results in interesting and artistic combinations of videos.

Instead of a song, the audio time line may be a narrative, such as a speech or a dialogue. For example, a "Gettysburg Address" gallery may be formed with a voice over of the famous speech by Abraham Lincoln. Video segments that include words from the speech may be combined to populate a complete audio time line for the speech. Consequently, a voice over of the speech may have an associated mash-up of video segments.

There are known techniques for evaluating audio content. In particular, there are online services, such as Shazam® and Soundhound®, which provide real-time identification of songs and other audio tracks. The gallery module **144** may be configured to access such online services and/or incorporate its own audio fingerprint identification techniques. The object recognition and fingerprinting operations disclosed herein may be performed on any of client device **102**, server **104** or a third-party device (not shown).

As described above, embodiments contemplate that a user could be compensated by e.g., the audio time line owner or rights holder for helping to create and promote a particular song or content. Thus, a user that contributes to an audio time line could be compensated by some amount for each viewing of the time line.

FIG. **6** illustrates audio time line processing performed in accordance with an embodiment of the invention. The gallery module **144** receives messages **600** from any number of message senders (Sender_**1** through Sender_N). Each message is evaluated for audio fingerprints **602**. If there are no matches to known audio fingerprints (**604**—No), then the gallery module **144** processing is completed and the message is routed in a standard manner using communication module **142**.

If matches with known audio fingerprints are established (**604**—Yes), a determination is made whether there is a selected gallery with the same audio fingerprint. That is, has the message sender registered with a gallery with the same audio fingerprint. If not (**606**—No), processing is complete. If so (**606**—Yes), the audio segment and corresponding video content are added to the audio time line **608**. For example, the video message may have audio fingerprints for seconds **58** through **66** of a video time line. The video message is then positioned at that location on the video time line.

It is then determined whether the audio time line is complete **610**. If not (**610**—No), the processing of the message is completed and the process may wait for the submission of additional segments for possible inclusion into the audio time line. If so (**610**—Yes), a gallery is formed with video segments set to audio segments **612**. The audio segments may be a master track of a song or narrative. Alternately, the audio segments from the videos themselves may be used. Different criteria may be used to determine whether and audio time line is complete. All time slots in the audio time line need not be filled.

The resultant gallery is then supplied to users in response to requests **614**. Thus, users may obtain crowd sourced video mash-ups set to an audio time line.

Those skilled in the art will appreciate that the disclosed techniques provide improved technical results in the field of message combining and sharing. Messages are automatically shared with others that have a common interest, as expressed through a registration process. After the registration process, collections of messages are automatically generated based upon automated evaluation of message content. This automatic process may or may not be executed without a user interface and user input at the server. Thus, an autonomous message combining and sharing system is disclosed that omits the cost of a human operator and is able to operate as fast as a processor operates.

Embodiments of the invention include ephemeral galleries that reduce power consumption and administrative overhead. The ephemeral galleries may be configured for self-execution, for example, by setting message parameters that will establish inclusion in a gallery and setting a transitory gallery period defined by an open time and a close time. The gallery may be associated with a single ephemeral time period (e.g., in the case of a concert) or a recurring ephemeral time period (e.g., in the event of galleries for each basketball game played).

The crowd sourced galleries provide content from many perspectives. An embodiment of the invention establishes innovative video mash-ups set to an audio time line as opposed to a flow of video images. Thus, establishing a novel technique for message combining.

An embodiment of the present invention relates to a computer storage product with a non-transitory computer readable storage medium having computer code thereon for performing various computer-implemented operations. The media and computer code may be those specially designed and constructed for the purposes of the present invention, or they may be of the kind well known and available to those having skill in the computer software arts. Examples of computer-readable media include, but are not limited to: magnetic media, optical media, magneto-optical media and hardware devices that are specially configured to store and execute program code, such as application-specific integrated circuits ("ASICs"), programmable logic devices ("PLDs") and ROM and RAM devices. Examples of computer code include machine code, such as produced by a compiler, and files containing higher-level code that are executed by a computer using an interpreter. For example, an embodiment of the invention may be implemented using JAVA®, C++, or other object-oriented programming language and development tools. Another embodiment of the invention may be implemented in hardwired circuitry in place of, or in combination with, machine-executable software instructions.

