

5.2 CoIL-Net Centre : Indian Institute of Technology, Roorkee, Uttaranchal

Introduction

Uttaranchal is the 27th state of the republic of India. (Total states being 28) It was formed on 9th Nov' 2000. Uttaranchal lays in the Northern part of India amidst the magnification Himalayas and dense forests. The state is bordering Himachal Pradesh in the north-west and Uttar Pradesh in the south and has international borders with Nepal and China. The state today with 13 Districts and can be grouped into three distinct geographical regions, the High mountain region, the Mid-mountain region and Tarai region. Dehradun is the interim-capital city.

The population of the state is around 8.4 million. The land area is about 55,843 sq km. The region is mostly hilly (approx 88 percent) and the remaining 12 percent falls in the plains. The state is very rich in natural resources especially water and forests as it has many glaciers, rivers, forests, mountain peaks. The main languages spoken in the state are Hindi, English, Garhwali and Kumayuni. The literacy level in the state is over 72.28%.

Uttaranchal is an ancient land that has many layers of history, culture, ethnicity and religion reaching far back into pre-history, and co-existent in present times. The Uttaranchal person lives on the mountains, in the deep valleys, by magnificent rushing rivers, but he is, spiritually, their equal. So the land is the bastion of tradition, soldiery and the home of spiritual learning. It is where some of Hinduism's most holy shrines exist and where Hindus perform the mandatory pilgrimage to Badrinath.

Department of Information technology has set up CoIL-Net centre at IIT, Roorkee with the objective of Socio Economic Development of the Uttranchal through creating IT awareness, content creation in local languages and organizing training programmes, IT localization clinics etc.

The CoIL-Net Center for "IT Localization for Socio Economic Development of Uttaranchal State" IIT Roorkee has been actively working in the area of Localization of Software Development with special emphasis on the following areas:

TEST BEDS

- E-Health
- E-Tourism
- E-Education

CONTENT CREATION

- Naturopathy
- Medical Plant of the Garhwal Region
- Ayurvedic Dictionary
- Content Digitization on Classic Works of Post-Christian Sanskrit, Malyalam, Telgu Languages in Hindi

BOOKS PREPARATION ON IT IN HINDI

- Introduction To Information Technology
- Bio-Informatics

DEVELOPMENT OF IT COURSE MATERIAL FOR IT INTRODUCTION IN SCHOOL

- IXth Standard
- Xth Standard

TRAINING PROGRAMMES TO BRING IT AWARENESS

A detailed report on the Development activities of the center is presented below.

(A) APPLICATION DEVELOPMENT/TEST BEDS

The gist behind the test beds is to bring the Information Technology awareness and benefits to the local people of Uttaranchal.

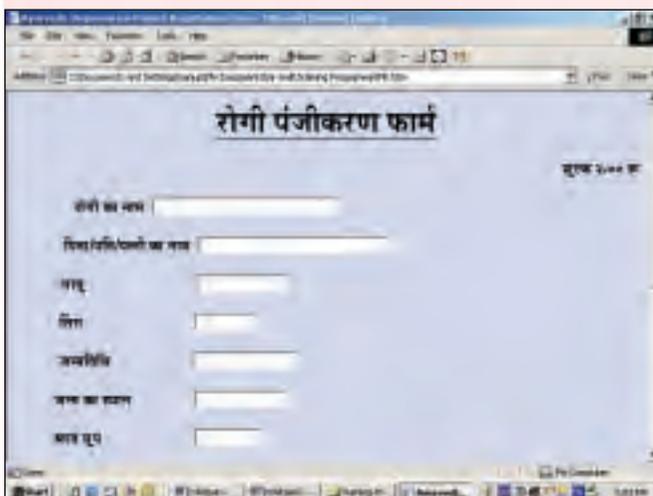
E-Health

It aims at centralized computerization of all Indoor/ Outdoor Ayurvedic Dispensary existing in the Uttaranchal region. Computerization refers to online database transaction, for dispensaries across the Uttaranchal state, which needs to be interconnected. It also takes care of medicine stock monitoring, availability and accounting. Centralization would also bring the dynamic approach towards the distribution of medicine to the specific dispensary where the requirements are at high priority. The computerized Ayurvedic

dispensary system also helps in maintaining the records of registered patients, status checking for ward allotment.

