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GENERATING AUDIO-BASED USER DATA ASSOCIATED WITH PHYSICAL OBJECTS THAT MAY BE PRESENTED WHEN A DEVICE IS POINTED AT OR NEAR THE PHYSICAL OBJECT

Introduction

The present disclosure relates to computer-implemented systems and methods for generating virtual audio objects associated with physical items. More specifically, computer-implemented systems and methods for a user to create a virtual audio object (e.g., an audio file) and associate or tag it to a physical item are disclosed herein. In one particular embodiment a first user creates a virtual audio object such as, for example, an audio file that relates to or is associated with a physical item. The first user may then generate a tag or an association that links the virtual audio object with the physical item within a system. A second user may then look up the physical item within the system and be presented with the virtual audio object stored by the first user. For example, a first user may have a memorable experience at a restaurant and, as a result, leave a review for the restaurant in the form of a virtual audio object (e.g., an audio file or similar) and associate it with the restaurant in a restaurant review system. A second user may then be looking for a restaurant to go to and come across the restaurant where the first user left the virtual audio object. The second user may then request the virtual audio object to be played back, thus hearing the review the first user left on the restaurant. The second user may then end up going to the restaurant based on the review they listened to.

Traditionally, data or data objects associated with physical items is stored in a text format in a system. That text can then be accessed by looking up the physical item, selecting the data in text format, and reading it. While easy to perform and understandable for most, this process may result in users being excluded from viewing the data that have disabilities or restrictions which render them unable to read or select the data for reading regarding a physical item. As a result, a

significant portion of users are being left out from participating in or learning from vast amounts of data pertaining to physical items because it is left in text format.

Summary

Computer-implemented systems and methods for providing virtual audio objects associated with physical items can provide for greater accessibility to data for users who may not be able to interpret or use text format data. In one particular embodiment, a user may generate a virtual audio object pertaining to a physical item by utilizing a microphone within a user computing device. Once the virtual audio object is created, the user may then associate it with the physical item in a plurality of ways. In one embodiment, the user may enter a name and location to associate the virtual audio object with and thus if a second user searches for the name and/or location the virtual audio object will be returned. In another embodiment, the virtual audio object is associated with the physical item via a map. The user selects a location or point of interest on the map and the virtual audio object is associated with that location or point of interest. Then, when another user searches for the location or point of interest on the map, the virtual audio object is returned. In one instance, if a user's device is detected to be near the location or point of interest where the virtual audio object is stored, the virtual audio object may be presented to the user to playback.

In one particular embodiment, a first user may use a camera to identify an object and then generate a virtual audio object associated with the object. The virtual audio object may then be stored or otherwise associated with a local area network such that users connected to or within range of the local area network may see or access the virtual audio object. The virtual audio object may then be presented to a second user when the second user points a camera at the object and is connected to the local area network on which the virtual audio object was saved. For

example, a user may identify a prescription medication sitting on a table in their house using their phone's camera. The user then creates a virtual audio object with their phone and associates it with the prescription medication. At a later time, a second user may point their phone's camera at the prescription medication and then be prompted with the virtual audio object created by the first user.

In another embodiment, a first user may store a virtual audio object associated with a physical item within an augmented reality system. The first user may generate a virtual audio object and then associate it with a physical item using an augmented reality system. As a result, whenever a second user is using the augmented reality system, their augmented reality device may determine that the physical item is being looked at by the second user and then presents the virtual audio object to the second user for playback.

In another embodiment, a user may store a virtual audio object associated with a physical item by associating it with a virtual identifier for the physical item within a system. For example, a user may generate a virtual audio object and desire to associate it with a physical item such as, for example, the Empire State Building. The virtual audio object can be associated with the identifier for the Empire State Building within the system that the user would like to store the virtual audio object in. By doing this, the virtual audio object may then be returned whenever the Empire State Building identifier is queried, or any other item associated with the Empire State Building identifier is queried. For example, a second user uses an image search and provides an image of the Empire State Building. The system determines that the image contains the Empire State Building and returns the virtual audio object because it is associated with the Empire State Building identifier.

