DESCRIPTION

POSTED INFORMATION EXTRACTION CONTROL DEVICE AND COMPUTER READABLE STORAGE MEDIUM

Technical Field

[0001] The present disclosure relates to a posted information extraction control device and a posted information extraction control program for extracting given posted information from out of posted information (hereafter also referred to as comments) posted on a social networking service (SNS).

Background Art

[0002] Analysis of comments posted on a SNS (such as customer review analysis, SNS account analysis, posting management, attribute analysis, click count analysis, diffusion analysis, and competitive analysis) is now commonly performed.

[0003] Japanese Patent Application Laid-Open (JP-A) No. 2014-142738 describes extensively exploiting a large quantity of information posted on a SNS, and exploiting posted information that has been made more user-friendly in order to provide a more user-friendly service.

[0004] JP-A No. 2014-142738 includes a first group based on first posted information and a second group based on second posted information. A phrase extracted from the first posted information and a phrase extracted from the second posted information are compared. Based on the result of this comparison, a first keyword unique to the first posted information and a second keyword unique to the second posted information are identified. The first keyword is managed in association with the first group, and the second keyword is managed in association with the second group.

[0005] International Publication (WO) No. 2015/052785 describes a system in which an information extraction server for extracting information relating to infrastructure, a past incident DB, a space-time information DB, and a manager terminal are capable of communicating with each other. This system is capable of communicating with a client terminal for displaying information extracted by the information extraction server, and map information is employed by the client server to display received infrastructure status information using a predetermined icon at a predetermined position on a map.

SUMMARY OF INVENTION

Technical Problem

[0006] However, hitherto the utilization of comments has been limited to ascertaining trends

in comments to be exploited for marketing purposes and the like. It has therefore not been possible to evaluate the quality of comments, for example of the consistency of comment origin position information.

[0007] Hitherto, all comments posted on a SNS have been processed. These comments therefore included many in which the topic of the comment and an area (location) identified with this topic are not linked together, making evaluation of the identified area (for example a region or space designated for what is referred to as community development) impossible. Moreover, no standard has been established for evaluating such identified areas.

[0008] The present disclosure obtains a posted information extraction control device and a posted information extraction control program capable of acquiring information that is of value to a user by extracting posted information concerning a predetermined theme and having a high level of credibility from out of a large unspecified cluster of posted information posted on a SNS.

Solution to Problem

[0009] A posted information extraction control device of the present disclosure includes a selection means and an extraction means. The selection means is configured to perform natural language analysis on a large unspecified cluster of posted information that includes characters and that has been submitted over a network, in order to select from the large unspecified cluster of posted information first posted information that includes character string information indicating a position. The extraction means is configured to certify the first posted information selected by the selection means as being submitted from within a given area based on the character string information, and to extract second posted information including relevant information relating to a target present within the given area.

[0010] In the present disclosure, information with a high level of credibility is extracted from the large unspecified cluster of posted information including characters and submitted over the network.

[0011] Namely, the selection means performs natural language analysis on the large unspecified cluster of posted information. The first posted information that includes character string information identifying a position is thus selected from the large unspecified cluster of posted information.

[0012] The extraction means extracts the second posted information from the first posted information selected by the selection means based on the character string information included in the first posted information. The second posted information is information that was submitted from within the given area, and that includes relevant information relating to the target present within the given area.

In the present disclosure, in cases in which the large unspecified cluster of posted information includes an image, image analysis is performed including at least one out of object detection or image captioning in order to generate character string information describing the image.

The posted information may be text-only, image-only, or a combination of both text and images. In the latter cases, image analysis is performed to generate character string information describing the image to allow handling in a manner similar to that of text.

[0029] A posted information extraction control program according to the present disclosure is configured to cause a computer to operate as a posted information extraction control device.

Advantageous Effects of Invention

[0030] The present disclosure configured as described above is capable of acquiring information that is of value to a user by extracting posted information concerning a predetermined theme and having a high level of credibility from out of a large unspecified cluster of posted information posted on a SNS.

BRIEF DESCRIPTION OF DRAWINGS

[0031] Fig. 1A is a schematic view illustrating an overall system principally configured by a posted information extraction control device of an exemplary embodiment.

Fig. 1B is a block diagram to explain functionality of a posted information extraction control device according to an exemplary embodiment.

Fig. 2 is a functional block diagram illustrating functionality executed by respective sections of a posted information extraction control device according to an exemplary embodiment in block form, as arranged by control content.

Fig. 3 is a control flowchart illustrating a main routine of a posted information extraction control device according to an exemplary embodiment.

Fig. 4 is a flowchart illustrating a registree management control routine executed by a registree management function of a posted information extraction control device according to an exemplary embodiment.

Fig. 5 is a flowchart illustrating a comment analysis control routine executed by a comment analysis function of a posted information extraction control device according to an exemplary embodiment.

