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Smart Text Tool For Capturing And Sharing Visual Content

SMART TEXT TOOL FOR CAPTURING AND SHARING VISUAL CONTENT

ABSTRACT

A system, method and computer readable media to facilitate capturing and sharing images through a device application is disclosed. The application includes smart and AR text tools for automatically placing the text in the image and choosing the color or the background of the text based on one or more rules. The rules may be based on analysis of the image such as facial recognition, contrast detection, color detection and content detection. The application additionally includes an augmented reality text filter for text placement on a capture screen. The AR text tool allows user to add expressive motion elements to text by tapping an 'enhancer' button.

BACKGROUND

Social media allow users to create, send, receive, and share various types of information including user generated content such as texts, images, video or audio clips, and other types of digital media. Because of their collaborative nature and growing accessibility, social media platforms such as social networks have become a popular means by which many people share photos and other media content. Social networking platforms are constantly evolving to provide users with increasingly sophisticated functionality.

Text annotation has been the same for decades. Even on mobile devices text creation remains unchanged. Existing text tools allow a user to add text content, pick a color for the text, place the text in a default location, manually reshape or move it around. There is nothing smart or delightful about the experience or technology. The text tool is one of the most used effects in social networks to express and add context to visual content. People use the text tool to add context to a moment before sharing, or to add a message to the recipient of a visual message.

There is a need to provide a smart text tool for creating text annotations on mobile devices with improved user experience. Further, there is a need to provide a smart text tool that may add text to the pre-capture screen for an improved user experience.

DESCRIPTION

A method, system, and computer readable media are disclosed to facilitate capturing and sharing images in a social networking platform. The method includes running a device application 121 configured to display an interface for accessing the built-in camera functionalities 122. 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 includes smart text tool features for editing captured images 123-1 and/or augmented reality (AR) text tool feature 123-2 for text placement in a capture screen, as shown in FIG. 1A. The smart text tool feature is configured for optimally displaying text within an image by automatic placement and coloring. The AR text tool feature is configured for augmented reality (AR) text placement on a capture screen.

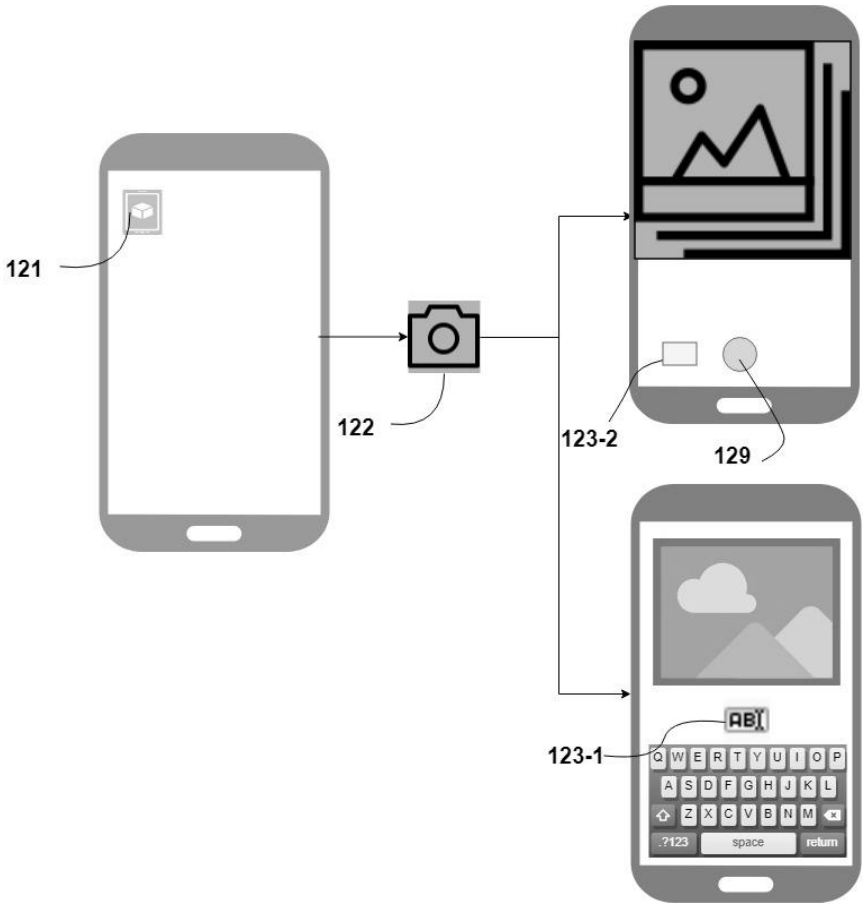

FIG. 1A: A device application for accessing camera functionalities

In such an application with smart annotation or captioning, a user may point a portable device towards a scene, e.g. a landscape, a building, a painting, or the like and the display is configured to show the image together with superposed information concerning the scene. Such information may include names, e.g. for mountains and habitations, historical information for buildings, and commercial information such as advertising, e.g. a restaurant menu. Precision may be enhanced by use of different techniques such as sensor- and image-based techniques. Robustness of the recommendations may be improved by choice of techniques for determining annotation positions.