The following activities have been undertaken for development.

- Requirement Analysis
- Field Study
- Data Collection
- System Specification
- Field Testing & Implementation



The requirement analysis phase has been over. Field study for test bed on “Computerization of Ayurvedic Dispensaries-Web enabled” has been completed covering the Ayurvedic dispensaries of Haridwar region out of total nine regions. Input Data has been collected. Specification for system has been finalized. A tested monolingual sample model is available. Field study and Data collection for other regions is in progress. The efforts are being carried out to make available the tested sample model in bilingual.

E-Tourism

Uttaranchal- “The Land of Celestial Beauty”, gushing rivers, timeless temples, snow-bound Himalayas, luxuriant flora & fauna. The beauty of Uttaranchal conspires to cast a magical spell. Its majestic mountain presents unlimited choices & opportunities. Other than nature’s bounty,

Uttaranchal also has rich historical cultural & ethnic diversity. Its sacred shrines & magnificent temples emit an aura of spiritual serenity. Agrarian pastoral way of life, vibrant fairs & festivals, folk songs & dances. Varied forms of arts & crafts are distinct & create an enchanting effect.

Since times immemorial the hills of this region have attracted tourist & pilgrims from world over. Tourism in Uttaranchal has been envisaged to become the most important industry of the state employing a significant majority of people directly & indirectly with a major contribution towards state economy. IIT Roorkee aims at designing a web based portal having bilingual support to make available such tremendous mind blowing information to promote tourism in Uttaranchal. The portal provide online information system for the tourist with complete detailed mapping of state and its adventurous region, roadways, railways, airways and other means of ways to visit the places.

The following activities have been undertaken for development.

- Requirement Analysis
- Field Study
- Data Collection in tie up with State Government
- System Specification
- Field Testing & Implementation



More than 100 (Bilingual) web pages with attractive animation and advance effects have already been loaded up on portal covering the knowledge base for all the 13 districts of Uttaranchal. Development for other areas is under progress with extensive data collection.



E-Education

Uttaranchal state has thirteen districts, of which two of the districts, such as Dehradun and Haridwar have got exposure to the computerization, but other regional districts are not exposed to the Information Technology and their use. Indian Institute of Technology (IIT) Roorkee has taken the initiative under the CoIL-Net program, to use the e-Learning system, that is, implementation of Distance Education Learning System (DELS). It was assigned the task to design such kind of e-Learning System, so as to user (mostly the student), who really requires the advance information, and are unable to compete to the students of metropolitans both in knowledge and other education resources, can avail the facility that provides them virtual classrooms to interact with the distant educator for solving their problems and accessing the resources such as centralized library system, Online Books, Journal and/ or Documents, etc. Not only the information will be text based, but multimedia interaction involving Audio/ Video Conferencing units for interactive conversations and connectivity has been taken into consideration.

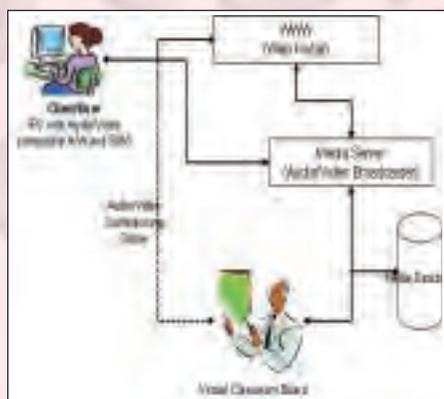


Figure: Distance Learning Education System Online

Design and Development of E-Learning (Distance Learning Education System) need detailed study before deployment for online registration and information system. Following support will be considered.

- Virtual Classrooms Boards (VCBs)
- Use of online White-Boards (Bilingual), to interact with tutors.
- Audio/Visual Interactive Classes Online.
- Support for English-Hindi languages for interactive communication.

