The LUA Accessibility Toolbar

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ABSTRACT

In this paper we describe a new toolbar for the validation of website accessibility.

This issue concerns the right of all citizens to obtain and maintain access to a society-wide pool of information resources and interpersonal communication facilities.

At first we speak about the needs of impaired users for a profitable Web navigation. In the second section the focus is on the Italian "Stanca Act", which defines the primary environment of the project; then we explain the toolbar most valued features: the ease of use of its interface and the precision of responses gathered. Finally we show our interface prototype with its major options and, in the last section, we picture the further development.

Categories and Subject Descriptors

H.5.2 [**Information Interfaces and Presentation**]: User Interfaces – *evaluation/methodology, graphical user interfaces, prototyping*.

General Terms

Measurement, Performance, Design, Reliability, Verification.

Keywords

Accessibility, website, validation.

1. INTRODUCTION

In the last ten years Internet spread enormously. Moreover, Internet is a copious source of information and cultural enrichment.

Nevertheless, about 600 millions people (according to World Health Organization, or 650 millions, according to United Nations) can't exploit it: disabled persons; they are the world's largest minority [1].

Visual impairments are the most disturbing, but also cognitive and hearing impairments may affect Internet navigation.

In particular, blind individuals could (and usually they can) find Internet usage a means for social and job promotion.

Disabled people may employ a set of tools by means of which they can do searches, work or even entertain themselves: but this happens only if the designer of the web site does not forget about possible impairments and if he/she does not create accessibility barriers [2].

To provide an alternative version of a site, aimed only to impaired users, we will not speak of accessibility, but of its opposite, because otherwise disabled persons would feel discriminated.

Accessibility aims at inclusion, while such a practice would mean an exclusion of some users.

It is necessary to design a site considering the needs of disabled people, beside the ones of "normal" people, therefore to follow the guidelines suggested by many agencies, as the World Wide Web Consortium [3].

This request has been followed more often than in the past, so now the problem is shifting to certify an error-free website and check out its accessibility.

2. EUROPEAN DIRECTIVES & STANCA ACT

In 2006, meeting in Riga on the occasion of the Ministerial Conference "ICT for an inclusive society", Ministers of European Union (EU) Member States, responsible for eInclusion policy recognized that: "Many Europeans still reap few or no benefits from ICT and there are resilient gaps in ICT use. For instance, 57% of individuals living in the EU did not regularly use the Internet in 2005; only 10% of persons over 65 used Internet, against 68% of those aged 16-24; only 24% of persons with low education used the Internet, against 73% of those with high education; only 32% of unemployed persons used the Internet against 54% of employed persons. Only 3% of public web sites surveyed comply with the minimum web accessibility standards and guidelines, hindering access to web content and services for people with disabilities who comprise some 15% of the EU population" [4].

But they also recognized that: "eInclusion policy addresses issues in the fields of active ageing, geographical digital divide, accessibility, digital literacy and competences, cultural diversity and inclusive eGovernment" [5].

Therefore accessibility is one of the major tasks to accomplish.

Across the Europe quite every country has or is going to have a specific law about accessibility.

In Italy the so called "Stanca Act" (Lucio Stanca was a former Minister for Innovation) lists all Internet accessibility issues since January the 9th, 2004 [6].

Aimed to ensure everybody the right of access to Internet services, this act arranges a set of guidelines to establish technical requirements for the design of an accessible web site [7].

These guidelines address the Italian Admin, but they arise from many different other sets of rules, like the one named Web Content Accessible Guidelines (WCAG), by the Web

Accessibility Initiative of the World Wide Web Consortium, so they are somehow similar, and therefore comparable, but still the Italian act has some peculiar and unique features, not contained in the European guidelines.

For instance, requirement number 21, that regards the navigation through links and their execution by means of a keyboard, is not available in WCAG 1.0 nor in the Section 508.

Except this, many requirements present in the Stanca Act are more pragmatic or constraining than their equivalent guidelines in WCAG 1.0 (requirements number 1, 2, 7, 8, 9, 10, 11, 12, 13, 15 and 19), while others are more unspecific (requirement number 5, 6 and 17).

By way of summary, the uniqueness of Stanca Act makes impossible to apply international tools, based on WCAG, to Italian websites.

Moreover, most of the available tools can check only one or few requirements, and those that deal with a wide number of guidelines are very difficult to use, due to the broad range of options they offer.

Finally, the perfect tool should prove, without doubts, the compliance of a site to a specific requirement, because sanctions are provided for any public administration that does not obey the guidelines. Unluckily, no available tools accomplish this task.

3. LUA TOOLBAR

Our aim is to create a new toolbar, with a plain interface, using existing tools and self-created ones, to computerize technical accessibility evaluation. For all the controls that cannot be computerized, we provide a set of guidelines, hints to guide the user in the control of manual checks.

We have deeply examined the guidelines proposed by the Stanca Act (but this study can be easily customized for other sets of guidelines) and we have looked for all the tools which can be useful in checking requirements, we chose the best, created some which didn't exist yet, and then bundled them in a brand-new toolbar (for a full detailed list of tools and for the explanation of the development process please see [8]).

In our research we analyzed a broad number of existing tools, among which they are to mention ATRC Web Accessibilty Checker[1], HiSoftware Cynthia Says[2] and Firefox Web Developer Toolbar[3] and we found out that almost 40% of them aren't useful for our purposes, because they are created in an international environment, not suitable for the Italian one.

