

5.6 CoIL-Net Centre : ABV Indian Institute of Information Technology & Management, Gwalior

Introduction

Madhya Pradesh, in its present form, came into existence on November 1, 2000 following its bifurcation to create a new state of Chhattisgarh. Madhya Pradesh, because of its central location in India, has remained a crucible of historical currents from North, South, East and West.

Evidences of earliest human settlements have been found in Bhimbethika and other places of Raisen district. Over 600 rock shelters and about 500 caves with rock paintings have been discovered in Bhimbethika. Sanchi in Raisen district is a world renowned Buddhist centre known for its stupas, monuments, temples and pillars dating from 3rd century B.C. to 12th century A.D. The most famous Sanchi stupa was built by the Mauryan Emperor Ashoka. Khajuraho in Chhatarpur district is renowned the world over for its unique temples. Madhya Pradesh is the areawise second largest state of India. The population of Madhya Pradesh is 6,03,85,118 (Census 2001). The average literacy in the state is 64.11%.

The CoIL-Net Project at IIITM, Gwalior was started in February 2002. This project is aimed at developing model for contributing to sustainable socio-economic development of the state through extensive applications of information technology in the following key areas:

- a) E-Governance
- b) E-Education
- c) E-Health
- d) E-Business
- e) IT localization clinics

The centre has been working to achieve its objectives. Following are the key areas where the organization is actively working:

(A) APPLICATION DEVELOPMENT

e-Education- APNA VIDYALAYA

e-Education aims at increasing IT penetration and promotion of Hindi by introducing IT modules and E-learning methodologies in local languages. This application is being developed with the objectives of Introduction of new IT modules in school,

Creation of CD's & website for learning module and Web development through E-learning. The domains for development include School Information Management System, Morphological Analyzer for Sanskrit and E-learning.

The various beneficiaries from this development are Local schools and Education institutes

School Information Management System-i-School

Management Information System (MIS) for schools provides relevant information for management decision making and for planning, monitoring and organizing the institutional activities.

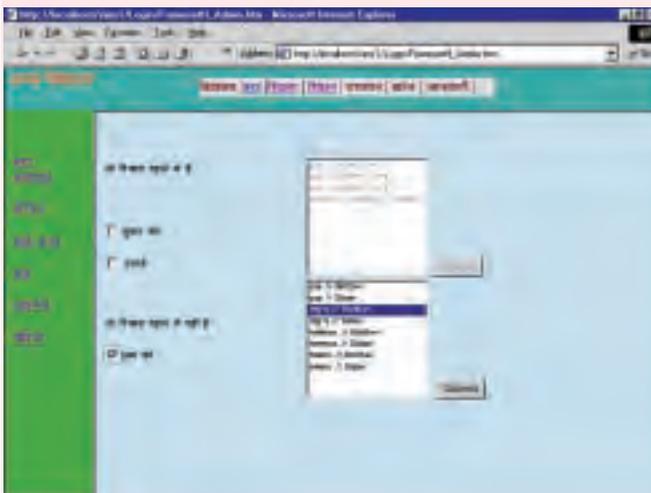
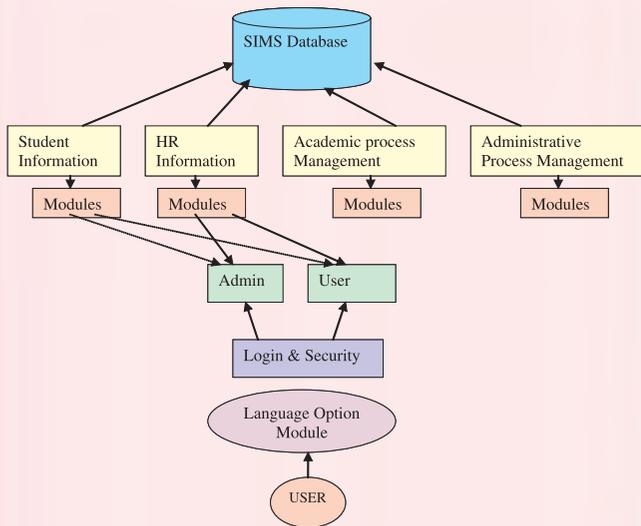
i-School, the School Management Information System aims at automating the entire management system of schools/institutes/Universities. The burden on the teachers and administration can thus be reduced thereby permitting greater time on teaching. The software is designed to run in an environment, has three main user communities – Faculty, Office & Students. There will be a supervisor for all of the above user communities who will have all the administrative rights.