Once an image is acquired by a mobile device, different techniques may be used to determine the placement of annotations in the image. In some aspects, 3D reference models may

be used for image annotation. Salient objects may be detected in the image based on their positions which may be obtained from a database. The database entries may include geographic position using latitude, longitude and elevation, one or more images of the object, a 3D model (optional), and a desired annotation, e.g. text as shown in FIG. 1B. One or more objects from the field of view of the camera may be identified. Various sharing attributes associated with the image may be derived using information from the user's social networks and various other suitable techniques. Based on the sharing attributes, the device may automatically provide the user with suggestions for sharing the acquired images or automatically share the images without user intervention.

The smart text tool feature, as illustrated in FIG. 1B includes at least a virtual keyboard for the text content to be typed by the user. The smart text feature makes the text more visually appealing by automatically positioning the text content within the image and automatically adjusting the text color based on that of the background. The placed text may use a preset font or a user defined font. The user may further customize the text placement and/or coloring if needed before sharing it with other users in the social networking platform.

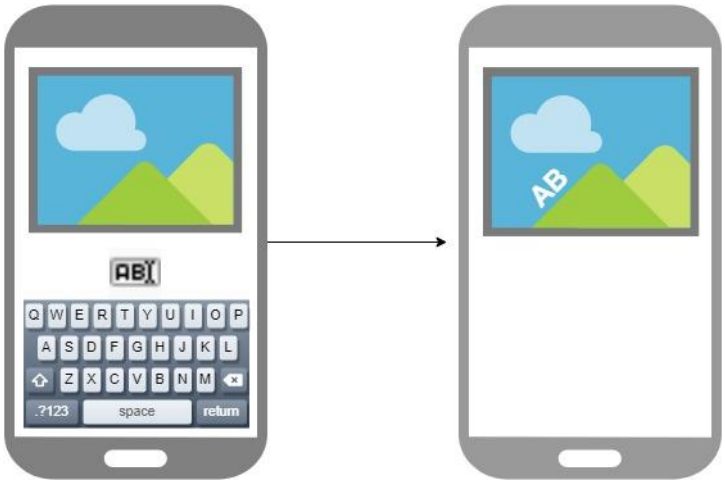

FIG. 1B: A mobile application running a smart text feature

The smart text tool feature is configured to place user-typed text in a captured image and choose the color for the text based on the background color of the image based on one or more rules. The one or more rules may be based on facial recognition, contrast detection, color detection and content detection. For example, the best regions for text placement may be obtained using a saliency detector along with a heuristics module. Specific rankings may be assigned when multiple objects are present for efficient detection of relevant objects. In some instances, people's faces are ranked higher than inanimate or less significant objects.

The smart text tool identifies an open area with consistent color and/or detail or an area where the background is not busy or detailed for text placement. For example, text may be placed automatically in areas with sky, wall, or road present in the image as background. The text may also be oriented suitably to follow a boundary or contour within the image. The text color and/or text background may be automatically set light or dark in contrast to the image. For example, a dark text or background color may be chosen for placement in a light colored area. Similarly, a light text or background color may be chosen for placement in a dark colored area. Where there are hard lines or edges in the image the text may be lined up along the line or edge. The method may further involve drawing complementary colors from the image for the text or background. If the background of the captured image has faces in it, the text is automatically placed at a background location so as to avoid any overlap of the face. For example, the smart text tool may place the text above or below the face.

In one example, the method may include capturing a picture as shown in FIG. 2A using the camera tool of the application. When a user intends to add a text annotation a virtual keyboard and a text box along with the cursor are displayed as shown in FIG. 2B. The text to be incorporated in the picture is then typed by the user as shown in FIG. 2C. The application

analyzes the image and optimally places the typed content on the image at a location where the text is more readable and also more visually appealing as shown in FIG. 2D. In the example shown in FIG. 2D, the text is automatically placed at the top of the frame where the sky acts as an ideal non-busy background for the white text.

