ACCESS: A Free and Open Source Arabic Assistive Technology Repository

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Abstract. In recent years the number of free/open source Arabic Assistive Technology (AT) software has increased, yet they are scattered and hard to find. In order to provide Arab users with easy access to Arabic AT software, AT repositories are created. In this paper we report our experience in creating ACCESS - an Open Source/Freeware AT software repository for Arabic speaking users.

Keywords: Open Source, Assistive technology, Accessibility, Arabic Language.

1 Introduction

Several free and open source Arabic Assistive Technology (AT) software are available online for people to download and use. Yet, the problem resides with the fact that these software are scattered in different locations, which makes these products hard to find, i.e. information for each product is available on its own website, with no easy way to overview all available software in one place.

Online AT repositories help users while searching for appropriate products. In order to provide users with easy access to AT software, hardware and peripherals, AT repositories are created. Some of the famous AT repositories are: EASTIN: European Assistive Technology Information Network [1], OATS: Open source Assistive Technology Software [2] and ATHENA a Free AT Software Inventory [3]. And recently the inception of Mada Portal (Qatar Assistive Technology Center) [4].

The number of such repositories available today is very few especially for Arabic speakers. Our developed repository intend to solve the problems associated with AT products in general and AT software in particular, by making the various free and open source Arabic AT software available to its users in one place and in an easily accessible form.

2 ACCESS Repository Overview

The repository as shown in Figure 1 has two main components:

1. **Product Page:** The product page is the most important component. It contains the list of all products. Products are classified based on type of disability and their ISO

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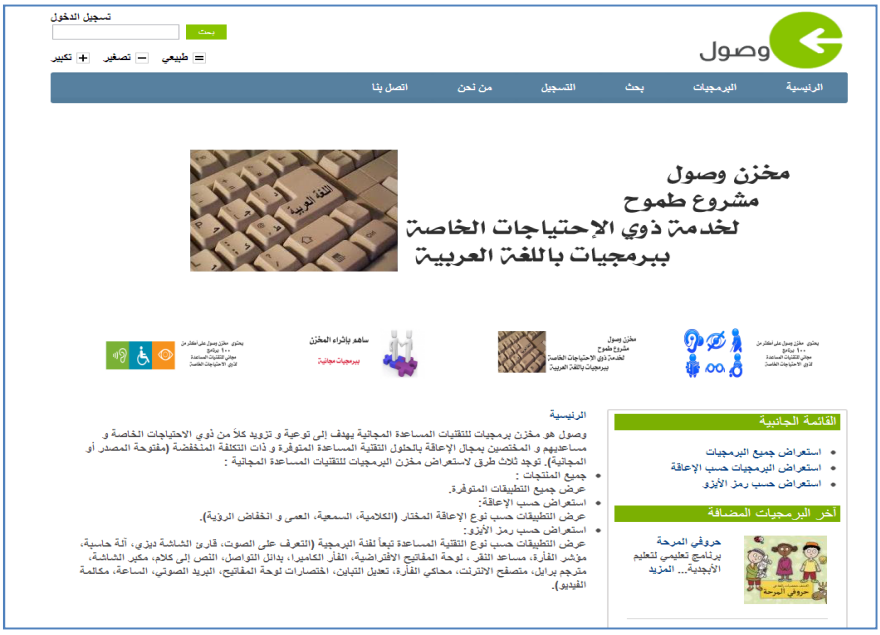

Fig. 1. Screenshot of Access repository (access.edu.sa)

9999:2011 codes [5]. In ISO 9999 the products are categorized into classes, subclasses, and divisions, where classes are the highest level and divisions are the lowest level of classification. For example, ISO 9999:2002 has 743 types of devices classified into 11 classes, 135 subclasses and each division contains a number of assistive devices. The different categorization would help the users to browse and search products based on their functionality and their ISO classification codes. Each product in the product page has metadata such as: software snapshot, its version, the disability covered, the system requirements for installation, type of platforms it supports, and most importantly, a downloadable link, through which the users can freely download the chosen product on their systems. The product page also allows the user to rate the product on a five-point scale and add comments.

2. **Search:** The repository provides two types of search, a simple search and advanced search. Simple search acts like a keyword search which will fetch all the related information from the database. Advanced search allows users to filter the results based on the different functionality (Category and ISO 9999 codes).