Fig. 6 is a flowchart illustrating an information provision control routine executed by an information provision function of a posted information extraction control device according to an exemplary embodiment.

Fig. 7 is a front view illustrating clarified survey information content stored in a

survey information storage section.

Fig. 8A is a front view illustrating a mobile terminal in the possession of a user.

Fig. 8B is a front view illustrating survey item screens sequentially displayed on a mobile terminal in the possession of a user.

Fig. 9 is a table illustrating content of survey responses to be selected by a user in a first stage of factor analysis according to a first example of an exemplary embodiment.

Fig. 10 is a table illustrating content from which items with a low level of ultimate commonality have been excluded in a second stage of factor analysis according to the first example of an exemplary embodiment.

Fig. 11 is a table illustrating a computation result of factor loading for respective factor types in a third stage of factor analysis according to the first example of an exemplary embodiment.

Fig. 12 is a correspondence table between factor types notified to survey subjects and names of the factor types in a fourth stage of image analysis according to the first example of an exemplary embodiment.

Fig. 13A is a table illustrating a list of comments in which origin position information and relevant information (evaluation information and action information) are present in a character string, the comments having been extracted from a large quantity of SNS comments by text mining processing according to a second example of an exemplary embodiment.

Fig. 13B is a table illustrating evaluation criteria for evaluation tags allocated to the extracted comments in Fig. 13A.

Fig. 14A is a front view illustrating a map image displayed on a monitor of a mobile terminal in the possession of a user, according to a third example of an exemplary embodiment.

Fig. 14B is a front view illustrating a social heat map displayed superimposed on a map image on a monitor of a mobile terminal in the possession of a user.

Fig. 15 is a block diagram to explain functionality of a posted information extraction control device according to a modified example of an exemplary embodiment.

Fig. 16 is a control flowchart illustrating a main routine of a posted information extraction control device according to a modified example of an exemplary embodiment.

Fig. 17 illustrates an image analysis processing control routine executed at step 122 in Fig. 16.

Fig. 18A is a front view of an image, illustrating an example of image captioning performed during image analysis.

analyzed to generate text describing the image, which may then be handled similarly to a comment in the present exemplary embodiment.

Explanation follows regarding a modified example of the present exemplary embodiment, with reference to Fig. 15 to Fig. 17. Note that configuration portions that are the same as those in the present exemplary embodiment are appended with the same reference numerals, and explanation of the configurations thereof is omitted.

Fig. 15 is a block diagram to explain functionality of a posted information extraction control device according to the modified example of the present exemplary embodiment.

As illustrated in Fig. 15, an image analysis function 29 is connected to the comment analysis function 28.

The image analysis function 29 primarily executes object detection and conversion to text using image captioning.

In the object detection, an image (region) of an object with a distinguishing feature is extracted from the image, and the extracted image is categorized (vehicle, animal, building, etc.) to generate character-based information.

Image captioning is used the express a situation in (the content of) an image as a character string.

Namely, the object detection and image captioning both correspond to functionality to convert the image to text, and a character string (comment) created by the text conversion is analyzed by the comment analysis function.

Fig. 16 is a control flowchart illustrating a main routine of the posted information extraction control device according to the modified example of the present exemplary embodiment. Note that processing that is the same as that in the main routine of the posted information extraction control device of the present exemplary embodiment is suffixed with the reference numeral A.

At step 100A, determination is made as to whether or not information has been received. In cases in which determination is negative, the present routine is ended.

In cases in which determination is affirmative at step 100A, processing transitions to step 102A. The received information is categorized, and processing transitions to step 104A.

At step 104A, the processing branches according to the type of information received. Namely, in cases in which the type of information received at step 104A is determined to be registration-related, processing transitions to step 106A, and registree management control (illustrated in detail in Fig. 4) is executed before ending the present routine.

In cases in which the type of information received at step 104A is determined to be a posted comment, processing transitions to step 120, and determination is made as to whether or not the posted information includes an image.

including a density level of the relevant information with respect to the target.

6. The posted information extraction control device of claim 5, further comprising:

a sorting means configured to link the target with the relevant information relating to the target and sort into a plurality of predetermined categories; and

a classification means configured to request a user who uses the guidance information notified using the notification means to respond to a predetermined statement when the user registers, and to analyze the response and classify the user by a plurality of categories;

the notification means being configured to provide notification with other guidance information corresponding to a category into which the user was placed in the classification.

7. The posted information extraction control device of any one of claim 1 to claim 6, wherein in cases in which the large unspecified cluster of posted information includes an image, image analysis is performed including at least one of object detection or image captioning, in order to generate character string information describing the image.

8. A non-transitory computer readable storage medium storing a posted information extraction control program configured to cause a computer to operate as the posted information extraction control device of any one of claim 1 to claim 7.