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Foldable Device with Dynamic User Interface for Search Engine and Chatbot

ABSTRACT

Current chatbots, e.g., powered by a large language model (LLM) respond to a user query via a conversational user interface. The user interface is not optimized for portable devices that have smaller screen size and may be foldable. Also, while chatbots can answer certain types of questions well, their answers are not always reliable. This disclosure describes a dynamic user interface that combines the advantages of a chatbot and a search engine in the context of a foldable device. The display area of the foldable device is split into two portions, one for query responses from an index-based search engine and the other for responses from a chatbot.

KEYWORDS

- Foldable device
- Flip phone
- Search engine
- Index-based search
- Chatbot
- Large language model (LLM)
- Hinge angle
- Hall effect sensor
- Folded state
- Unfolded state
- Side-by-side interface

BACKGROUND

Chatbots, such as those powered by large language models, are available for public use. Chatbots can provide generated content in response to user queries. Currently, chatbot interfaces are simple chat-based interfaces where the chatbot responds to a user query in a conversational user interface. As chatbot technology matures, a need arises for interfaces for interacting with chatbots on devices such smartphones, tablets, foldable devices, etc. that take into account the device capabilities, including form factor, screen size, etc. Also, while chatbots can answer certain types of questions well, their answers are not always reliable. Accordingly, users can benefit from using a traditional search engine (that relies on an index) and a chatbot together in their information seeking task.

DESCRIPTION

This disclosure describes a dynamic user interface that combines the advantages of a chatbot and a search engine in the context of a foldable device.

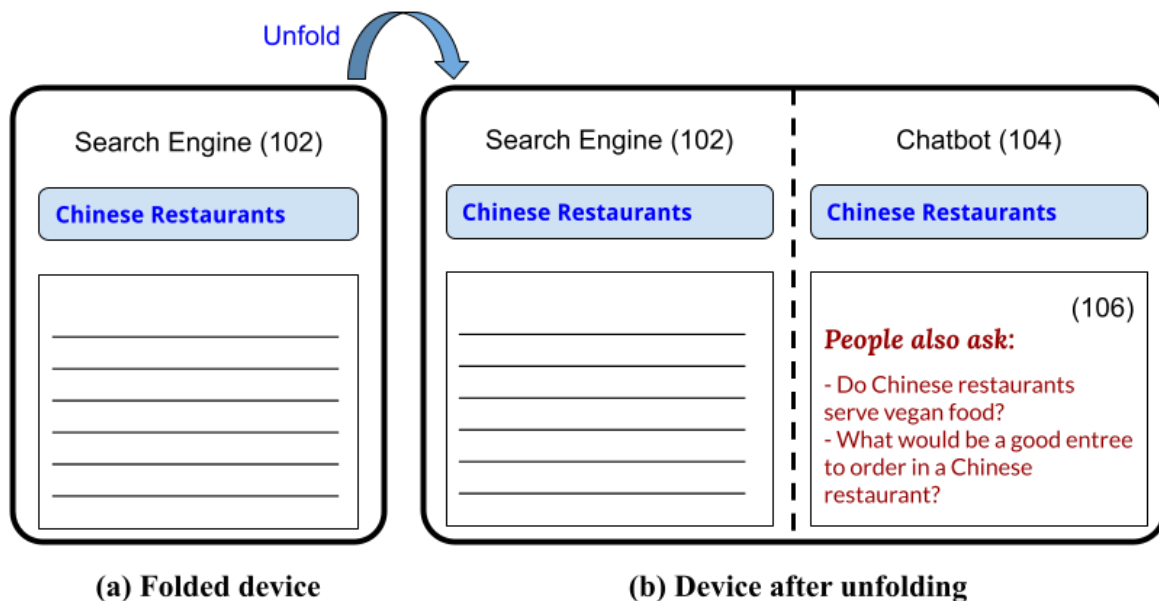


Fig. 1: Foldable device with dynamic user interface for search engine and chatbot

Fig. 1 illustrates an example of a dynamic configuration on a foldable device that enables richer interactions with an index-based search engine and a chatbot powered by a large language model.

As illustrated in Fig. 1, When the foldable device is in a folded state (Fig. 1a), the screen size is smaller, while in an unfolded state (Fig. 1b), it is twice as large as in the folded state. The unfolded device can support both horizontal and vertical dual display. When the user initiates a search query while the device is in a folded state, the user interface for a search engine is displayed, with a search bar at the top (102). Corresponding results are retrieved and displayed.

If the user unfolds the device, the unfold action is detected using appropriate device sensors and operating system events. For example, such sensors can include a hinge angle sensor. A Hall effect sensor can also be utilized. Upon detecting the unfolding, the original search query and results are retained in one portion of the display, as shown in Fig. 1(b). In addition, another panel is launched in a second portion of the display to provide access to a chatbot (104). The second portion also includes a search/query bar at the top. The chatbot interface can include answers to the same query. Additionally, the chatbot interface can include pre-loaded suggested human language queries (106) that are related to the original query. Queries entered by the user in either interface - search engine or chatbot - are automatically provided to the other system. In addition, with user permission, the user location can be accessed and utilized to customize responses (e.g., “Chinese restaurants in City X”).

While Fig. 1 shows a foldable device with two equally-sized display portions, the described techniques can be used for any foldable device, or device that supports a secondary display such as an external monitor.

CONCLUSION

This disclosure describes a dynamic user interface that combines the advantages of a chatbot and a search engine in the context of a foldable device. The display area of the foldable device is split into two portions, one for query responses from an index-based search engine and the other for responses from a chatbot.

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