FIG. 2A

FIG. 2B

FIG. 2C

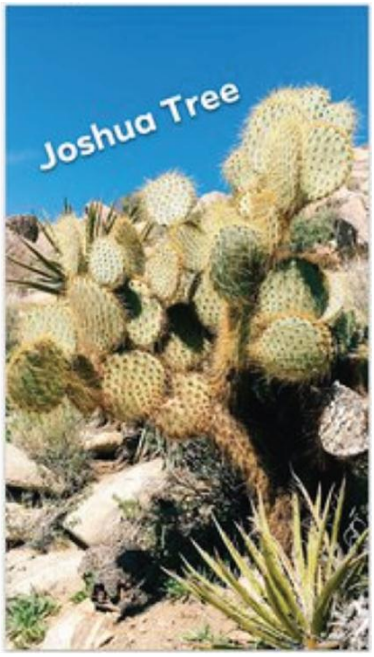

FIG. 2D

FIG. 2A: Captured image ready for annotation, FIG. 2B: Virtual keyboard and text box along with the cursor ready for input, FIG. 2C: Annotation text entry, and FIG. 2D: Automatic placement of annotation text in the image

The AR text tool feature 123-2, as illustrated in FIG. 3, allows placement of text on a live image or video capture screen, thereby obtaining an image or video clip including the text when the user captures an image or video clip using the capture button 129. The text may be short text. The AR text feature makes the media visually appealing by placing annotations at user-specified locations in the media during pre-capture stage. The AR text tool feature may include a text box and a virtual keyboard for the text content to be typed. The AR text tool allows for the typed text to be visualized by placement in the scene in front of the user. The colors, size, background color and background elements may also be changed by the user. The text may use a preset font or a user defined font. The AR text tool feature may further include a text enhancer 127 to provide one or more expressive motion elements to the text. The user may add motion elements by

tapping the 'enhancer' button. The enhancer button may allow cycling through options such as animations like sparkles, rainbows, hearts, etc. After adjustments, the AR text floats in the scene. The AR text may be pressed and held to move to a user-specified location in the scene prior to capture.

Various types of AR text objects may be used herein. The AR text based 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.

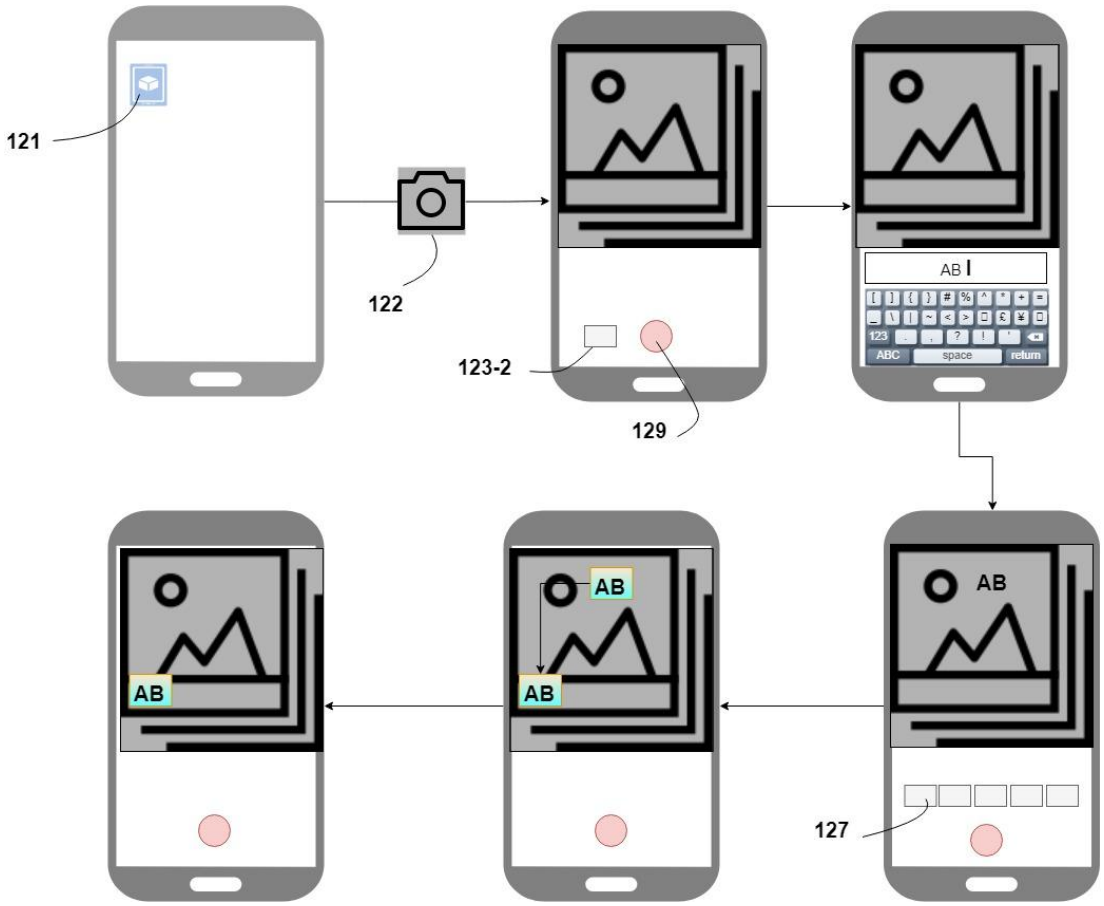

FIG. 3: AR text tool for text placement in a live capture screen.

