Technical Disclosure Commons

December 28, 2018

Automated Augmented Reality Context Stickers

Recommended Citation

AUTOMATED AUGMENTED REALITY CONTEXT STICKERS

ABSTRACT

The disclosure relates to a method, system and computer readable media for automatically placing relevant augmented reality (AR) stickers in user's field of view on opening a device application. The method places dynamic location, weather or time stickers on the ground plane or above the field of view, once the user opens the camera and also during the capture flow of moments. The user may either flick or dismiss them, or press-and-hold the stickers to move them to a desired position and then capture. The method brings the most used 2D post-capture sticker learnings to life automatically. The method gives people a superfast way to add context to their story with appropriate AR context stickers automatically present each time they open the camera.

BACKGROUND

People want to add context to their story. A wide variety of stickers and camera tools available today make stories even more stellar. Users get to transform their selfies, videos, and pictures into creative, entertaining pieces of fabulous photo art. Snazzy new camera features open up a whole new world of editing options to stimulate the creativity of the user.

Augmented reality (AR) applications allow a user to see a presentation of the world augmented with or superimposed by computer-generated imagery. The imagery may be graphical or textual. The presented world may be presented directly to the user, such as when the user is looking through a display, and the imagery is applied to or projected on the display. The world may also be presented indirectly, such as when a user is navigating previously captured images of the real world, rather than the world that is presently in front of the user.

Augmented reality is now being implemented on mobile computing devices that include digital cameras. In such implementations, the view that is currently being captured by

the camera can be displayed as a scene on a screen of the mobile device, and data about items that are shown in the scene may have textual annotations added to them. Non-visible objects may also be represented by annotations. With the launch of augmented reality (AR) stickers users may place random digital objects and text in their photos or videos, capture and share them with just a few taps. However, challenges remain in terms of efficiency, precision and usefulness of such applications. There is a need for a quick way to add context using AR stickers.

DESCRIPTION

The present disclosure proposes a method, system and computer readable media for automatically placing relevant augmented reality (AR) stickers in a user's field of view when the user opens a device application 121. The application 121 may be a social networking application installed in a mobile device or an application actuated via a hyperlink on a browser page. The device application is configured to display an interface for accessing built-in camera functionalities 122 as an in-application feature to capture moments. The built-in camera functionalities may include instructions for coordinating capture, display, editing, sharing and archiving images.

One or more sensors may be included to detect motion, contact/touch and orientation of the device. For example, a smart device may include GPS functionality for determining a geographic location of the mobile device, a compass for determining a viewing direction of the camera, and an accelerometer for determining a vertical viewing angle of the camera. This information may be used to determine locations that are within the viewing direction and angle of the camera. The user may provide input to interact with the interface of the application 121 in many possible manners, such as alphanumeric, point based (e.g., cursor), tactile, or other input (e.g., touch screen, tactile sensor, light sensor, infrared sensor, biometric sensor, microphone, gyroscope, accelerometer, or other sensors).

The device application may automatically place dynamic location stickers 124 below the user's field of view on the ground plane or place dynamic weather stickers or time stickers 123 above the field of view once the user opens the camera, as shown in FIG. 1. Users may either flick to dismiss them or press-and-hold the stickers to move them to a desired position and then capture the image by pressing the camera's image capture button 125. The AR context stickers are automatically placed during pre-capture stage and/or during the capture flow. In order to correctly position and modify virtual objects within an augmented reality image, information about an image sensor position, real objects in a scene, and the virtual object position may need to be known.
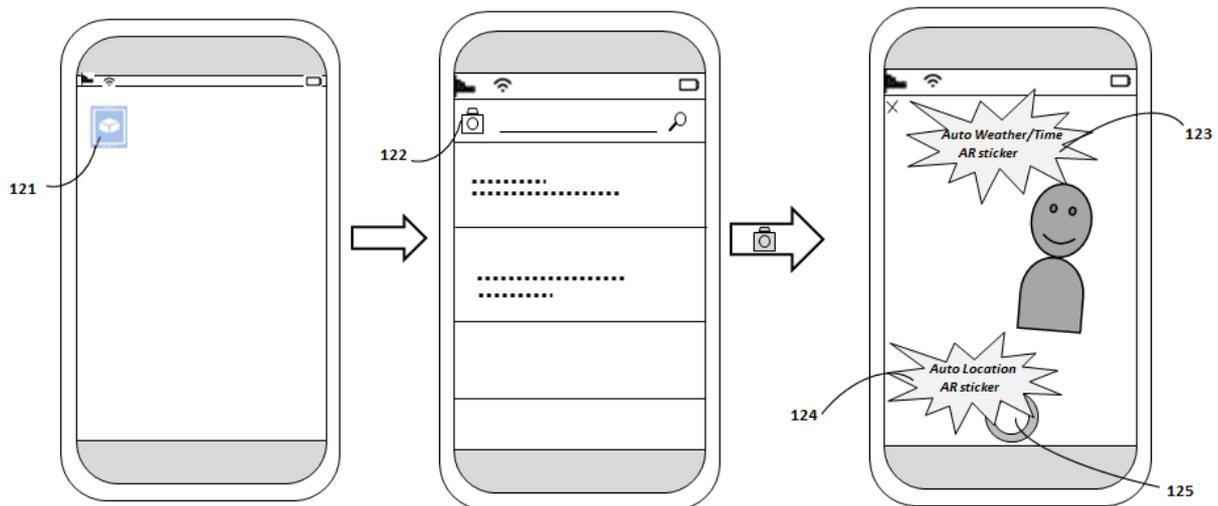

