

DESIGNING AND DEVELOPING MULTILINGUAL SUPPORT FOR WEB DEVELOPMENT FOR INDIAN LANGUAGES

Miss: Nagargoje Alka Sadashiv
*Department of computer engineering, SRESCOE, Kopargoan,
Ahmednagar, University of Pune, Maharashtra, India*

Prof: Kalavadekar Prakash N.
*Department of computer engineering, SRESCOE, Kopargoan,
Ahmednagar, University of Pune, Maharashtra, India*

ABSTRACT

This paper will focus on addressing the major challenges and issues in case of multilingualism aspects. The construction of multilingual web sites which is the best solution to addressing the problem occurred in the Internet facility of diverse cultural background. But still it causes some issue as like, to developing multiple instances of the same site in different languages causes increased overhead for the website implementation phase and also for the website maintenance phase. So probable solutions for these issues is use of UNICODE in ICT for India. By using UNICODE, design of multilingual editor for Web designing, HTML editor, scripting which have Indian language support. Also Adoption of open standards and open source software also investigates the benefits that are used in implementation of multilingual e-governance solutions.

KEYWORDS: Multilingualism; Standardization; Open standard; web site development; web site maintenance

INTRODUCTION

From last few years, there is a increasing the number of users that use the Internet different purposes as like knowledge sharing and communication among different user. The web site is one of the important sources to disseminating information to Internet users. But the Internet facility is consisted mainly by English language. To overcome this issue, the majority of information is provided by websites are in different language rather than English language .But still it causes issue as like, designed website is usable to only those persons who can understand the language of website and exclude all other peoples that is not understandable websites language .so websites designed in multilingual support is the better way to achieve goal in all perspective of e-governance objective in India [1].

Actually India has heterogeneous group of citizens and they have adopted different religions and culture; Language is a one individual part of culture. India contains 14 approved and many non approved spoken languages. There are so many Indian languages are Sanskrit descendent, that's why there is great influence of Sanskrit on various languages in India. . If we observe the alphabets or character set, grammar, words, phrases are more similar in various languages like Marathi, Hindi, Gujarati, and Punjabi etc. We know that, In India there is twenty-two constitutionally recognized Indian Languages and also there is many variations of dialects. To provide efficient citizen centric services and better knowledge accessing information to users is the objective of e-governance in India. Only six percent people are

well conversant with English that cause knowledge Divide amongst the citizens in India. Language is the primary vector for communicating knowledge, so that the opportunity to use ones language on global information networks, so Internet will help to determine the extent, that one can participate in the emerging knowledge society and have access to information [3].

As we know that India has multilingual and multi-script diversity, so it is imperative that, Governance applications need to be implemented with language framework. And also designed all other e-Governance applications in multilingual or at least bilingual that is English and Official Language of the State. But, Indian scripts are having complex nature. so that's why there is need of adoption and adherence of global standards like UNICODE.W3c may also help to mitigate the problems in a great extent. It also specifies and linguistic each Indian Languages uniqueness and scripts also needs to be addressed in tandem [4]. Following fig. shows how Unicode can support to give local language support i.e.Multilingual support.

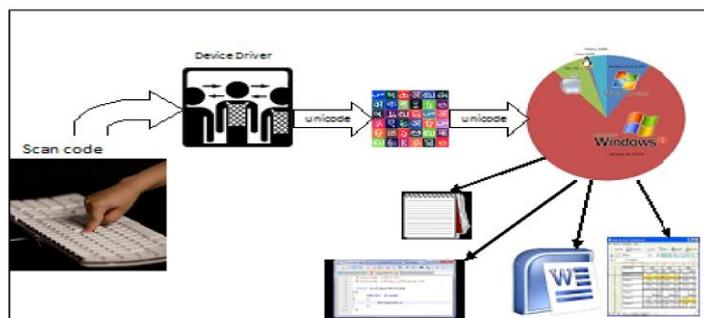


Fig.1. Basic Architecture of Unicode support system.

