Web GIS Human-Machine Interactive Interface Design with VISI

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Abstract  The fusion of VISI (visual identity system Internet), digital maps and Web GIS is presented. Web GIS interface interactive design with VISI needs to consider more new factors. VISI can provide the design principle, elements and contents for the Web GIS. The design of the Wuhan Bus Search System is fulfilled to confirm the validity and practicability of the fusion.

Keywords  Web GIS; human-machine interactive interface design; VISI

Introduction

CI (corporate identity), which was first put forward by an American designer in 1930, has now developed into an integrated theory with three parts: VI (visual identity), MI (mind identity) and BI (behavior identity)[1].

With the high speed development of the Web technology, the VIS (visual identity system) used for enterprise information distribution is slowly spreading to the Internet area and now has been given a new name: VISI.

The foremost intention of VISI is to distribute the enterprise’s information. Web GIS is also a very important method to distribute geographical information. Currently, Web GIS usually gives much consideration for the geographical information expression and basal arithmetic achievement, but always pays less attention to the human-machine interface interactive design.

Dr. Chen, the CAS (Chinese Academy of Sciences) professor, has denoted that: from the view of map design, most Internet map designs have some problems, because they are always finished by some computer companies which have few cartographic technicians, and the users are not always satisfactory with the Internet map[2].

With the fast development of GIS industrialization, it is very necessary to use professional design knowledge to help the GIS technician accomplish the Web GIS design assignment. Applying the theory and experience of VISI into Web GIS design enables the efficient design of the human-machine interface; on the other hand, we can supply users with better information service.

1  About VISI

VISI comes from VIS. The basis of VIS is the enterprise’s management approaches, prosecution principle, manufacturing goals and other factors. VIS is a tool used to spread the information of enterprises by vision methods. The VISI emerges while VIS meets Internet technology.

VISI now usually appears in the form of a website. All the elements of the website such as pictures, texts,
flashes and the arrangement of these elements are a part of VISI design elements.

In other words, the color, typeset and other characteristics of the website will give users an apperception, and the apperception effect can be designed by VISI.

2 Web GIS interface interactive design with VISI

Web GIS is a production which combines the internet and GIS. It is also a way to achieve GIS through different areas or system platforms. The Web GIS application system can be separated into two kinds: the server-side and the client-side.

Regardless of Web GIS system choice, users will directly face the interface of the browser. For improving system efficiency and enhancing interface attraction, the fusion of Web GIS and VISI is worth considering. VISI can bring many principle and design elements to the Web GIS.

2.1 VISI supply Web GIS interface design with basic principle

Since both the theory and methods of VISI attach importance to the recognition of users, it is recommended that Web GIS interface design have the following characteristics:

1) Scientific. All contents in the Web GIS may as well be scientific. The interface of Web GIS fronts the users first hand. If the contents are false or outdated, especially geographic information, the Web GIS will hardly fulfill the request of the users and even let the users make mistakes. To be scientific is the first important principle of Web GIS interface design.

2) User friendly. Many users of Web GIS are new to GIS, so it is hard for them to find out what function exactly one or another button has. The design of the Web GIS interface should be done such that buttons or other components should make users feel easy to use them and like to use them again.

3) Alternating. This means that the system should make users feel it serves them all the time in spite of the wrong operation.

There are two kinds of alternating tools: user-to-system and system-to-user.

User-to-system tools include those tools used to communicate with the system. Current tools always contain four familiar types:

- Keyboard answered type: very familiar type, such as keyboard shortcuts, input field and so on.
- Mouse answered type: very familiar type, it has three subdivisions, clicking answered, rolling answered and suspending answered. Such as click to select an interested point, roll to zoom in the map and suspend on a tool’s icon for showing its help.
- Touch answered type: such as an exhibitive system usually allows the users’ fingers to touch the screen for searching information.
- Voice answered type: along with the voice identification technique, the voice answered system is becoming more and more familiar.

System-to-user tools include the tools used by the system to communicate with users, including the system loading clew.

4) Harmonious. Interface design is better to avoid filling out-of-order contents and putting the cart before the horse. Web GIS interface design should also consider harmony of the contents and structure.

A good Web GIS interface should have a clear structure. The functions of the system are easy to be found. If users can use the system efficiently, they will come again.

There are two points to note: First, the most important contents should be put in the well-marked place. The habit of reading order usually is from left to right and from up to down. Given this point, query function tools and results are put in the left-up of the web page in the Wuhan Bus Search System. Second, the area of the screen is limited, so we should divide the area of the interface according to the Web GIS contents and aims. For example, in the Wuhan Bus Search System, because Wuhan is an old-line country, it has many long and decussate roads. Therefore, we set the map area to take up 50% of the whole interface. In this way, when the users zoom in on the map, there is usually enough of an area to show such long roads. Knowing the roads and bus routes without panning the map many times is convenient for users.

5) Unique. More and more Web GIS systems are used by the curbstone people. A new problem for