This application is developed on the following platform Server side: ASP, Client Side: JavaScript & VB Script, Database: MS SQL Server 7, Hindi font support: iPlugin (C-DAC) and the converter : ISM (C-DAC). The whole system is divided into the following software modules:

- I Student
- II Teacher
- III Academic
- IV Administration and
- V Query section

Database of each module, has been designed keeping in mind the variable attribute size in different language. GUI of Login & Security module and Student Module, Teacher Module, Academic Module has been designed. Fully Working model of Student Module, Teacher Module, Academic Module has been designed. Currently work (GUI) is being done for Bilingual support viz. Hindi and English. Iplugin for Indian Languages support on web has been configured and is being used. ISM Converter for ISFOC (Hindi/English) to ISCII has

been implemented. Implementation of XML for the accessing of database is in progress



The salient features of the application

- Two level security, **user** and **administration**.
- Intra Campus communication amongst the user communities.
- Single point of management and control
- Queries and updating are through simple user interactive forms.
- Dynamic logical query generation
- Centralized storage & manipulation of data
- Research and analysis with different tabular and graphical views.
- Implementation of XML tools at the database interfaces for quick accessing of desired data.

Some of the problems encountered during development cycle

- Browser is not detecting all character of web-supported font.
- Conversion from ISCII to ISFOC is not perfectly manageable.
- In Translation all words of Hindi is not available in English dictionary
- Since machine blindly follows the rule so it cannot translate the word with ambiguous meanings

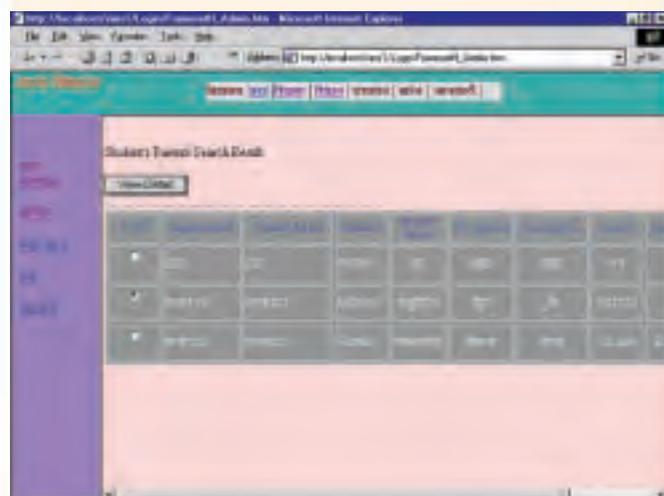
Test Beds Developed:

The work done so far has been tested successfully at the Board of Secondary Education, Bhopal and the system is designed in such a way so that it can be modified easily as per the user requirements.

Features Planned to be incorporated in the application software

Further work on i-School is on its way. The project plans to provide complete solution to the school management problems . The features to be added in the s/w are:

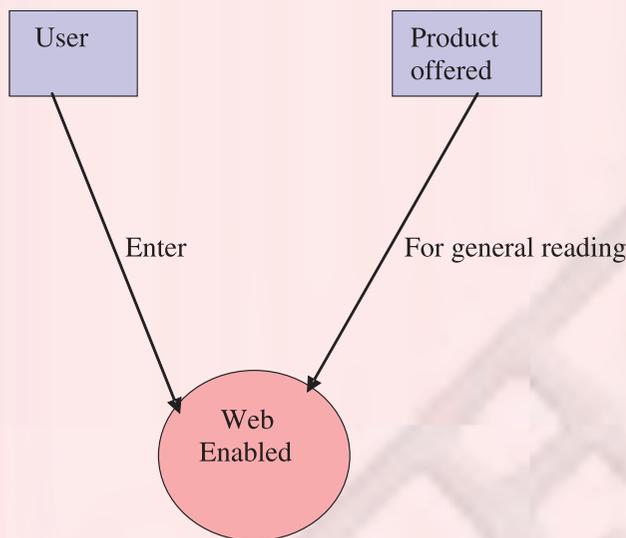
- Web based support
- Inventory management
- E-mail facilities among the user
- Complete account management
- Library module
- Inbuilt tutorials and guidelines for teachers
- Workshop and seminar management