The following activities have been undertaken for development.

- Requirement Analysis
- Field Study
- Data Collection in tie up with State Government
- System Specification
- Field Testing & Implementation

The detailed case study part is under work progress.

(B) CONTENT CREATION

Naturopathy And Ayurvedic Repository System:

Naturopathy content, science of herbal treatment and diagnosis of diseases are being incorporated with the herbal database.

Ayurvedic repository system design involves information about the diagnosis and product making from herbal medicinal plants. Detailed documentation, image/ presentation and procedural pattern will also be incorporated in repository. About 500 slides of herbal information database have been collected. Basic design strategy for deploying the contents has been discussed and designed. Consultation has been made from outsource resources to form a complete repository system.

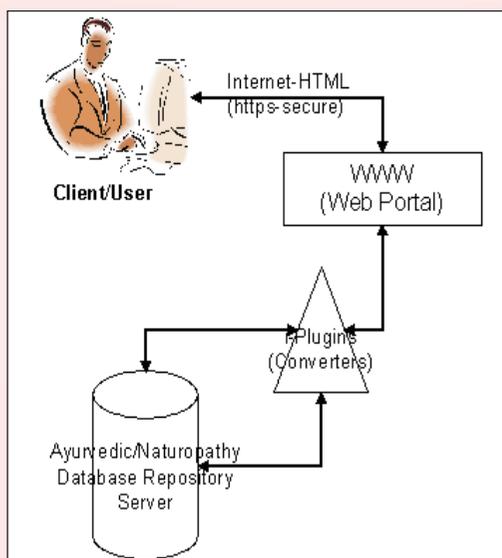


Figure: Ayurvedic/Naturopathy Repository System

Some part of the framework has been implemented and still some is under consultation reviews to match the exact needs. Modules for Database repository, Secure certificate designing have been completed. More than five hundred herbal database slides is being covered under this content.

Ayurvedic Dictionary

Ayurvedic Dictionary is language-oriented software for the retrieval of lexical entries from monolingual and bilingual dictionary by many users simultaneously.



The Ayurvedic dictionary contains 5,000 root words. Each entry in the dictionary includes Sanskrit as root word its Hindi equivalent & its pronunciation. Data for dictionary is being compiled. Dictionary has been developed with 5,000 root words. It is being enhanced to 10,000 root words.

Content Digitization on Classic Works of Post-Christian Sanskrit, Malyalam, Telgu Languages in Hindi:

IIT Roorkee was assigned the task to digitize the content on classic works of Post-Christian Sanskrit, Malyalam, Telgu Indian Languages translated into Hindi. Center has contacted various resource centers for acquisition of content.

(C) BOOKS PREPARATION ON IT IN HINDI

Introduction to Information Technology

This is a text book on Information and Communication Technology. The book has been specifically targeted for students. Course material to be covered in this book has been finalized. The book consists of eight chapters – Introduction to Computers, Information Technology, Databases, Satellite Communication System, Computer Networks, WWW and Internet, Multimedia Technology, Wireless and Mobile System. Out of total 8 chapters 6 chapters have been completed. 90% of the book material has been completed.

Bio-Informatics

This text book is for university level courses. Course material to be covered in this book has been finalized. Content and matter of the book is under work process.