In one embodiment, a virtual audio object can be accessed in a plurality of ways. In more of a traditional sense, a user may search for a physical item and if there is a virtual audio object associate with it, it is presented as a result to the user. In another instance, the user may request a virtual audio object by voice. For example, a user may be thinking of going to a new restaurant in town. The user then asks their computing device “are there any reviews for the new restaurant in town?”. If a virtual audio object for the restaurant exists and is classified as a review, it would be returned to the user in playback. This allows for a user to access a review of the restaurant without ever having to type or read. In another instance, a user may access a computing device that comprises a camera. The camera within the computing device may then determine a physical item in an image using image processing and present the user with a virtual audio object associated with the physical item in the image.

In one particular embodiment, a plurality of virtual audio objects associated with a physical item may categorized in a plurality of ways. In a simple sense, the virtual audio objects may be ordered by generic data pertaining to the virtual audio objects such as, for example, creation date or length of playback. In one instance, the virtual audio objects may be ordered based on additional data associated with the virtual audio object such as, for example, a rating or opinion pertaining to the physical item with which the virtual audio object is associated. For example, a user may be looking for reviews of a restaurant and a plurality of virtual audio objects are associated with the restaurant. The virtual audio objects may then be ordered based on the rating associated with them such as, for example, 5-star, 4-star, etc. In another embodiment, a user searches for a physical item that has multiple associated virtual audio objects. The virtual audio objects may then be ordered based on the creator of the virtual audio objects. For example, a contact in a user’s phone is determined to have made one of the multiple associated virtual

audio objects and as a result is put first in the list or even set to automatically begin playback when returned because of its relationship to the user.

In one particular embodiment, a virtual audio object is generated on a user computing device by a first user and the virtual audio object is sent to a remote computing system to be associated with a physical item in the remote computing system. A second user may then send a request to the remote computing system via a user computing device to retrieve a virtual audio object associated with a physical item. In some embodiments, the virtual audio object is created on a user computing device and stored within the user computing device alone. The user may then retrieve the virtual audio object from the user computing device whenever they desire. In another embodiment, a request from the remote computing system may pull the virtual audio object from the user computing device to then be stored in the remote computing system or sent to another user computing device. Any combination or order of the methods described herein can be executed on a user computing device, remote computing device, or similar. For example, all steps of generating a virtual audio object and associating it with a physical item can be performed on a remote computing system or parts of the process can be performed on a user computing device and others on a remote computing system as previously described.

Detailed Description

Figure 1 depicts an example computing system 100 in which systems and methods in accordance with the present disclosure can be executed upon. The computing system comprises a user computing device 102 containing one or more processors 112, memory 114 which may contain data 116 and instructions 118 configured to carry out the methods disclosed herein, and a user input component 122. The user input component can be, for example, a touch display or physical buttons within the user computing device 102. The computing system 100 further

comprises a network 180 and a server computing system 130. The server computing system 130 comprises one or more processors 132, and memory 134 which may contain data 136 and instructions 138 configured to carry out the methods disclosed herein. For example, a user may generate a virtual audio object via the user input component 122 of the user computing device 102 and that virtual audio object is sent over the network 180 to the server computing system 130. The server computing system 130 may then store the virtual audio object in memory 134 along with an association that points to a physical object. In another embodiment, the user may generate a virtual audio object and store it within memory 114 of the user computing device 102 to be associated with a physical object. In some instances, a virtual audio object may be stored within the memory 114 of the user computing device 102 and the memory 134 of the server computing system 130. It should be appreciated that any combination or order of systems and methods disclosed herein can be performed on the user computing device, server computing system, or similar. For example, all processes can be performed on the user computing device 102 or the server computing system 130.

Figure 2 depicts an example embodiment 200 according to aspects of the present disclosure. The example embodiment 200 comprises a user computing device such as, for example, a smartphone 210 which comprises a camera or location-based sensor array (e.g., GPS). In the user computing device's 210 proximity are buildings 202-208. The user computing device has determined that it is in close proximity to or viewing the building 208 which contains a virtual audio object 212. The user computing device 210 may prompt a user to select the virtual audio object 212 for playback 214 or automatically begin playback 214 of the virtual audio object 212. In one particular embodiment, a user may ask the user computing device 210 via voice for playback 214 of the virtual audio object 212.