3 Methodology

The methodology we used to build ACCESS repository consists of several steps illustrated in the following sections.

3.1 Searching for AT Software Online

In order to search for useful Arabic AT software, we had searched: Google, Google-play, Apple store, browsers Add-ons, famous twitter accounts that disseminate new AT software besides AT repositories in other languages. A total of 114 software were found. We had excluded any software that does not work, or not intended for disabled people.

3.2 Installing and Testing AT Software

Once a software is found, we installed it on the appropriate platform such as PC, mobile phones, tablets or Mac computers. Once the installation is successful, we ran the software and check its intended use and functionality as described in the software website. While searching, we found two types of software: open source software and shareware software. For the open source software, the installation is straightforward. However, for the shareware software, we installed its trial version.

3.3 Documenting AT Software

After the successful installation and testing of each AT software, the ACCESS repository is populated with the software and documented in Arabic with the following metadata fields:

- **Software name**: the name of the AT software.
- **Software logo/image**: the software image or logo as it appears in the developer's website.
- **Disability category**: Each software is classified according to the available disability category; nonetheless, the category type can be increased if there is 3-5 software for specific disability not listed. For now the defined list contains the following disabilities: blindness or low vision, hearing, speech, moving, learning, and cognitive disability.
- **Description**: a description of the software functionality is provided along with its most important features.
- **Developer**: The company or the developer(s) name(s) is listed.
- **External download link**: a link is provided to the software website for download.
- **Version**: the version number of the software.
- **System requirements**: the compatible devices are listed, this includes: PC-Windows, Mac, iPad, iPhone, and iPod.
- **Language**: the language that is available for the software (Arabic or/and English).
- **Date of adding**: the date where the software was added to ACCESS repository.
- **ISO standard**: the class type of the ISO standard.
- **License**: the type of the license available e.g. open source or shareware.
- **Price**: either listed as free for open source software, or the price in local currency is displayed.
- **Share via twitter**: provide the availability to share the software via twitter.
- **Rate the software**: rate the software on a five-point scale for registered users.

- **Comments**: allow the registered users to add their comments about the software.
- **Related software**: this field provides images and links to other software available in the repository similar to the chosen software.

3.4 Repository Design

ACCESS repository was built using Drupal Content Management System (CMS). Drupal is a free content management software package that allows organizing, managing and publishing content easily, with an endless variety of customization. Drupal makes use of structures called "modules". Some modules, called core modules, are by default installed along with Drupal installation. Other modules can be installed when required during the design phase. In this project we have incorporated several modules such as simple search and advanced search, rating and share via Twitter. However, sometimes, we had to edit the code of the module especially with regards to accessibility features such as color, page layout, the ability to increase/decrees the font size of the repository, and the display of images.

Various search strategies were employed in ACCESS repository this includes: simple keywords search, search by disability category or search using ISO standard. In addition, the repository provides the ability to list all the available software in its database. The different search strategies are available in all pages of the repository.

Further information is also provided for each software page such as statistics showing the number of views a particular page gained.

3.5 Update and Maintenance

Updating and maintaining the repository is an important aspect to increase the number of available software to the Arab disabled personal. Routine checking for any updates in the available software added to the repository is done. There is also a suggestion form where registered users can suggest new software to add to the repository. Once any software is available ACCESS team search for the software, download and test it then add it to the repository.

4 Discussion

As explained in the previous section the information available for each software made ACCESS an easy to use repository. ACCESS repository (http://access.edu.sa) has been online for around eleven months with total of 114 Arabic AT software. To increase the repository exposure, it was disseminated via the university newspaper, twitter, and local conferences. So far the comments heard about the repository are positive and people are asking for more software to be added. The number of visitors during the past 11 months reached 340k.

5 Future Work

This paper presented our efforts in building the first Arabic AT software repository for Arab users. Software disseminated via ACCESS repository are tested and reviewed by computer experts in order to detect and point out reliability, installation, and compatibility issues.

Future plans include localizing existing AT software to Arabic by interested developers and volunteers. In addition, a mobile application will be developed for recommending newly added AT software to the repository for disabled people.

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