Software Requirements Specification for Multilingual online dvi Viewing Tool

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1 Introduction

1.1 Project Overview/ Problem Statement

Aim of the project is to support online dvi (or ps) viewing of multilingual documents.

1.2 Scope

This project is used to allow easy viewing/creation of ps documents using free software. It gives a near-WYSIWYG syle for creating documents, especially multilingual documents.

1.3 Document Overview

Section 2 explains about Requirement Analysis. Section 2.1 contains functional requirements. Section 3 discuss about the system model.

2 Requirement Analysis

2.1 Functional Requirements

User has to type a latex document in emacs editor, using the special whizzytex mode.

2.2 System Requirement

- **Hardware Requirement**

x86 PC with min 32MB RAM.

- **Software Requirement**

Operating System - GNU/ Linux
Emacs editor
Whizzytex
Advi (the viewer)
Itrans preprocessor

2.3 System Environment

Interaction of the software with user and system:

User starts typing a typical latex document in emacs, with whizzytex mode switched on. Whizzytex runs in the background, constantly giving feedback to advi, the dvi viewer. For multilingual documents, itrans preprocessor is called to produce the correct latex rendering of the multilingual document. This gives a near-WYSIWYG effect for documents.

3 System Model

3.1 Fuctional Model

A brief overview of the components of the software:

Whizzytex: This is a real-time previewing system for tex editing in emacs. It is most probably suited for people who are not happy with MS Word operations, and satisfied with latex commands, but not satisfied with the fact that latex requires explicit compilation and previewing. Whenever error happens, the erroring part becomes highlighted, in real-time, so it is easier to find out when you make errors in writing latex documents. Whizzytex is an emacs minor mode for incrementally (TEXing and) previewing a Latex file that you are editing.

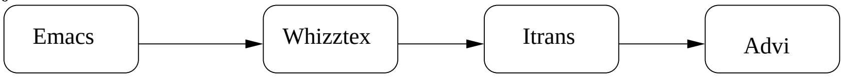
Advi: Active-DVI is a Unix-platform DVI previewer and a programmable presenter for slides written in LATEX. Active-DVI redraws a page in a background pixmap, and only displays the completely formatted output. This avoids flashing, even on slow computers. Furthermore, WhizzyTEX can take advantage of some more advanced capabilities of Active-DVI and enable more features. For instance, it will then automatically turn pages of the viewer to display the page containing the cursor in Emacs, or conversely, adjust the Emacs cursor to the source file position when you click in the viewer window. In addition, Active-DVI also offers facilities for presentations that goes beyong the simple viewing of a file, and it can be advantageously used for talks with annimations.

Itrans: ITRANS is a pre-processor, converts English-encoded text into various Indian Language scripts for printing or for display. The input text to ITRANS is in a transliterated form, each letter in an Indian Script is assigned an English equivalent, and the English letters are used to represent what will eventually print out in the Indian Language Script. ITRANS offers a choice of two input encodings: ITRANS Encoding, and the CS/CSX encoding. ITRANS encoding is a 7-bit ASCII encoding (English alphabet), while the CS/CSX encoding is a 8-bit encoding. The ITRANS encoding uses multi-character English codes to represent each Indic Script letter, while the CS/CSX encoding uses a one-character code to represent each Indic Script letter. ITRANS supports three kinds of output interfaces: one for TEX documents, one for PostScript documents, and a third for HTML documents. The TEX interface is available for most languages, while the PostScript interface is available for PostScript fonts only, and the HTML interface is available for TrueType or Unicode fonts only. The HTML Unicode output uses UTF-8 format, and supports all languages.

3.2 Approach to the problem

There have been various attempts to incorporate Indian languages in the area of presentation and utility software. Fonts for Indian languages have been created (work by CDAC) and standardised. However, the complexity of combinations of individual letters in Indian scripts has been difficult to incorporate seamlessly in existing software. For eg., although browsers like IE and Mozilla support Indian languages, the rendering is usually poor and unreliable. Indictrans.org offers a way for localisation. Itrans is an intermediate step towards Unicode.

What we intend to do is to produce a useful tool by combining existing tools for quick production of multilingual documents. The figure below explains the project:



3.3 Wishlist

We would like to extend the project to include multilingual composition of slides in Beamer. Further, we would like to add an interface to VANI to support speech synthesis for Indian languages. Finally, we would like this to be integrated in the effort for localisation of Indian languages in everyday computing.

4 Sources & Bibliography

Indictrans http://www.indictrans.org
vani www.cse.iitb.ac.in/vani
Whizzytex http://pauillac.inria.fr/cdrom/www/whizzytex/index.html
Advi http://pauillac.inria.fr/advi