Referring now to Figure 3, an example embodiment 300 according to aspects of the present disclosure is provided. Example embodiment 300 comprises a user computing device 302 with mapping software 304. Within the mapping software 304 there are points of interest or user searched locations defined for users to view. The mapping software has a point of interest 306 displayed with an associated virtual audio object 308. Upon a user finding or searching for the point of interest 306, the mapping software 304 or user computing device 302 may prompt the user with the virtual audio object 308 for playback 310. In one particular embodiment, a user may ask the user computing device 302 to begin playback 310 of the virtual audio object 308. In another embodiment, the virtual audio object 308 automatically begins playback 310 when a user selects or searches for the point of interest 306.

Figure 4 depicts an example embodiment 400 according to aspects of the present disclosure. Example embodiment 400 comprises a user computing device 402 containing mapping software 404 and a point of interest 406. Associated with the point of interest 406 is a plurality of virtual audio objects 408. The virtual audio objects can be seen in 410-412 along with the associated creator of each virtual audio object 408. The user computing device is able to determine that virtual audio object 410 was created by a person in the contacts of the user computing device 402 and thus, displayed above the other virtual audio objects 412. A user may select any one of the virtual audio objects 408 to begin playback 414. In one particular embodiment, a virtual audio object associated with a contact within the user computing device 402 may automatically begin playback 414 because of its affiliation within the user computing device. In another embodiment, a user may the user computing device 402 for virtual audio objects associated with a contact within the user computing device such as, for example, virtual audio object 410. It should be appreciated that the virtual audio objects disclosed herein may be

called? in a plurality of different ways for playback and the examples provided are solely for descriptive purposes. A user may perform any number of actions to indicate that playback should begin for a given virtual audio object.

