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September 2021

## Gesture-triggered Eraser Tool

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### Recommended Citation

Buckley, Thomas; Mickle, Robert; Murray, Abraham; Al Karim, Tayeb; Chan, Hiu Ying; and Cirimele, Maria, "Gesture-triggered Eraser Tool", Technical Disclosure Commons, (September 13, 2021)

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## **Gesture-triggered Eraser Tool**

### ABSTRACT

Touchscreen apps that support stylus input attempt to enable users to quickly delete content using a scratch-out gesture. However, these gestures require precision to make sure they cover all of the content that the user intends to delete. This often causes failure such as incomplete deletion and leads to the user having to retry the gesture. The deletion action thus takes longer than the user's expectations, thus reducing trust in the gesture. This disclosure describes techniques that enable the user to tap or to use the scribble-out gesture to trigger a deletion. Further, dragging the scribble-out gesture surfaces an eraser tool, which the user can then drag to reach other bits of content that were not removed by the original gesture. User input is leveraged to automatically and intuitively trigger the eraser tool without the distraction of mode or context switching.

### KEYWORDS

- Eraser tool
- Erase gesture
- Mode switching
- Gesture disambiguation
- Stylus
- Notetaking
- Sketching
- Touchscreen interface

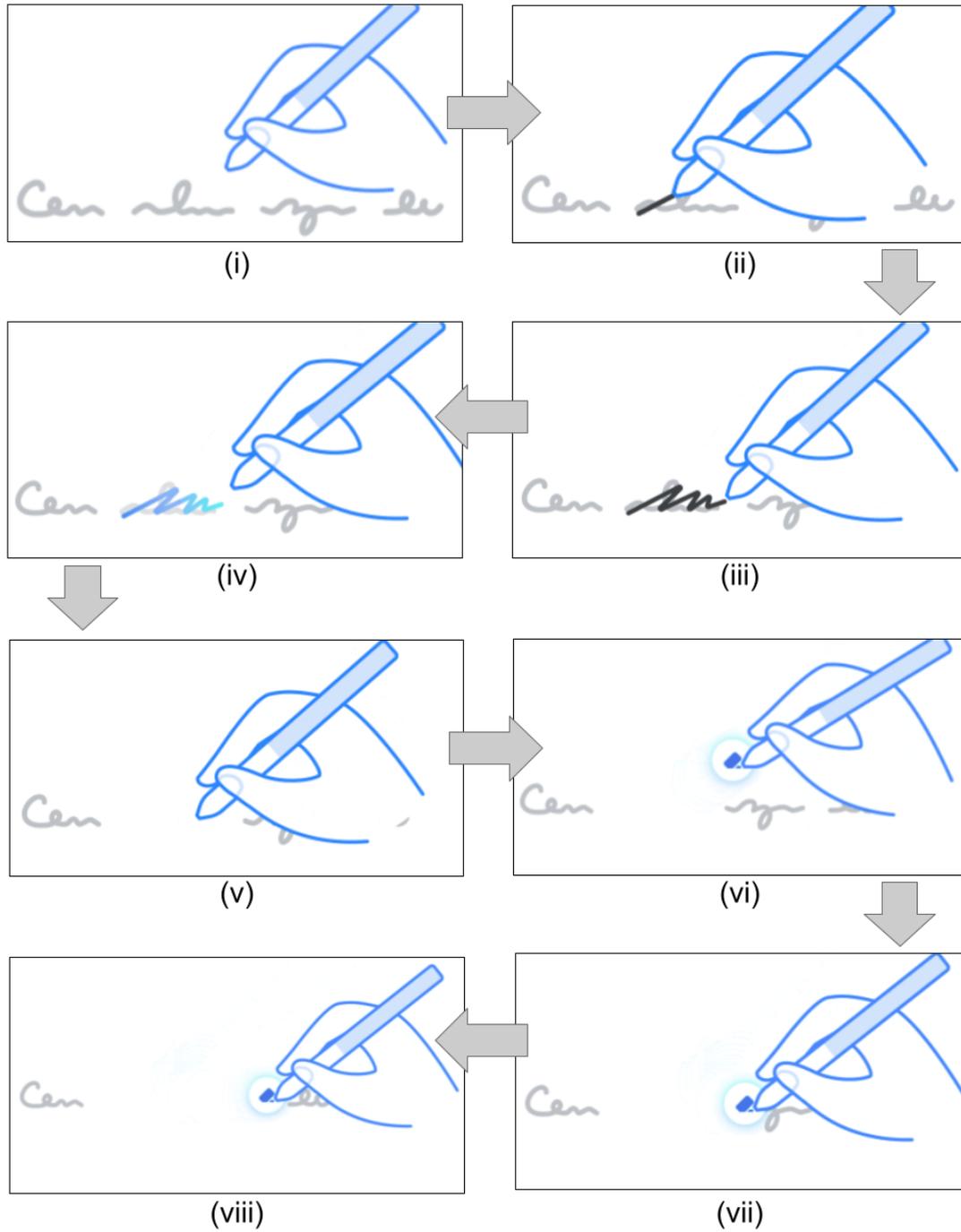
## BACKGROUND

Touchscreen apps that support stylus or finger input attempt to enable users to quickly delete content using a scratch-out gesture. Such gestures can also be made via a mouse or drawing tablet. However, these gestures require precision to make sure they cover all of the content that the user intends to delete. This often causes failure such as incomplete deletion and leads to the user having to retry the gesture multiple times. The deletion action thus takes longer than the user's expectations, thus reducing trust in the gesture. Sometimes the eraser tool is active beyond its useful duration; when the user then tries to write, nothing happens.

