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The proposed design is to be used under the context where users have sudden curiosity about a certain local species yet do not bother to spend much time on looking for information. The purpose is to prolong the initial curiosity into a full learning experience, including knowledge acquisition, sharing, and reproduction.

Preliminary research shows that there're a number of existing information systems or applications that are concerned with biodiversity knowledge, or support knowledge flow and learning process. This analysis will start from the most commonly used system under such context of curiosity, followed by some leading web applications or databases specifically about biodiversity and species discovery.

For each system, the following analysis will focus on its potential in supporting knowledge discovery, sharing, sustained learning, as well as quality of information provided, while placed in a local and non-professional circumstance. By pointing out the pros and cons of these systems, the analysis aims to provide a better understanding of the presupposed problem and lead to more possibilities of the proposed design challenge.

Google Search

Despite the existence of specified online biodiversity databases and encyclopedias, Google still seems to be the most frequently used system when people look for general information about a certain species. The usual method is to search for a more general term (such as "squirrel" for a squirrel-like animal) and browse through the images to see if anything matches with the one in reality.

Pros:

- The search mechanism is flexible and easy to use.
- The information provided are usually highly diverse, and in most cases contains the needed information.

Cons:

- Users at least have to know the name or category of the species to conduct a google search. Thus, it would not be useful when users don't even have a hint of what an animal is.
- The information returned can be overwhelming. The range is too broad, and it's possible that users spend long time browsing through all the images only to find nothing relevant.
- The credibility of the information provided is open to doubt. Some of the information may be irrelevant, and some may be misleading.

Wikipedia

Wikipedia is another popular information source for general search for such information. Its general use is the same as Google search; only the information it provided is generally more credible due to its crowd-source dynamics.

BirdsEye

BirdsEye is a mobile application for birdwatchers to look for birds in the local area share their discoveries with others. There're plenty of other similar apps. Though they're geared towards bird lovers, their location-based sharing functions prove especially handy among the biodiversity knowledge systems.

Pros:

- Users are able to share the location and photos of the bird they spotted.
- The app is locally based and provides shortcut to information about nearby birds.
- The app provides the activity rate of each kind of bird throughout the year.
- A map view is provided to show the hotspots of birds observed by other users.

Cons:

- The app is specifically targeted upon birdwatching lovers. It only provides oversimplified information about when where one might find a certain kind of bird, which would not be helpful for general learning purposes.
- No user interaction function allowed except uploading photos and recording locations.
- The app provides links to further information sources, mostly books require further purchase, which can be frustrating for users eager enough to discover more information.

Audubon Guides

Audubon Guides is a mobile app which aims to inspire and enable people's love for outdoors. The app is based on birdwatching application structure, only added with other animals, insects, and plants.

Pros:

- The location-based discovery system is convenient for sharing knowledge upon observation.
- Allows users to browse recent posts in the neighborhood.
- Has simple social network functions such as comment, favorite, and follow.
- Enables users to browse species by their shape pr general family, which lowers the requirement on users' knowledge level.

Cons:

- The of finding a nearby species is time-consuming.
- Although exploring species by shape helps people who don't have pervasive knowledge on relevant species, it still requires basic knowledge about bird categories and observation experiences. To a certain extent, the system is still limited to the user group with clear interest on biodiversity rather than a broader range of people with slighter curiosity.

OzAtlas—Atlas of Living Australia

OzAtlas is a mobile app based on an online biodiversity data site, Atlas of Living Australia.

Pros:

- The site enables an integrated map view of species distribution across Australia.
- The information provided about each species is brief, clear, and credible. It also provides “interesting facts” about the species.

Cons:

- Users have no other way to explore local species except by browsing through categories, which poses a barrier for non-professional users.
- Few knowledge sharing functions provided. The content is relatively static and allows low level of user interaction.

Overall, Both the general searching tools and existing biodiversity knowledge systems (mostly designed for observation lovers) have deficiencies under the presupposed context. On one hand, general searching engines and encyclopedias are not tailored to biodiversity knowledge in a certain neighborhood; on the other hand, location-based observation tools oftentimes have set-up searching or exploring process (explore by category, shape, etc), which may pose barrier for users with less knowledge basis. Also, since the existing observation apps are mostly focused on people already interested in biodiversity, they provide only few functionalities to support and encourage the initial curiosity and discovery phase of learning. Yet these observation tools do have maturely developed location-based discovery mechanisms, from which my future design may draw valuable experience.