FIG. 1: Dynamic placement of auto AR location/weather/time stickers on opening in-app camera

Various types of AR objects such as face masks, emoji, face, animal, arrows, text, two- or three-dimensional animated AR objects, or other such AR objects may be used herein. The AR object may also include animations. For example, the AR sticker could blink in different patterns. The AR image processing and tracking may be performed locally or remotely. The application may be further enabled for sharing and visualization of the user generated content among a group of users. In one instance, the stickers may be an emoji sticker object. The emoji sticker object may be associated with another object in the image or

with a set location. The AR sticker object may be attached to a particular landscape such as a building.

Annotations may be generated in association with an identified location and then presented to the display of the device in real-time or near real-time. Images captured by the camera of the mobile device may be used to indicate where the locations are in spatial relation to the mobile device. For instance, during video recording when the video capture button 127 of in-app camera is selected an AR sticker 126 may be automatically displayed as quickly as possible, as shown in FIG. 2.
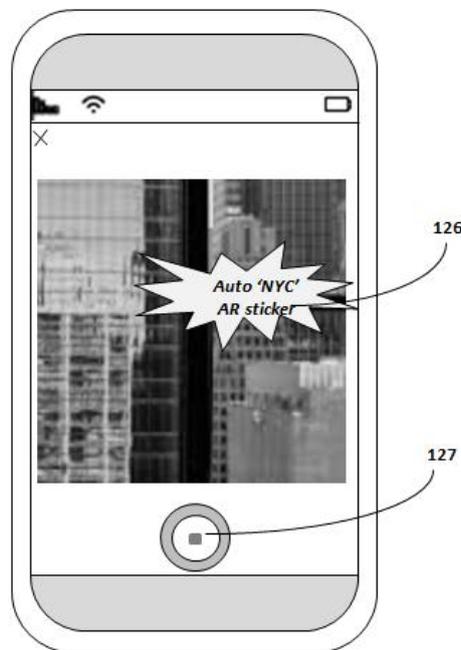

FIG. 2: Dynamic placement of auto AR location/weather/time stickers during capture flow

The system, as illustrated in FIG. 3, may include one or more user devices 120, a social networking system 100, and one or more external systems 110 configured to communicate through a network 130. The social networking system 100 may be a platform for such external systems 102 to provide services and functionalities to users accessing the system 100 using a network. The social networking system 100 and external system 110 may be separate or operated in conjunction to provide social networking services to users of the

