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Default Search Location Based on Historical User Queries

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Default Search Location Based on Historical User Queries

ABSTRACT

This disclosure describes techniques to enable users to consistently obtain search results relevant to their location of interest. Based on recent user queries that indicate location intent, a default location is suggested for the purposes of searching and related features. The setting of the default location is straightforward, simple to use, and easy to understand. It is clear to users when a default location is set and being used. Setting and modifying the default location can be done without leaving the core search experience. The quality of search results is maintained even as the explainability of the location associated with the search is improved. The location preference affects queries that have location intent while leaving untouched queries without location intent. The default location can be overridden by including a location in the search query or by permitting the use of precise location.

KEYWORDS

- Location-based search
- Location intent
- Local search
- Default search location
- User location
- Search string
- Search query
- Search personalization
- Search engine

BACKGROUND

When permitted by a user, search engines take into account the user's current location when generating search results. However, the estimate for the user's location can be inaccurate. Even if the user's location is known accurately, it is unclear if a given search query refers to the current location or to another location of interest to the user. Therefore, users may not consistently see results near the location they want to search in. Consistency refers to the use of location in a contextually appropriate manner for queries that benefit from location intent while serving other queries without reference to location. For example, if a user searches for 'Chicago pizza' it isn't immediately clear if the user is searching for Chicago-style pizza or for a restaurant in Chicago that serves pizza.

When users encounter location-related friction in search, they often refine their query with a location. For example, 'pizza' is manually changed to 'pizza in Chicago,' which, while clarifying search intent, still requires additional typing which can be a hurdle. Modification of a search phrase to include location is a sign that the user didn't find relevant answers to their initial search query.

The search engine can automatically suggest options that include location, for example, a partially typed search query 'pizza' can have as one of the auto-complete options 'in Chicago.' However, automatic suggestions are contingent upon the search engine having a high confidence that the search query can benefit from location context and also a high confidence that the suggested location is a location of interest to the user. Having the user specify a default location for search in a different window, e.g., a settings screen, can be a hurdle that breaks the smooth and intuitive flow of the search experience.

DESCRIPTION

This disclosure describes techniques that enable users to consistently get results relevant to the location that they want to search in. Based on recent user queries that indicate location intent, a default location is suggested for the purposes of searching and related features. Users can accept the suggested default location or can set a different default location.

Setting the default location is straightforward, simple to use, and easy to understand. It is clear to users when a default location is set and being used. Setting and modifying the default location takes one or two taps (or other user interaction events) and are provided as a part of the core search experience. Users get a straightforward way to obtain results in the neighborhood or the city they live in or where most of their search activity takes place. The quality of search results is maintained even as the explainability of the search location is improved. The location preference affects queries that have location intent while leaving untouched queries without location intent.

The default location can be overridden by including a location in the search query string, or by the user permitting the use of precise location. It is easy for a user to switch off the default location if the location intent is incorrectly guessed.

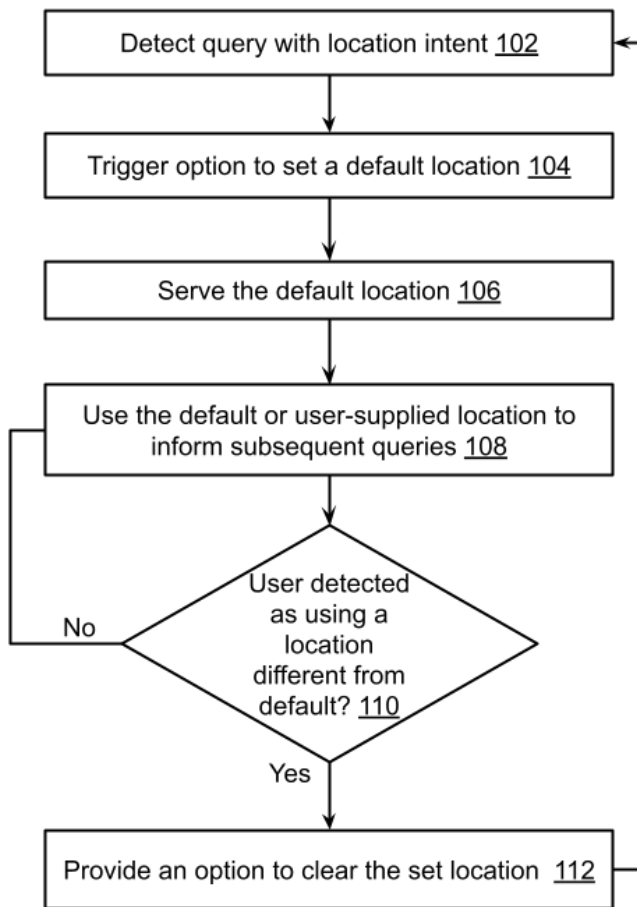


Fig. 1: Default search location based on user query

Fig. 1 illustrates setting the default location for searches based on user queries. A user query that includes location intent as part of the query string is detected (102). For example, in the query “Cub scouts in Chicago,” a location (Chicago) is present, and indicates a location for the search whereas in the query “Chicago Cubs scouts,” the term Chicago in the query is not indicative of a location intent for the query (the term “Chicago Cubs” refers to the baseball team, not the city). Upon detection of a query with location intent, an affordance is triggered to set a default location for the purposes of searching (104).