In this, for each single keystroke is mapped to UNICODE. This mapping does through device driver application. Device driver convert ASCII code to UNICODE And gives character in desired language. And in such way it gives multilingual support for design of web design, spreadsheets, documents etc.

LITERATURE SUTVEY

A. EXISTING MULTILINGUAL SUPPORT

Font [5] Fonts have often been indiscriminately mapped to the same set of bytes e.g. 0x00 to 0xff are often used for both character and dingbats. But it have some drawbacks which are, there is requirement of installation on client machine. It is expensive as far as memory is concern because fonts use bitmap or set of bytes. And there are conflicting national and industry standards because of use of multiple inconsistent character codes.

GIST [5] GIST stands for Graphics and Intelligence Based Script Technology. It is solution for Indian languages which is hardware based and developed by C-DAC Still it has disadvantages, In this, character set is limited upto 256 values or characters because it uses 1 byte character representation. GIST can handle only one Indian language at a time It cannot be used without GIST card (hardware). It cannot be used for multi-lingual documents of Indian languages

B. EXISTING SOFTWARE FOR WEBSITE DESIGN

Microsoft FrontPage Software Tool For website design [6], FrontPage 2000 provides number of features as like it provide easy solution to create a Web site, by applying graphical themes to the pages, user can create structure or layout of website which user want to design and

organize its files and folders. Also we can import and export files, test and repair hyperlinks, task tracking, and design and edit the contents of your Web pages. When your Web is completed, by using FrontPage 2000 to publish it on your computer, our organization's intranet, or the World Wide Web etc. But It doesn't have multilingual support for web design. Dreamweaver [7], Adobe Dreamweaver is also a software application that allows creating and also developing Web sites. Dreamweaver is the WYSIWYG which stands for What You See Is What You Get, meaning that when you format your Web page, it gives results of the formatting instead of the mark-ups that are used for formatting. HTML is not WYSIWYG, but Microsoft Word is WYSIWYG. However, Dreamweaver allows to hand code HTML as well. Dreamweaver not only supports CSS and JavaScript but also support other languages including ASP and PHP. Dreamweaver makes it easy to upload entire Web site to a Web server. We can also preview your site locally. Dreamweaver also lets create templates for Web site that we can use again and again by modifying certain areas which are unrestricted within the template. Then if we want to change one particular part of Web site that is the logo changes, a main link changes, you only have to modify the template for the changes to propagate throughout the Web site. And it has interface which is so confusing. It also does not have multilingual support and it is expensive.

Weebly [8] Weekly's drag and drop website builder makes it easy to create a powerful, professional website without using any type of technical skills. Over 30 million entrepreneurs and small businesses are builds their online presence with a website, blog or store by using Weebly. Content elements (like text, photos, maps, and videos) are added to your website by simply using drag and drop feature them into place. Text is edited just like in a word processor. Building the website which is done in real-time, right from your web browser. But it have some issue which are, Templates Not Up to Par With Other Similar Services, and also it has PayPal is paid for test shop online and also no multilingual support etc

Jimdo [9], Jimdo is an easy to use, e-commerce oriented website builder. If we want to build an online shop without too much hassle, Jimdo is a very strong candidate to fit our needs. Even though Jimdo has above average e-commerce features, we can still build a very good website with them even if we are not an online shop. Jimdo is based out of Germany, and also their team and website support more than 8 different languages so they truly have a global presence. But it does not have support to Indian languages.