social networking system. The one or more users devices 120 are configured to interact with the social networking system 100 through an application programming interface (API) provided by the operating system of the user device. Alternatively, the user device 120 may run through a browser application for interacting with the social networking system 100. The one or more user devices 120 may include a mobile device incorporating a built-in camera unit. Such systems may use both a previously generated AR database describing the environment or scene being captured and a system for aligning the information being captured with the model and data from the AR database.
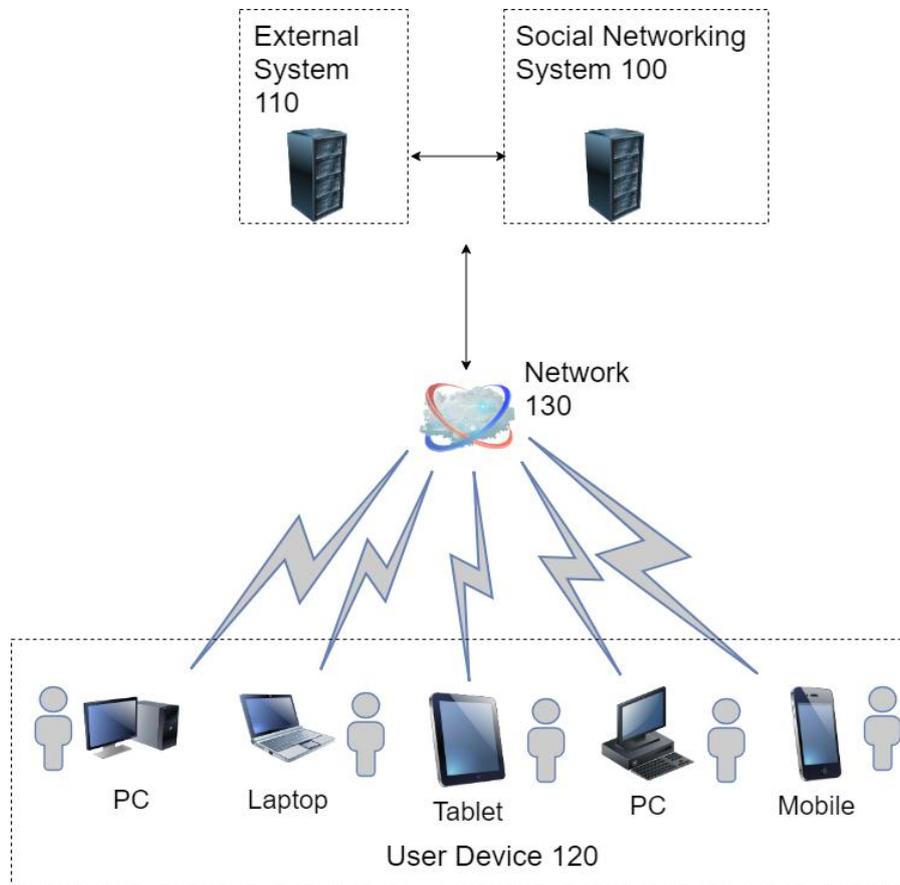

FIG. 3: A system for augmented reality (AR) text placement on visual content

The auto context stickers may include basic generic 3D treatments resembling location, weather, or time to art variations that are more expressive and relevant based on time of day, holiday or city vibe. One example to demonstrate the impact of the above method for enhancing the auto context experience for the users includes, placing city location

stickers 126 when the user is capturing a moment in the city, as illustrated in FIG. 4A. The stickers may be a holiday version of location/weather/time stickers and or effects such as a snowy effect for winter. In another example, the device application suggests a city sticker which is bright or sunny during the day, moonlit or neon at night, when the city is in the view field of the user. As depicted in FIG. 4B, the context stickers may be placed when a user is uploading a story/moment using in-app camera. Similarly, weather has multiple manifestations based on fog, sun, rain, snow, day, night which may be provided in the expressive context stickers, such as a gyro effect in the sky, as shown in the FIG.4C. Also time variations i.e. morning on Monday, and Friday night are used as context by the application to suggest AR context stickers to the user.
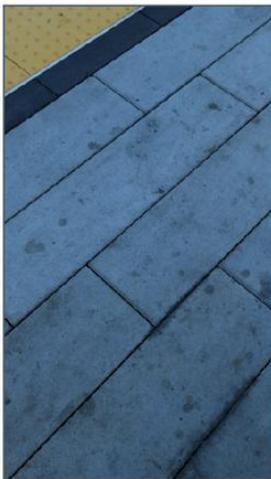
4A   4B   4C

FIG. 4A: Image capture/video recording using in-app camera; FIG. 4B: A story/moment uploaded by user, using in-app camera; FIG. 4C: Creating gyro effect in the sky using AR context sticker

The disclosed method may bring predetermined 2D post-capture stickers to life automatically in the pre-capture stage or during capture flow of moments. It gives people a superfast way to add context to their story with appropriate AR context stickers automatically present each time they open the camera application.