With user permission, the offered default location can be based on one or more user-permitted factors such as a location clue within a recent query; the user’s current location

(obtained using a GPS or other sensor); frequent locations of the user's presence; regions of interest to the user (e.g., if they have been recently researching trips to Chicago); etc. The default location is served as an option to the user (106). The user can accept the offered default location or specify a different default location for the purposes of searching.

The default location, either specified or accepted by the user, is used as the basis for subsequent queries (108). Even if a subsequent query does not explicitly include location intent in the query string, search results can be contextualized to the default location. For example, subsequent to the setting of the default search location, a search query 'tacos' is informed by the location Chicago. The default location can be overridden by including a location in a search query, or by accessing the precise location if permitted by the user.

If the user is detected to be using a location different from the set default (110) at the time of a subsequent query, a straightforward affordance is provided to clear the default (112). The user can be detected as using a location different from the default, for example, during interaction with a location-selection affordance.

Compared to alternatives, e.g., where the user simply enters the location as part of the search query or specifies the default location by a procedure distinct from searching, the described techniques advantageously reduce friction in searching and also obviate the need for a separate user interface to set or manage default location. Historical user effort is leveraged by noting locations the user has already utilized during the original user journey. The triggering mechanics automatically select users likely to benefit from setting a default location, e.g., based on refinement of the location of the original query.

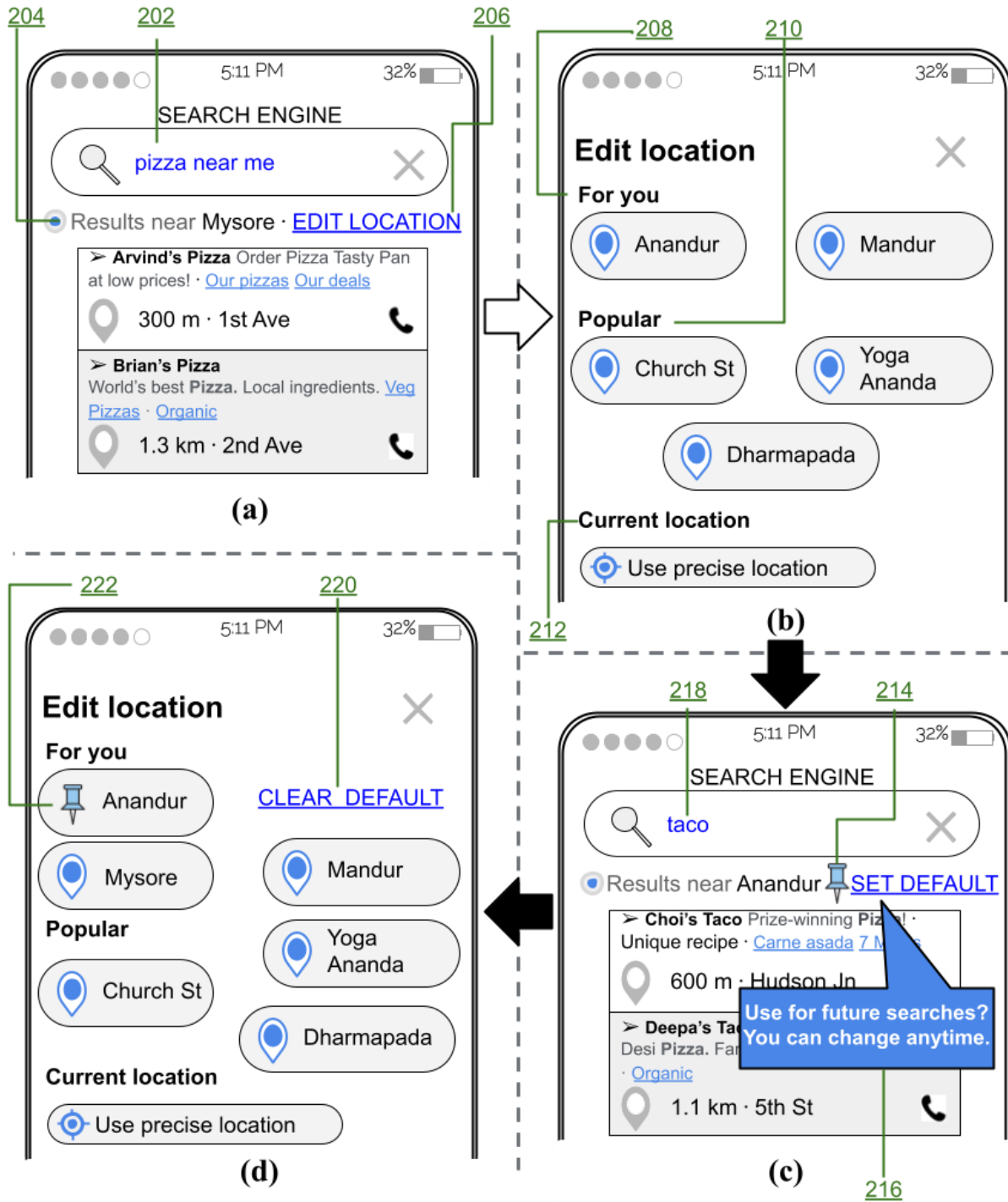


Fig. 2: Example user interface and workflow

Fig. 2 illustrates an example user interface and workflow to enable, based on user queries, the setting of a default location for the purposes of searching. Illustrated in Fig. 2(a), a