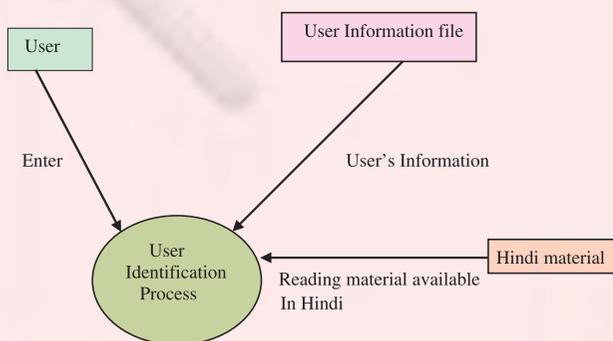
e-Learning in Hindi

The E-Learning in Hindi aims at development of a web based learning in Hindi to access new information in Hindi. The site proposes to provide a quality learning material in highly interactive format that requires less of counseling from the instructor. The main objective is to develop an E-Learning tutorial in Hindi that can be viewed over the network. Transliteration involves change of script in a manner that pronunciation is not affected. Transliteration to another script can thus be obtained by merely redisplaying the same text in a different manner. The following diagrams gives print idea about the development.

The General format of the System

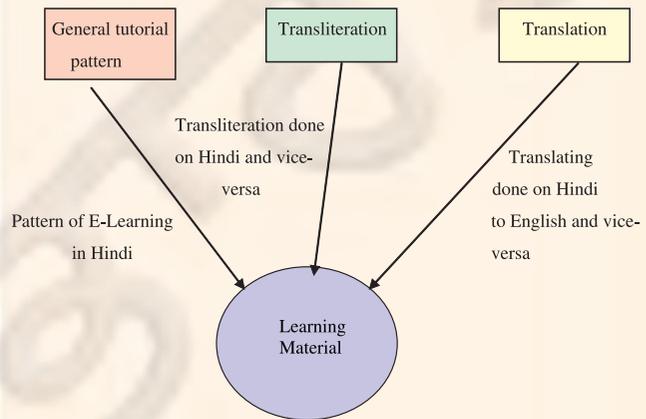


In this DFD, a user enters and only wish to read product offer and general knowledge of the site. The user is not intending to go on the learning material available on the web page. This part of the module has been completed successfully.



2. In this DFD, if a user wishes to go in the reading material, then the user will first have to go in the user identification process, where a user have to fill the login and password of their choice, before using the reading material in Hindi. This will just keep the track of the users. This part of the site has been done successfully.

3. This DFD, gives the general frame of reading material available and their structure. The general pattern of E-Learning in Hindi, shown in phases. The learning material will also provide the facility of transliterating and translating the reading material in Hindi to English and vice-versa, for a better easy learning.



Methodology Adopted

The methodology for this Information System development involves the design of software modules for SRS, Content design and Learning, Implementation, Testing, Maintenance and Testing. The SRS and learning material work already been accomplished. The implementation is under progress in which the whole system study has been completed. More over, JAVA is a language, which supports Unicode to use Hindi fonts on the page and each specification related to this application is implemented in Java only.

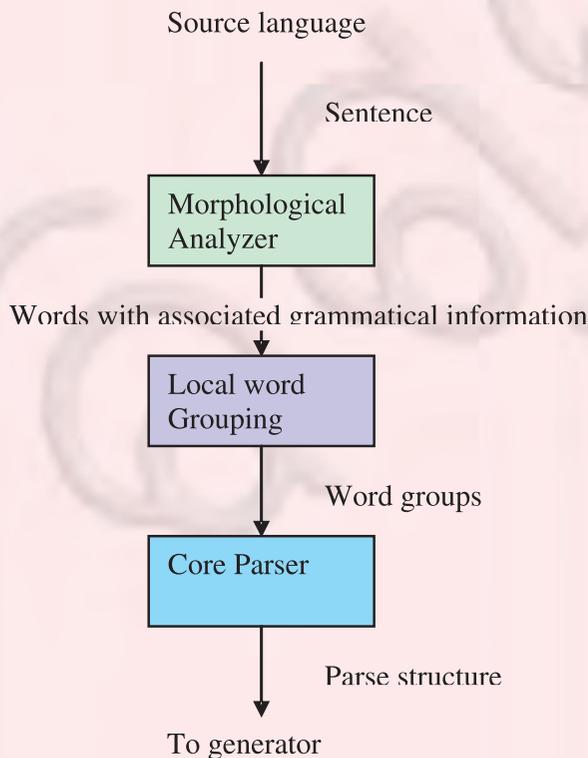
The major deliverable from the project module includes-