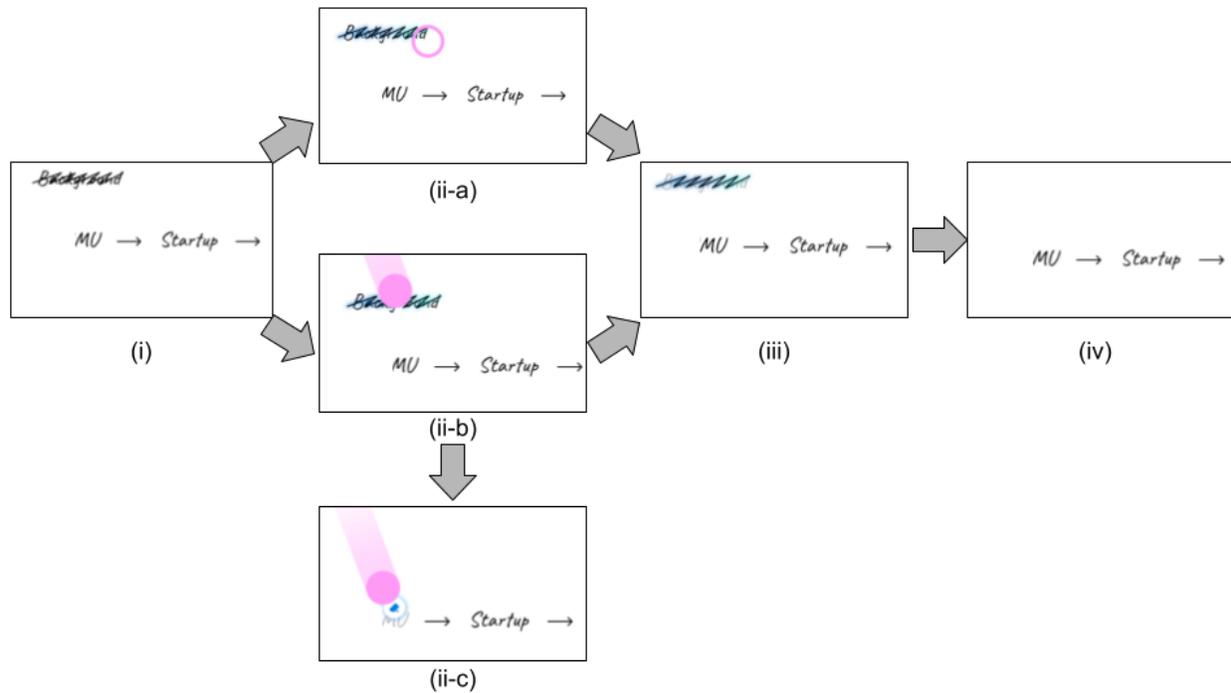
## DESCRIPTION

This disclosure describes techniques that enable a user to tap or to use the scribble-out gesture to trigger a deletion. Further, dragging the scribble-out gesture surfaces an eraser tool, which the user can then drag to reach bits of content that are not removed by the initial gesture. Fig. 1 illustrates an example of triggering an eraser tool by a deletion gesture. On a touchscreen app that supports stylus input, such as a notetaking or drawing app, a user has written down some words (Fig. 1-i). The user deletes a word by scratching over it (Fig. 1 ii-iii). The scratch-over traces are recognized as a scribble-out or erasure gesture (Fig. 1-iv), resulting in deletion of the word as well as of the scratch-over traces (Fig. 1-v). To visually indicate the recognition of the scratch-over traces as an erasure gesture, the scratch-over traces glow momentarily just prior to deletion (Fig. 1-iv).

Following the deletion, depending on the subsequent user action, e.g., if the user doesn't continue writing, an eraser tool is surfaced (Fig. 1-vi). If the user continues writing, then the eraser tool isn't surfaced. The user can use the automatically surfaced eraser tool to precisely erase other content as needed (Fig. 1 vii-viii).



**Fig. 1: Eraser tool triggered by deletion gesture**



**Fig. 2: User behavior triggers deletion or eraser tool**

Fig. 2 illustrates another example of user interaction, e.g., tapping or dragging, that triggers deletion or the surfacing of an eraser tool. The user has scratched over a certain section of text that was handwritten on a touchscreen (Fig. 2-i). The user indicates that the scratch-over traces are a deletion gesture, not text, by tapping on it (Fig. 2-ii(a), the tap indicated by the empty circle) or by dragging a finger/stylus over it (Fig 2-ii(b), the drag indicated by the filled circle). The scratch-over trace is recognized as a deletion gesture (Fig. 2-iii), visually indicated by a momentary glow over the scratch-over traces. The scratched-over word and the scratch-over traces are erased (Fig. 2-iv). Additionally, if the user drags the scratch-over trace over another section of the content (Fig. 2-ii(c)), an eraser tool is surfaced, which can be used to precisely erase other content that was not originally erased by the scratch-out trace.

In this manner, user interaction is leveraged to automatically and intuitively trigger appropriate tools, e.g., the eraser tool. The eraser tool is triggered without the user having to experience the distraction of mode or context switching. Additionally, user input is used to distinguish strokes (e.g., handwriting) from gestures, e.g., the scratch-over marks are determined to be a deletion gesture if the user doesn't continue writing and as strokes if the user continues writing. Alternatively, the scratch-over traces can be specified by the user to be a deletion gesture by tapping over it, while dragging the scratch-over traces triggers the surfacing of an eraser tool, with no mode or context switching necessary.

## CONCLUSION

This disclosure describes techniques that enable the user to tap or to use the scribble-out gesture to trigger a deletion. Further, dragging the scribble-out gesture surfaces an eraser tool, which the user can then drag to reach other bits of content that were not removed by the original gesture. User input is leveraged to automatically and intuitively trigger the eraser tool without the distraction of mode or context switching.