SYSTEM DESIGN

A. SYSTEM OVERVIEW

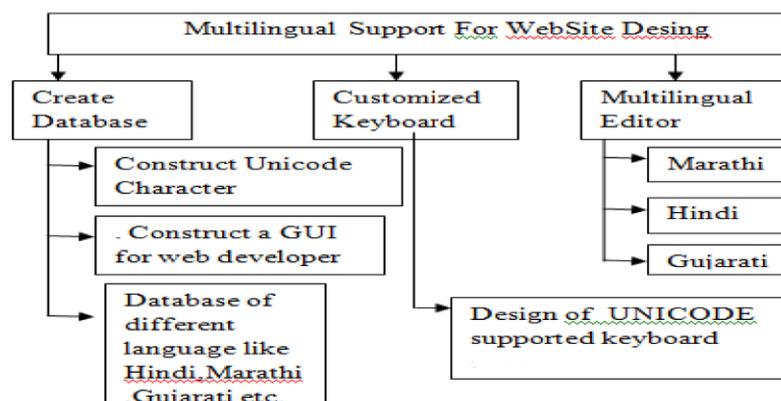


Fig . 2. System Breakdown Structure

1) CREATION OF DATABASE

In this module, store the Unicode characters. Construct a GUI for web developer with Indian Language support. And also store database of selected languages like Hindi, Marathi and Gujarati etc. A multi-lingual website is a website where the content is written in more than one language. Actually our requirement is that user should be able to edit, search and browse their web site in their languages

Unicode provides a unique number for every character, no matter what the platform, what the program, what the language. Unicode is required by modern standards such as XML, Java, ECMA Script (JavaScript), LDAP, CORBA 3.0, WML, etc., and is the official way to implement ISO/IEC 10646. Unicode has support in many operating systems, all modern browsers, and many other products.

We are using Text files to store the ASCII and UNICODE associated with it. The text file is look like as below for e.g. Database For Marathi Language. As like Marathi language We create database for other language through Unicode Character.

TABLE I. ASCII TO UNICODE CHARACTER

ASCII	UNICODE
A	अ
À	आ
b	ब
B	भ
c	च
C	छ

In this application we are providing support for keyboard customization and saving. User may choose the keystrokes as per his/her choice.

II) CUSTOMIZED KEYBOARD

Generally all word processor gives English support means user can edit the text in English. Sometimes fonts are provided for regional language, but it is not possible to manufacture keyboards as per the requirement of each language existing in the world. So In this, we are providing support for keyboard customization and saving. User may choose the keystrokes as per his/her choice. Initially we will be creating Unicode interface to keyboard and as well as willing to provide customizable keyboard which can be customized according to our habits. Initially we will be creating Unicode interface to keyboard and as well as willing to provide customizable keyboard which can be customized according to our habits. Following fig shows the designed keyboard support Marathi language. In such way, We can Design Keyboard for other language like as Hindi, Gujarati etc.

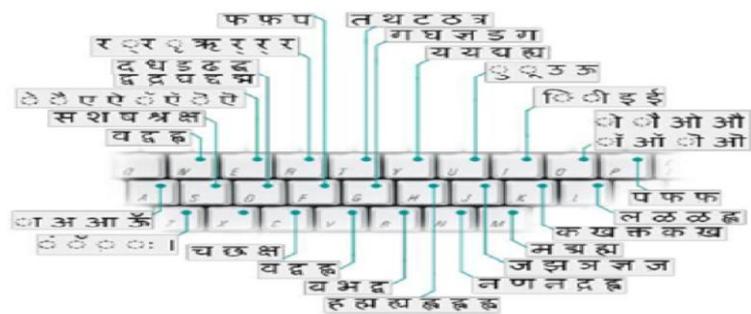


Fig.3. Keyboard layout

3) MULTILINGUAL EDITOR

This software consists of common functionalities as usual in other editors, but important is that it gives Indian regional language support for e.g. Hindi, Marathi, Gujarati etc. User can easily change the language through drop down list and can make a document containing text in various languages. In this module whatever input we are giving to the system will be considered in Unicode format and hence displayed in given language.

IMPLEMENTATION DETAIL

A. IMPLEMENTED MODULE DESCRIPTION

In this, there is design of customized keyboard which support local languages. This keyboard is designed by using Unicode support. And after that design of web browser which having support of Hindi language.

