Content Delivery Systems

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www.medialabasia.in

MLAsia Objective

Promoted by DIT,MCIT, Govt. of India

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- **Not for Profit Company**
- **Operates through national network of Research laboratories (Tech., Medical, Mgmt., NGOs, Domain Experts etc.- 58 numbers and the list is growing) .**
- **Multi-disciplinary R & D**
  - **Proof of Concept**
  - **Pilot Testing**
- **Deployment through PPP model**

Research / Application Themes

Canvas is Broad, Focus is on content & Handheld devices

- Application Areas
  - Education/Empowerment of Disabled
  - Healthcare
  - Livelihood Generation
- With the help of 75+ projects Media Lab Asia has reached to 1500 villages / remote sites in the country in almost all the states of the country and is touching the lives of more than 1 Million people.
- Technologies such as Sehat Saathi, aAqua, Polysensor, ICT tools for Nomadic Tribes and Sahayika have already been transferred .

Problem Statement

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- Several gap areas exist in content delivery framework especially in distance education and offline mode (Student's Demand).
- There is a need to take education to the doorstep of the children such as differently abled, School Drop outs, Open School Students, children of slum dwellers, mediocre students & tribals etc. as this would mean true inclusivity.
- Higher Literacy would enable individuals to achieve their goals, to develop their knowledge and potential, and to participate fully in their community and wider society.

Need

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- To suit different types of needs, content research is important. One Size will not fit all, because users' requirements are diversified & unique.
- The correct use of teaching strategies (pedagogy) plays utmost important role apart from providing the content in special format.
- The paper highlights recommendations of various agencies for content development and delivery and provides an understanding of different delivery mechanism of courses which should be offered in schools.

Recommendation

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Working Group on Open and Distance Education, National Knowledge Commission

A robust, vibrant and well-managed open and distance education system should offer solutions and projects in a future best-model, keeping in mind the pulls and pressures of the 21st century. If implemented in the spirit in which they have been offered, these recommendations can bring about the much needed long term paradigm shifts in open and distance higher education.

REFERENCES- ***www.knowledgecommission.gov.in***

Recommendation(contd..)

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The XIth plan proposal for IGNOU and Open & Distance Learning (ODL) system- WEBSITE- http://www.ignou.ac.in

'Sakshat'- Education Portal has been established on a large scale to provide access to digitalized knowledge resources to different clientele groups and provide a platform of LMS to learners.

All the new courses/programmes should also be developed and made on offer to the students both in print and online formats.

Recommendation(contd..)

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Department of School Education and Literacy, Ministry of Human Resource Development

- Content, pedagogy and delivery system linked with socio-economic gains. Convergence is the heart of this approach.
- Linking literacy with skills should be built in the programme package .

Recommendation(contd..)

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National Mission on education through ICT (NMEICT)

Providing high quality personalized and interactive knowledge modules over the internet for all the learners in higher education institutions in 'Any-time Any-where mode‘.

This could be extended to school at various levels as well.

Recommendation(contd..)

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IT Action Plan Part-III, Long Term National IT Policy, NASSCOM

- IT Software will include IT Training materials in Program/Program Text/ Self-tutoring/ interactive-tutoring/ computer-aided-teaching/ computer-aided learning, software and associated databases.
- Computer networks will include networks as carriers for distance learning networks and satellite based/ optical fibre cable based delivery mechanism for Education-to-Home (ETH) services/ Education-to-Community Centres (ETCC)/ data broadcast systems and services delivering educational contents and educational products.

Initiatives & Significance

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- The research implemented by MLAsia is useful for-
  - Companies dealing in content development & content delivery
  - Professionals including Educationists, Education technologist, Instructional Designers & Developers
  - Universities/Colleges/Institutions
  - Private institutes/Competitive Exam centers/Coaching centers
  - Publishers, NGO's & Others
- Modeling of ICT application based on students need has been developed as part of the projects in MLAsia.

Delivery methods fall under two broad areas: Synchronous and Asynchronous

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- **Synchronous learning: A real-time, instructor-led online learning event in which all participants are available at the same time and can communicate directly with each other.**
- **Synchronous methods provide immediate availability of the instructor for questions and feedback. It provides many different types of tools, is similiar to the classroom, and allows for real-time collaboration among participants.**
- **Asynchronous learning: Learning in which interaction between instructors and students occurs intermittently with a time delay. Asynchronous methods allow time for reflection, allow participants to work at their own pace and can be highly structured.**

Design of the Research

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- The research discusses the best modes in which the content should be delivered to the students keeping their demands in view .

- Discussion on Suitable format for Content, students would like to learn.

- The research is expected to combine importance of blended learning and changing Trends.
  - Govt's efforts in North East schools

Delivery methods

(Teacher's Role is of utmost importance)

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Traditional – Computer

- Classroom Delivery- Lecture & Presentation
- Overhead transparencies, Handouts
- Computer CD-ROM/DVD/Blue Ray disks
- Print Material /Correspondence- Books, Articles
- Videotape/ Tape Drives/ Audio Cassettes

Internet Based / Telephone

- Videoconference
- Intranet Application/email/chat/forum/discussions
- Live Video Streaming /Web casting – Youtube.com
- IPTV - IPTV (Internet Protocol Television) MTNL, BSNL
- Teleconference- Telephone, Mobiles, Handhelds

Delivery methods (contd..)