(D) DEVELOPMENT OF IT COURSE MATERIAL FOR IT INTRODUCTION IN SCHOOL

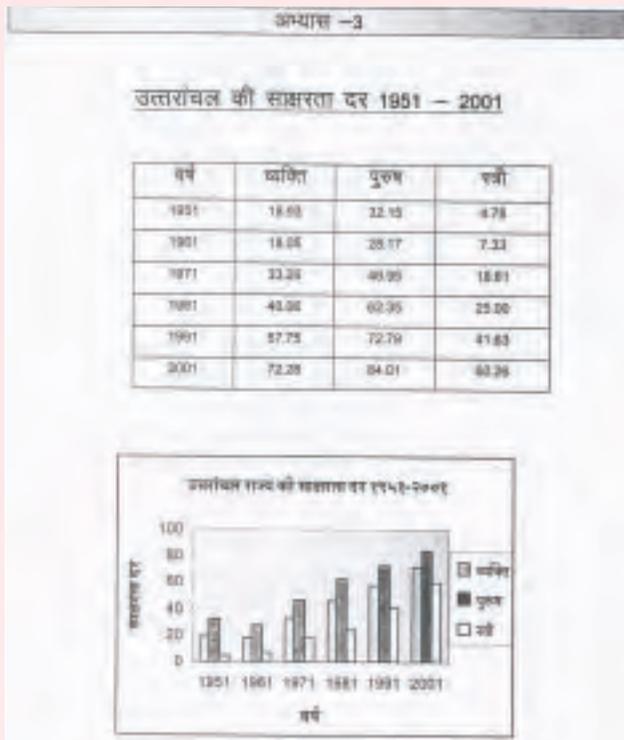
IIT Roorkee has identify two books on Information Technology as IT primary course material for introducing IT to school student. IIT Roorkee has identified one book specifically targeted at Xth Standard students and other book specially targeted at IXth Standard. Here again the focus is on presenting concepts in native language (Hindi). Some part of the work in the area of context and matter to the contents of text books in native languages is under review work process.

(E) TRAINING PROGRAMMES TO BRING IT AWARENESS

One of the priorities of the center has been to bring awareness in “IT localization tools & technology to the masses”. Keeping this in mind IIT Roorkee has proposed to conduct five days training programme titled as “GYANODHAY” on “IT Localization Tools & Technologies” in June 2003.

The training program emphasized over Content creation and Document preparation in Hindi using CDAC Language tools like ISM & iLeap. Training programme, also gives exposure to them on the various developments made in IT for Indian Languages Tools. The workshop brings the participant an exposure towards the types of tools and standard that must be followed. The aim of workshop is to provide the ousted region of Uttaranchal an exposure to computerization in localized format, with practical approach to the development standard.

ज्ञानोदय प्रयोगशाला के दौरान प्रत्याक्षियों को दिये गये अभ्यास



आई०एस०एम० टूल का प्रयोग करते हुए एक्सल में स्प्रेडशीट

The participant of the training programme were from different profession like data entry operator, teachers, Clerical staff from different regions. Participants rated the workshop as excellent in feedback forms.

(F) OTHER ACTIVITIES

Co-ordination With Linguistic and Domain Experts:

The center has been actively coordinating with various domain experts for linguistic expertise and for content development. Numerous interactions have been organized for this purpose.

- Discussion with University of Hyderabad for effective content development in classical Telugu literature.
- Discussion with Jawaharlal Nehru University for effective content development in classical Post Sanskrit literature.
- Discussion with CDAC Trivendrum for effective content development in classical Malayalam literature.
- Regular Discussion with Rishikul Ayurvedic College, Haridwar for content development of Ayurvedic portal.

Co-ordination with State Government

Effectively coordination with state government while developing tourism portal content to ensure no duplicity of work. Data collection for E_health portal is also in agreement with State Government.

Standardization

The contents being developed at center cater are designed to use ISCII Standards. The Center actively coordinates with CDAC in following up ISCII standard. All the development work is being carried out using CDAC designed tools supporting ISCII standards for data storage and transaction. The data can be converted to the upcoming LT Standards "Unicode".

(G) FUTURE TARGETS

1. Ayurvedic Medicine & Hospital Management System
2. Tourism Portal of NIC website in Hindi
3. Database for Medicinal and Herbal plants in Hindi
4. E-Mail System in Bilingual (English & Hindi)
5. Ayurvedic Dictionary (Bilingual) (English & Hindi)
6. Distant Education Learning System with (Audio/ Video) Conferencing Unit
7. Stories of other Indian Languages in Hindi

*Courtesy : Dr. R. C. Joshi
Department of CSE, Indian Institute of Technology,
Roorkee 247 667 (Uttaranchal)
Tel. : 01332-285650 (O), 01332-285701 (O)
E-mail : joshifcc@iitr.ernet.in*