1. Interactive Content Creation in Hindi.
2. Web site development.
3. Indexing the contents
4. Putting the content on CD's and uploading on test beds

Morphological Analyzer for Sanskrit

An efficient Machine Translation is required to translates source language to a target language for the development of an *e-learning system*. The goal of any Machine Translation System is to break the language barrier among the people for globalization of information available in different languages. The other important goal is to provide effective communication from government, administration, commercial, industrial and business organization to the grass root level. Many attempts are being made all over the world to develop machine translation systems. However, the main bottlenecks in the development of efficient MT systems are inherent ambiguities involved in natural languages that need enormous knowledge for the disambiguation, and difficulty in representing the knowledge in the form of rules. This centre has chosen Sanskrit as our source language. The simple architecture followed for MT (machine translation) is serial architecture. The figure shows the architecture for MT.

Identification part of the word forms for noun and verbs occurring in Sanskrit has been done in which the Morphological Analyzer (MA) takes input as



word and as output it gives the root form of the word, its grammatical features and syntactic category.

The present MA build works for Sanskrit nouns and can analyze up to 3000 noun words. After the Morphological analyzing the next step of local word grouping is under progress.

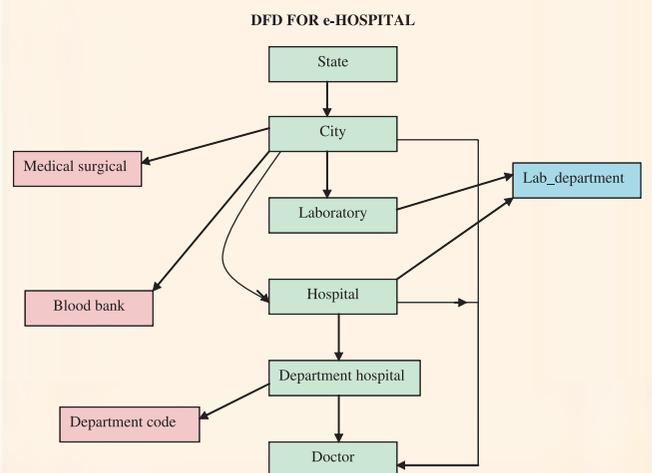
e-Healthcare

The overall module of the e-healthcare system is divided into:

1. Requirement identification
2. Analysis
3. Design
4. Implementation
5. Testing in the form of test beds.

The work on the requirement gathering through surveys, complete analysis i.e. gathering of the relevant information and processing it, design including the data base, DFDs etc has been completed. In addition to this the implementation work is under progress with the help of the CDAC-Pune tools. A bilingual web site is being made with the help of JSP as front end, oracle as back end. Tomcat, Java web server and CDAC tools have been used to achieve full bilingual compatibility.