Figures

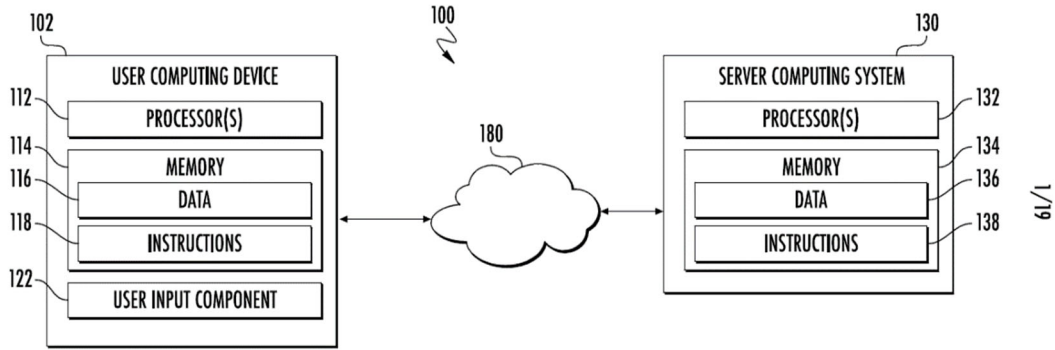


FIG. 1

200

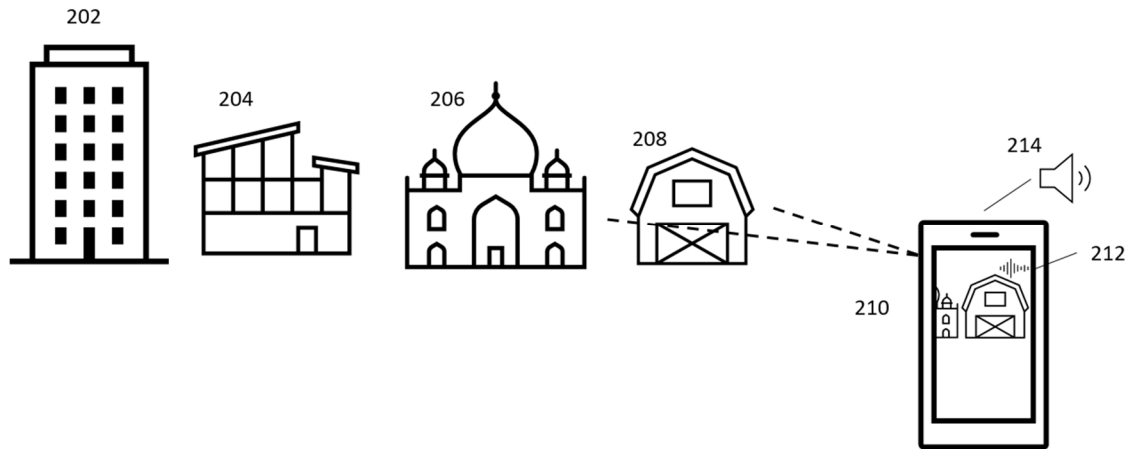


FIG. 2

300

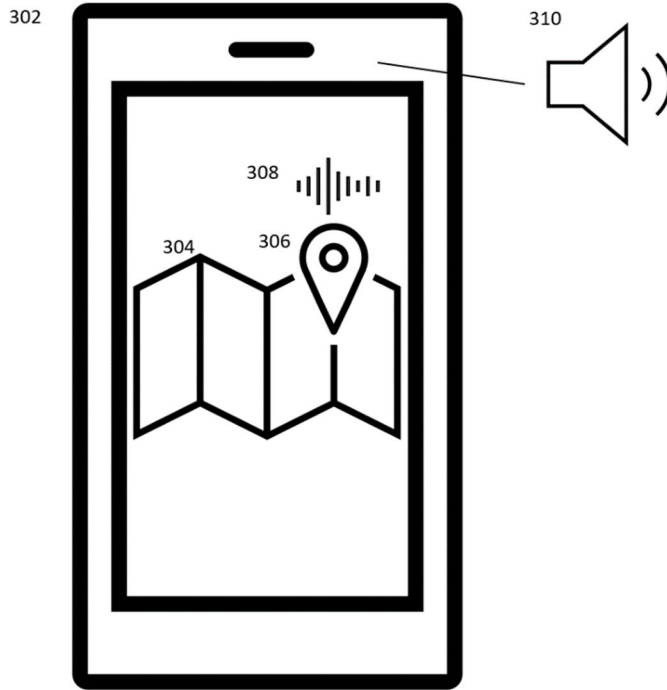


FIG. 3

400

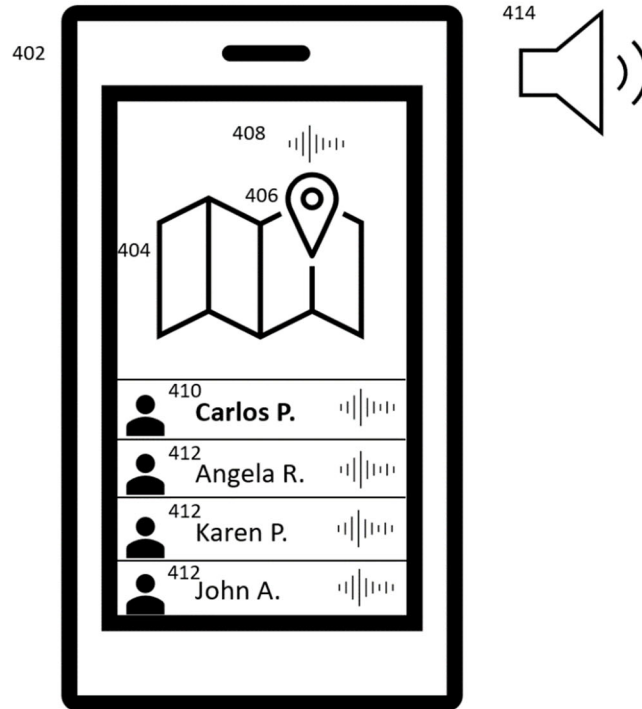


FIG. 4

Abstract

The present disclosure describes computer-implemented systems and methods for generating virtual audio objects (e.g., audio file(s)) and associating or linking them with physical objects within a computing system. A user may then navigate through the computing system and retrieve the virtual audio objects by searching for the physical objects with which they are associated to. The audio objects can then be played back for the user to listen to.