BioSearch

Project team member: *Jiang Yiqi, Lv Chenchen, Pan Yidan, Zhou Mubing.*
(ordered by alphabet)

【Abstract】

This is an iGEM idea to develop an apple app as well as a webpage as for the convenience of iGEM competitors. It is composed of two parts: one is the BioBrick™ Browser, the other is keywords searching of iGEM previous years' work (the iGEM search).

【Motivation】

With the support of the biggest market for smart-phone applications--app store and nice appearance, iPhone attracts huge amount of consumers. And as a portable device, people can bring it everywhere, so when there is inconvenient to carry a laptop, iPhone will work out part of the business. From the perspective of the current society, a convenient, fast, and effective way to get information is most appealing. This is just the core idea of our iGEM final project. Therefore, considering the wide range of users of iPhone, to benefit all the ones who are interested in or working in synthetic biology, we're going to build and improve a search engine of BioBrick™ and iGEM ideas.

【Background】

A iGEMer will find it hard to get information when one want to find out whether one's proposed idea have been down in previous years, and when one want to choose the proper parts to finish their synthesis

biology work. Because of the following reasons: The process of BioBrick™ searching now is to click the main category and wait for the HTML Meta refresh to the interphase of secondary category and then the third. It's cumbersome and a waste of time to wait for the refreshing; and there is no collection of all the ideas which has been designed by iGEM teams, and it's a heavy workload to find and read all the wikis of all the teams of each year. Thus, in order to save time in searching BioBrick™, simplify the process of selecting classifications, and facilitate changing selected category, we will be devoted to change the interface of BioBrick™ searching into spinner-formed. Besides, to benefit all the iGEMers who want to propose ideas haven't been down before, we hope to develop a search engine with multiple searching methods of all the iGEM's ideas.

【Computational methods】

The BioBrick™ Browser:

In order to search a specific BioBrick™, we proposed several ways. The first way is Combo-Box Search. Several combo boxes are presented on the webpage. Select an option from the first combo box. Then select the second. These combo boxes are in a hierarchical relationship. In this way, we can show information with a simpler interface which saves a lot of time. The second way is Keyword Search which is very traditional. The third is Logic Search. Users can do logical operation such as AND, OR,

NOT. And the whole page is about searching, nothing more.

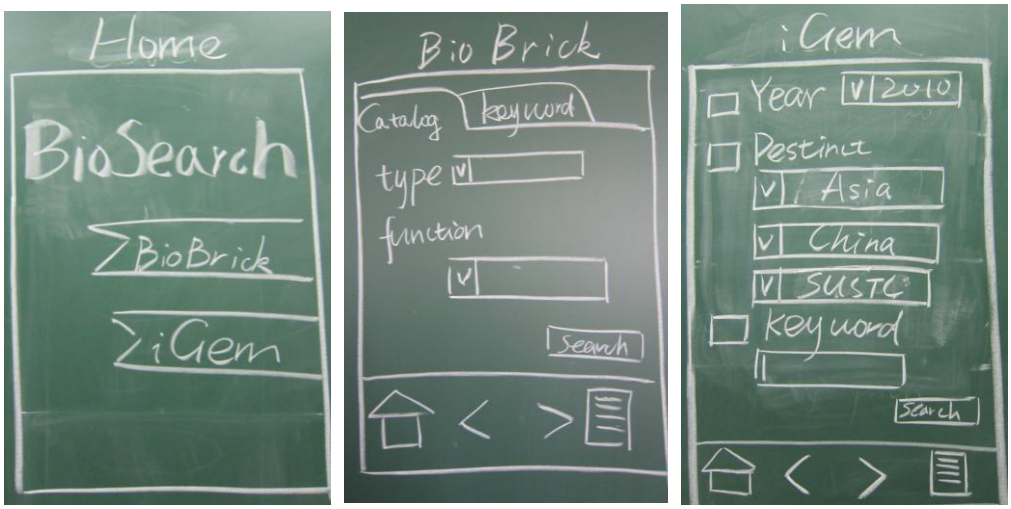
The iGEM search:

To get to known what have been down in the previous years, we want to use a direct and concise way------using keywords instead of abstracts to describe the work have been down by each team.

Basically, the idea is that, our webpage/app should establish relationships among year, team(university),keywords of main works, so that when input one of three, you get the other two. So for the technique, if we want it appealing, firstly, we have to develop methods to automatically summarize the wiki or the abstract of previous team. And to make our keywords more effective, we have to analyze the logic of how to choose the best and suitable keywords, not just to count the frequency of words. Secondly, because we want it to be an App as well as a webpage, we need to create a resources library that have all the abstracts and support customers to download and store wiki passage. In this way our search engine can get information from native library when off-line, and can update new information when on-line. Thirdly, for on-line services, if customers want to know further details after the keywords searching, we should have the proper links of wiki (or other wanted webpage) to provide. And if probably, could have an array of recommended wiki passage of related keywords.

【Expected results】

We expect the app can precisely search BioBrick™ and previous iGEM achievements. By using this app, user can get the information anywhere without limitation of conditions. At the same time, users can save the list of the BioBrick™ they need and mark the articles which make users can rapid find them in the future much more convenient.



【Author contribution】

Jiang Yiqi contributes to all the figures and the description of expected results.

Lv Chenchen contributes to the abstract, the iGEM search parts of computational methods and the regulation of the whole document.

Pan Yidan contributes to description of the motivation and the background.

Zhou Mubing contributes to the BioBrick™ Browser parts of computational methods.