We didn't want to use only a single tool able to control quite well many checks. On the contrary, we tried to keep the best from every tool.

Some of them are only useful for a few checks, and so they need support from other tools; others can verify many requirements, but in this case they are usually hard to handle by the average user, like the AIS (Accessible Information Solutions) Accessibility Toolbar[4], which provides an endless

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[1] http://checker.atrc.utoronto.ca/

[2] http://www.cynthiasays.com/

[3] https://addons.mozilla.org/en-US/firefox/addon/60

[4] http://www.visionaustralia.org.au/ais/toolbar/

number of useful tools, but without a specific order and without an exhaustive explanation of their use.

Moreover, no one of the tools is able to state certainly if a site is compliant with the requirements.

The LUA Toolbar fixes these mistakes providing an easy way to control the checks with reliable results.

3.1 Current version

At the current state of development, the term "toolbar" isn't too correct: as we can see in Figure 1, the application is a web service, actually. But it is going to be a toolbar, as we'll explain in the "future works" paragraph.

This application allows the user to perform many accessibility checks on the page he/she insert in the up-left sided form.

Through the links nearby the form, the user can analyze a new page of the same website or switch the focus on a new website.

The application tracks the checks performed on each page of a single website and store the results in a temporary folder in the server. The right column of the interface shows the performed controls and their results.

Figure 1. The current version of the LUA Toolbar

Once the evaluation is completed, the user can also obtain a pdf copy of the accessibility report, containing the results of all the checks performed by means of the application on the website; the report is divided in many sections, one for each analyzed page of the chosen site.

We kept the values of traditional accessibility toolbars, and we tried to discard the flaws: above all, the stress caused in the user, due to the fatigue of choosing the right tool to use.

LUA toolbar refers to the checks using progressive numbers until 22, like the accessibility requirements in the Stanca Act. Clicking on a number, the checking process is started.

Hence, two results are possible:

- the chosen check belongs to the fully-computerized ones, so the application will automatically perform all the needed controls and then it will show obtained results, with the statement of compliance (or non-compliance) to the requirement and eventually the report of the problems retrieved;

- the chosen check isn't fully-computerized; in this case the user will be guided in the evaluation process: the application will ask the users to answer significant questions (see Figure 1); to facilitate the answer, the

application will provide the user with many helps, usually in the form of graphic simulations. Once the user has answered all of the questions, the results are shown just like in the other case.

If the user can't understand how to perform a check, he/she can click on the question mark placed under each numbered button to obtain more help and information.

Thanks to an interface like this, newcomers don't face any difficulty: they only have to click on the button corresponding to the requirement they want to check, without worrying about which of the provided tools is the best to use in each case, as it happens in the traditional accessibility toolbars.

Many users will simply stop at the first level, once they have read the statement of compliance. But some of them will continue to the following level, accessing the whole report made by the application. Thus the user can personally control what is wrong within the check and take the suitable measures.

There is a third level, too, composed by those guidelines to help the user verify all the so-called "manual checks", all the controls which cannot be performed by means of an automatic tool. In this way the user can enter a set of guidelines thought to be understandable by everybody.

Thanks to this approach the aim of knowing if a minimum level of accessibility is obtained.

The toolbar wanders a simple question: is a site compliant to the minimum level of accessibility?

If the answer is no, the user can understand why through the second level.

Instead, if the answer is yes, but with some reservations, it's advisable to perform the controls shown in the third level.

Finally, in case of a positive answer, the first level is enough.

3.2 Toolbar version – interface prototype

Though the application is at the moment a web service, we are already working to make it a real toolbar, so we realized a prototype of interface, which will lead us in the future works.

Initially we chose a plain "bar" interface, which was soon replaced with the one shown in the Figure 2.

Figure 1. The design of the "toolbar" version of the application

The reason for this decision was that the bar was always visible even when not in use and there wasn't an opportunity to hide it, thus a moderate amount of space was wasted. Moreover, the former version wasn't too attractive.

So we changed the interface many times, and we finally reached the final version, shown in the Figure 2.

In this final version, the toolbar takes the shape of a wheel, but its use remains the same. We included a "nascondi" (hide) button, to make it possible to hide or show the wheel in every moment, when the user wants. In the hidden mode only a minimum amount of space is required.

We also added some tooltips in the centre of the wheel, they appear when the user points the mouse over a button, and they explain the operations that will be activated if the user clicks on that button.

4. CONCLUSIONS & FUTURE WORKS

The LUA Toolbar is intended to make the process of accessibility evaluation of a website easier for the "middle user", it is to say a person who doesn't necessarily has in-depth knowledge about accessibility.

It could be very useful and solve many problems for the Public Administration, which could save human and economic resources.

Another expected use is in academic environment: it could be a powerful tool to teach accessibility in practice.

Though the accessibility experts may prefer more complex tools due to their ductility, our main aim is to create an instrument capable of speeding up and optimizing the evaluation of technical accessibility.

The beta version of the application has been made in php and it is now available for testing scopes.

The next step will be, as we said above, the shift of the application in a toolbar, in order to integrate it in the main browsers (Mozilla Firefox, first of all, and maybe Internet Explorer). The reason of this decision stays in a peculiar advantage of toolbar interfaces: to keep all the tools within sight while surfing the net allows checks are quickly performed and avoids waste of resources.

5. REFERENCES

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