Synapse: Interactive Guidance by Demonstration with Trial-and-Error Support for Older Adults to Use Smartphone Apps

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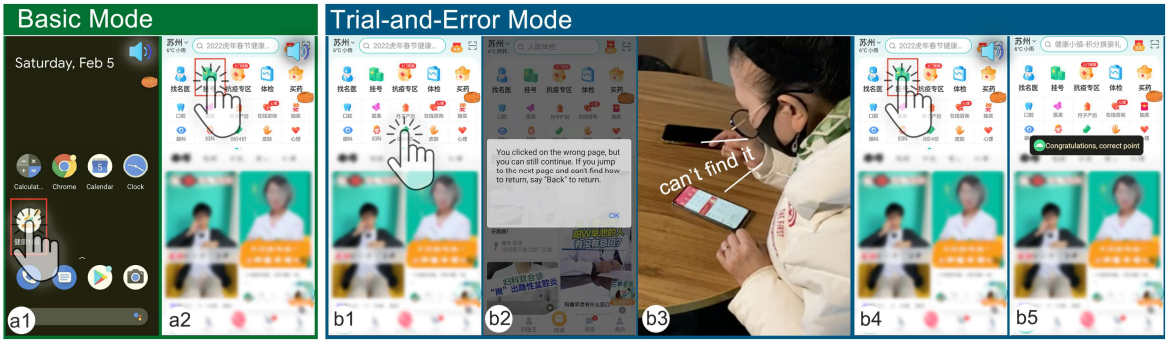

Fig. 1. **Synapse** runs on a smartphone as a background service and helps older adults complete tasks by providing step-by-step interactive guidance (Basic mode) and trial-and-error support (Trial-and-Error mode), which are created by the demonstration of a help-giver. In the Basic mode (a1, a2), Synapse highlights the target item with a red rectangle and plays the corresponding audio instructions recorded by a help-giver during the demonstration phase. After the user clicks the highlighted icon (a1), the app proceeds to the next screen, where Synapse identifies and highlights the next target item (a2). In the Trial-and-Error mode, Synapse allows the user to freely explore the app. If they clicks a wrong item (b1), Synapse alerts them but still allows them to continue their exploration (b2). If they still could not complete the task or realized they made a mistake after a few trials, they could ask Synapse for help by saying, such as "can't find it" (b3). Synapse then returns to the last correct step with the corresponding audio instructions (b4). After they has completed the step correctly, Synapse provides positive multimodal feedback with both a textual prompt and an audio tone (b5).

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