The system, as illustrated in FIG. 4 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 internet. 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** 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.

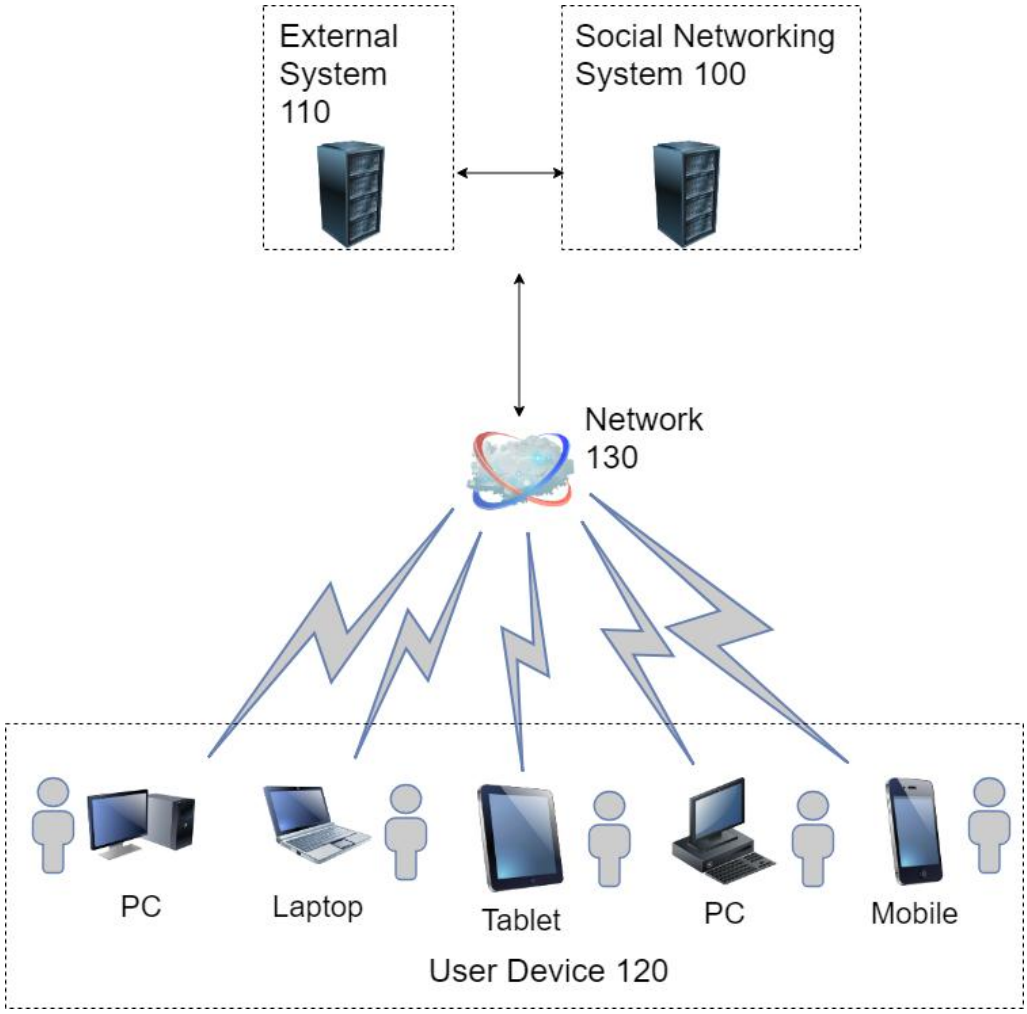

FIG. 4: A system for augmented reality (AR) text placement on visual content

The disclosed system, method and computer readable media provides an enhanced user experience for social network users and adds value to the social networking community. The smart text tools allow placement of text in the image where it is easier to read and where it is visually appealing, thereby improving user experience. Further, the smart annotation tool may lead to increased creation and sharing of visual content with context. The AR text tool allows placement of text in a media during pre-capture that may increase the visual appeal and user experience. This may lead to increased creation and sharing of AR visual content with text.