D) KEYBOARD CUSTOMIZATION

Generally all word processor gives English support means user can edit the text in English. Sometimes fonts are provided for regional language, but it is not possible to manufacture keyboards as per the requirement of each language existing in the world. So In this, we are providing support for keyboard customization and saving. User may choose the keystrokes as per his/her choice. Initially we will be creating Unicode interface to keyboard and as well as willing to provide customizable keyboard which can be customized according to our habits.



Fig .4. Customized keyboard

Unicode based solution is one of the best solution for the design of such customized keyboard purpose. It has been adopted by industry leaders such as Apple, HP, IBM, Microsoft, Oracle, Sun Microsystems etc.

UNICODE: There is use of Unicode concept to solve problems faced by fonts and GIST in support of multilingual usage.

The UNICODE standards was designed to be

- Universal : Same for IBM/ISO/MAC etc
- Efficient: Plain text is simple to parse, Quick searching and sorting process
- Uniform: For efficient sorting, searching, display and editing of text allows because of fixed set of character
- Unambiguous: Unique identification to each character

II) DESIGNING WEB BROWSER WHICH SUPPORT LOCAL (HINDI) LANGUAGE SUPPORT

Actually our requirement is that user should be able to edit, search and browse their web site in their languages. So in that sense, here a web browser is designed in such way that it supports Hindi language. So all the operation performed in that browser should be in Hindi language. That gives user desired output as user requirement.

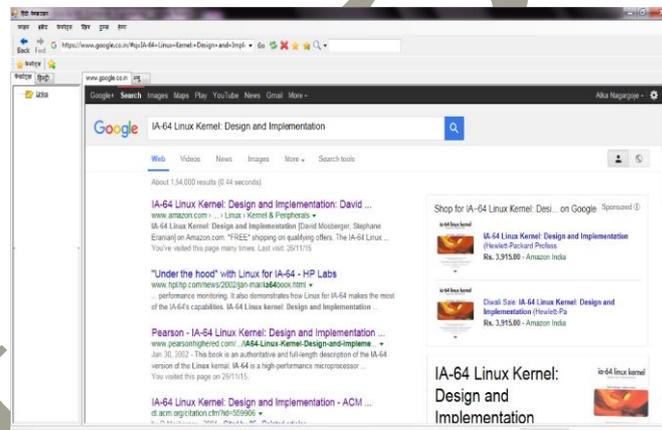


Fig .5. Web Browser

III] DESIGNING TOOL FOR WEB DESIGNING:

This will be my final output which will give various supports like,

1. Edit and generate Source Code
2. Drag and Drop facility for designing
3. Large Template Base
4. No Limits on number of pages and sizes
5. Support to ASP,JSP, Sprint etc
6. Support of JavaScript and VBScript
7. Web page and Web site templates etc

C.EXPERIMENTAL SETUP

The system is built using Microsoft visual studio 9.0 on Windows platform. The system is completely software based so there is no requirement of any specific hardware; it is capable to run the application on any standard machine.

RESULTS AND DISCUSSION

Currently, a tool is being developed according to the specifications given above. In its present state the tool contains enough functionality to enable a web developer to use it for web page design. And also it provides support to Indian languages as per user requirement. Following fig shows the functionality supported by design multilingual editor to design web pages in selected indict languages.