user enters a search query (202) that includes location intent ('pizza near me'). The search results are contextualized (204) to the user's location, obtained with user permission. The user's location can be approximate, e.g., a region of a city, a city, a district, etc. If the user permits and is appropriate for determining search results, precise location obtained using, e.g., geolocation technologies such as GPS, beacons, local positioning system (LPS), etc., can be used. An option (206) is provided for the user to edit and set a default search location.

The user can accept the offered default search location or as illustrated in Fig. 2(b), tap on the "edit location" option to edit the default search location. With user permission, a variety of options can be offered for default search locations, e.g., based on regions of recent interest to the user (208); regions that are popular (210); the current location (212) as reported by geolocation sensors; etc.

The use of a default location to contextualize searches (even without an explicit location intent) can be indicated by a distinct icon, for example, a pushpin (214), as illustrated in Fig. 2(c). A one-time notice can be provided to the user requesting to reconfirm the use of the default location for future searches (216). Subsequent to user acceptance of the selected default location results for search queries can be contextualized to the default location, even if the query string, e.g., 'taco' (218) does not explicitly include a location reference. The default location can be overridden by including a location in the search query string, or, secondarily, by permitting the use of a precise location. For example, even if the default location is Chicago, a search query 'pizza in London' will return results for pizza in London, not Chicago.

As illustrated in Fig. 2(d), the user can be given an option (220) to clear a previously set default search location or to set a new default location. The option to clear a previously set default location can be invoked by the user or can be automatically invoked upon the detection of

the user using a location different from the default. In the clear defaults screen, a pushpin (222) can appear against a previously set default location.

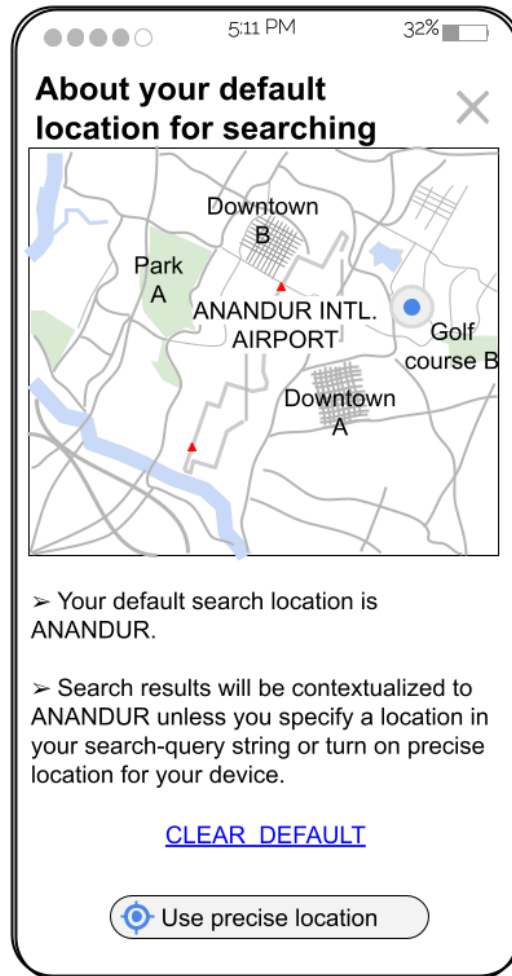


Fig. 3: Additional information about the default location for searching

Fig. 3 illustrates an example user interface where a user can obtain additional information about the use of a default location for the purposes of searching.

Further to the descriptions above, a user may be provided with controls allowing the user to make an election as to both if and when systems, programs, or features described herein may enable the collection of user information (e.g., information about a user's preferences, or a user's current location), and if the user is sent content or communications from a server. In addition,

certain data may be treated in one or more ways before it is stored or used so that personally identifiable information is removed. For example, a user's identity may be treated so that no personally identifiable information can be determined for the user, or a user's geographic location may be generalized where location information is obtained (such as to a city, ZIP code, or state level) so that a particular location of a user cannot be determined. Thus, the user may have control over what information is collected about the user, how that information is used, and what information is provided to the user.

CONCLUSION

This disclosure describes techniques to enable users to consistently obtain search results relevant to their location of interest. Based on recent user queries that indicate location intent, a default location is suggested for the purposes of searching and related features. The setting of the default location is straightforward, simple to use, and easy to understand. It is clear to users when a default location is set and being used. Setting and modifying the default location can be done without leaving the core search experience. The quality of search results is maintained even as the explainability of the location associated with the search is improved. The location preference affects queries that have location intent while leaving untouched queries without location intent. The default location can be overridden by including a location in the search query or by permitting the use of precise location.