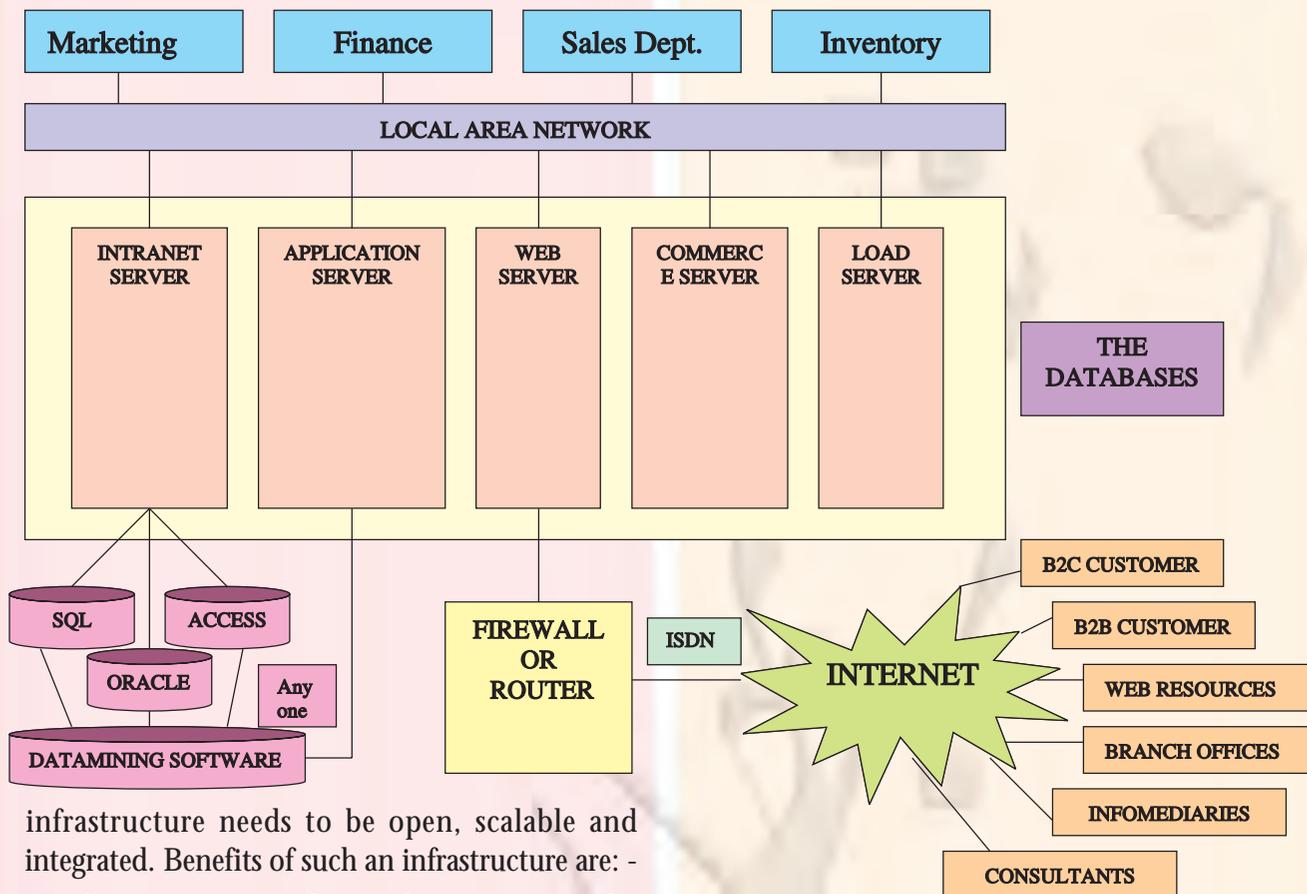
The work under progress mainly consists in completion of the remaining sub modules under the e-healthcare module with full bilingual support and the testing of the web site being done. Major government as well as private hospitals have been contacted for the inputs of the e-healthcare module and for the test bed. The data flow diagram for an electronic hospital can be drawn as follows:



e-Business

Businesses all over the world are acutely aware of this changing environment. It affects them almost everyday. For achieving real business benefits the

Engineering”. The work on writing these technical books in under progress. The Contents of the books have been identified and chapter writing work started.



infrastructure needs to be open, scalable and integrated. Benefits of such an infrastructure are: -

- Reducing operational costs by integrating the value chain.
- Building customer loyalty by offering value added services before the competition.
- Improving operational effectiveness by getting right information to the right trading partner at the right time.

In an electronic business set up of a small-scale industry, the model implementation part is of real importance. This model in turn should cater to all the processes of such an industry. Initial feasibility study and analysis work including all the processes involved in such an industry have been studied and the diagram is model as shown in the proposed diagram.

(B) IT COURSE MATERIAL IN HINDI

IITM, Gwalior has selected to write a book in Hindi on “Programming in C++ in Hindi”. The other book to be written in Hindi is “Basic Mechanical

(C) BOOKS ON IT IN HINDI

IITM has planned to write technical book in Hindi on “Business Computing” & “2G & 3G Technologies”

The content development for these books have been started.

(D) IT LOCALIZATION CLINIC

IITM , Gwalior proposed to organize IT Localization Clinic in the month of October, 2003 with the objective to train persons for the use of popular packages and technologies to increase awareness of IT in general public and thereby increase IT penetration.

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