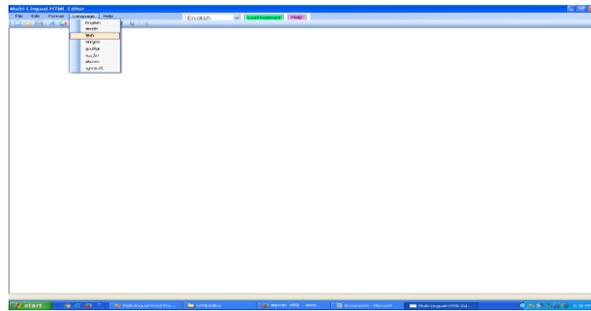


Fig. Multilingual Editor

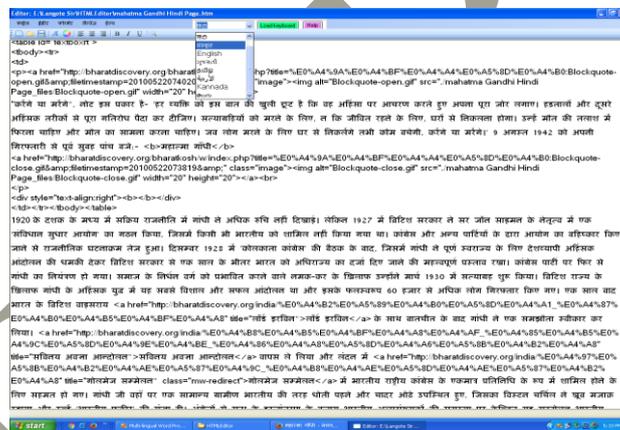


Fig. Multilingual Editor



Fig. Multilingual editor

B. TESTING AND RESULTS (ANALYSIS)

TABLE II. TEST CASE AND RESULTS.

Sr. No	Test case	Expected Out Put	Actual Out- Put	Remark
1.	All alphabets are covered?	Yes	Yes	Pass
2.	Key pressed and printed alphabets are matched?	Yes	Yes	Pass
3.	Every area of browser is affected or not	Yes	Yes	Pass

CONCLUSION

The lack of local language interface is a major detrimental effect for wider proliferation of E-Governance applications in India. So to overcome such issues this system provide Multilingual Editor, various standardization aspects need to be addressed in a national perspective. It is also necessary that open-standards to be in place and adopted to access seamless and interchange information

ACKNOWLEDGMENT

The authors would like to thank the researchers as well as publishers for making their resources available and teachers for their guidance. We are also thankful to the authorities of Savitribai Phule University of Pune and concern members of cPGCON2016 conference, organized by, for their constant guidelines and support. We are also thankful to the reviewer for their valuable suggestions. We also thank the college authorities for providing the required infrastructure and support. Finally, we would like to extend a heartfelt gratitude to friends and family members.

REFERENCES

- [1] Giorgos Lepouras Costas Vassilakis”*Multilingual Web Site Construction And Maintenance*” *Department of Informatics University of Athens 15771ITYPA Buildings Athens, Greece.*
- [2] Antenna House, ”*Solution for Multilingual Publishing by Unicode and XSL*”, jan 2004.
- [3] Maria Gade,”*Use Behaviour And Evaluation Of Multilingual Information Access In Digital Libraries*”, *Berlin School of Library and Information Science, Dorotheenstr. 26, 10117 Berlin, Germany.*

[4] Swaran Lata , Somnath Chandra ”Challenges of Multilingualism and Possible Approach for Standardization of e-Governance Solutions in India”, *Computer Society of India*.

[5] Prof. Manojkumar S. Langote, ” *Multilingual Programming for Indian Languages-Issues, Challenges And Solutions*”, *International Conference On Interface of Information technology*, 25th Sep 2013.

[6] *Introduction of Microsoft FrontPage available at https://en.wikipedia.org/wiki/Microsoft_FrontPage.*

[7] *Introduction to Dreamweaver available at <https://www.dreamweaver.com>.*

[8] Weebly website builder: *Create a free website, state or blog <https://www.weebly.com>.*

[9] *[http://tamara0parker5.jimdo.com/2015/08/26/introduction-to- Software development/](http://tamara0parker5.jimdo.com/2015/08/26/introduction-to-Software%20development/).*

[10] *W3C Internationalization (I18n) Activity <http://w3.org/international>.*

[11] *Unicode Consortium www.unicode.org UNICODE Code Charts www.unicode.org/charts/*

[12] *Unicode Standard www.unicode.org/standard/standard.html*

[13] *Unicode 6.2.0 www.unicode.org/versions/Unicode6.2.0/*