The foregoing description, for purposes of explanation, used specific nomenclature to provide a thorough understand-

ing of the invention. However, it will be apparent to one skilled in the art that specific details are not required in order to practice the invention. Thus, the foregoing descriptions of specific embodiments of the invention are presented for purposes of illustration and description. They are not intended to be exhaustive or to limit the invention to the precise forms disclosed; obviously, many modifications and variations are possible in view of the above teachings. The embodiments were chosen and described in order to best explain the principles of the invention and its practical applications, they thereby enable others skilled in the art to best utilize the invention and various embodiments with various modifications as are suited to the particular use contemplated. It is intended that the following claims and their equivalents define the scope of the invention.

The invention claimed is:

1. A server computer in a content distribution system, comprising:

a processor; and

a memory coupled with the processor, the memory storing instructions executable by the processor to cause the server computer to:

receive a plurality of messages from a plurality of client devices, each message of the plurality of messages including a message parameter indicative of a characteristic of the message, and a photograph or a video;

analyze each message parameter and photograph or video to determine that the message parameter or photograph or video corresponds to one or more predetermined galleries by the characteristic of the message or by recognizing an object in the photograph or video, the one or more predetermined galleries each including a sequence of photographs or videos from a plurality of users sharing a common interest;

post the message to the one or more predetermined galleries;

receive a request for a selected gallery from the one or more client devices; and

supply the selected gallery in response to the request.

2. The server computer of claim **1**, the memory further storing instructions executable by the processor to cause the server computer to curate the selected gallery according to instructions to remove selected photographs or videos.

3. The server computer of claim **1**, the memory further storing instructions executable by the processor to cause the server computer to:

send a gallery collection and corresponding enrollment prompts to a user;

receive an enrollment request from the user for the selected gallery; and

register the user with the selected gallery.

4. The server computer of claim **3**, wherein the instructions executable by the processor to cause the server computer to send a gallery collection and corresponding enrollment prompts to a user are executed in response to an express request from the user.

5. The server computer of claim **3**, wherein the instructions executable by the processor to cause the server computer to send a gallery collection and corresponding enrollment prompts to a user are in response to an evaluation of content associated with the message.

6. The server computer of claim **1**, wherein the memory stores further instructions executable by the processor to cause the server computer to supply prompts that solicit the definition of a new gallery.

7. The server computer of claim **6** wherein the prompts include prompts to solicit a gallery name.

8. The server computer of claim **6** wherein the prompts include prompts to solicit gallery keywords.

9. The server computer of claim **6** wherein the prompts include prompts to solicit a gallery object.

10. The server computer of claim **1** wherein the message parameter is a designated object in the photograph or video.

11. The server computer of claim **10** wherein the designated object is specified by a sender of the message.

12. The server computer of claim **1** where the parameter is a time stamp associated with the message.

13. The server computer of claim **1** wherein the parameter is speed indicia associated with a device that generates the message.

14. The server computer of claim **1** wherein the parameter is a temperature associated with the location at which the message is generated.

15. The server computer of claim **1** wherein the selected gallery is available for a specified transitory period of time.

16. The server computer of claim **1** wherein the message has text accompanying the photograph or the video.

17. The server computer of claim **1** wherein the memory stores instructions executed by the processor to automatically pay a message sender when a message from the sender is posted to the selected gallery.

18. A method comprising:

receiving, at a server computer, a plurality of messages from a plurality of client devices, each message of the plurality of messages including:

a message parameter indicative of a characteristic of the message, and

a photograph or a video;

analyzing, by the server computer, each message parameter and photograph or video to determine that the message parameter or photograph or video corresponds to one or more predetermined galleries by the characteristic of the message or by recognizing an object in the photograph or video, the one or more predetermined galleries each including a sequence of photographs or videos from a plurality of users sharing a common interest;

posting, by the server computer, the message to the one or more predetermined galleries;

receiving, at the server computer, a request for a selected gallery from the one or more client devices; and

supplying, by the server computer, the selected gallery in response to the request.

19. The method of claim **18**, wherein analyzing each message parameter and photograph or video to determine that the message parameter or photograph or video corresponds to one or more predetermined galleries further comprises utilizing audio fingerprint identification techniques to determine that the message parameter or photograph or video corresponds to one or more predetermined galleries.

20. The method of claim **1**, wherein the common interest includes at least one of a group comprising: a particular object, a sports team, a sports event, a concert, a time of day, a motion, and a temperature in a geolocation.

* * * * *