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Mobiles/Handhelds

- Active Content on WAP through GPRS
- Podcast - Handhelds
- Vodcast - MP3 Players
- SMS/MMS – Mobiles/Handhelds (NCERT)
- MMC Cards, PDF, using IR & Bluetooth – Student Kiosks

Delivery methods (contd..)

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Satellite based Training

- EDUSAT (ISRO, CIET , CEC-UGC etc)
- Cable TV network /Public Television
- DTH / Direct-To-Home television
- VSAT (Hughes Telecom, Infinium Technologies)
- ETH- Education to Home
- ETCC- Education to community Centers (ETCC)

Others

- Radio/Community Radio Stations (CEMCA- COL, KVK, SAU's)

Special Formats for Inclusive Education

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- Braille System
- Audio Books/ Talking Books
- Large Print
- Audio Books
- Icon based Interfaces for people with Cerebral Palsy

Finding

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- Content to be made available online in different modes and teachers also to be trained to take classes in an e-learning environment. This is called blended learning and students appreciate such learning experiences.
- Respondents also favored an approach that combines learning from teachers/experts, peer networks, and self-directed learning assisted by facilitators.
- Not all learning needs to be formal. Informal e-learning using web-based networks that enable access to peer-to-peer learning networks where students can learn from experts, each other, and from on-line collections of valuable material.
- Probably a bottom-up Methodology of learning.

Content Delivery Models –
Made available by Govt.

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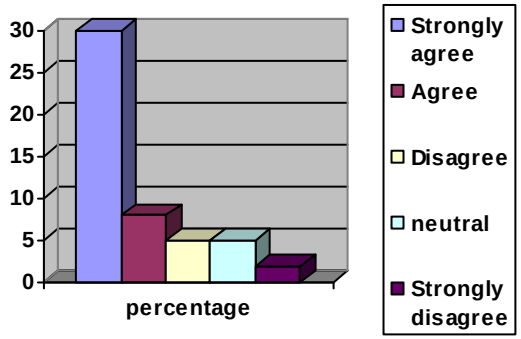
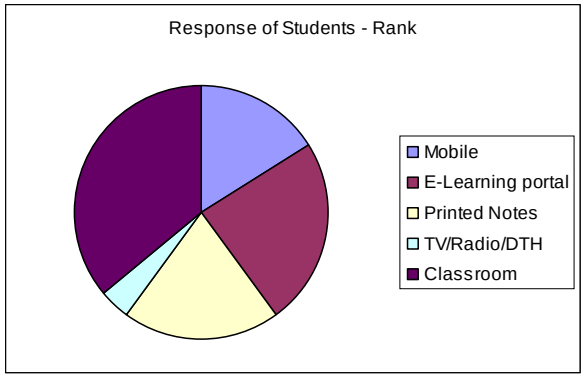
- India has a long history of use of ICT for education and development purpose.
- In recent years the availability of new technologies including Internet, V-SAT networks over EDUSAT etc have greatly enhanced the possibilities of use of ICT for education.
- The major educational broadcast networks today include Gyan Darshan, Country wide class room (Vyas), School Television and Gyan Vanni.
- NPTEL Program of IIT.
- Initiatives by IGNOU, NIOS, CEC-UGC, CIET-NCERT, CBSE.
- IIT - Mumbai is offering classes and courses over a broadcast network.
- VTU- Karnataka, RGTV –MP, have established networks of engineering colleges for giving live lectures to students .
- National knowledge network

Feedback from students

76 % students agree that the content delivery method play an important role in learning process.



Rate the usage of the delivery methods like classroom, eLearning based portals, mobile , printed notes, TV radio etc



Innovative Delivery Mechanisms of content

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- **Information on demand: anywhere, anytime, any place**
- **Authenticated Information: peers, experts**
- **Information: get the best, get the fastest, get the most reliable**
- **Inputs: on one's own, friendly devices, minimum learning cycles**

Delivery System

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- Ontology Management Tool in a LCMS/LMS.

- Expert Teacher creates ontology
- External Content can be plugged in
- Students can access content - any time any where

- Several Open Source systems exist including Moodle, eledge etc

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ICT FOR EDUCATION

&

EMPOWERMENT OF DISABLED

Inclusive Education

Education Domain

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- **Education**
  - **Intelligent tutoring System**
    - **Multimodal Participatory Content tutoring system**
    - **Sahayika**
  - **Gyanpedia.in**
    - **Math Prep Guide**
    - **Life Science**
    - **Primary Teachers Resource Kit**

- **Multimedia content in local language**
- **E-content through Internet & Mobile**
- **Virtual Labs for Science & Maps.**
- **Vocational Training - More than 4000 vocations have been identified**

Shikshan™ -
Web Based Intelligent Tutoring System

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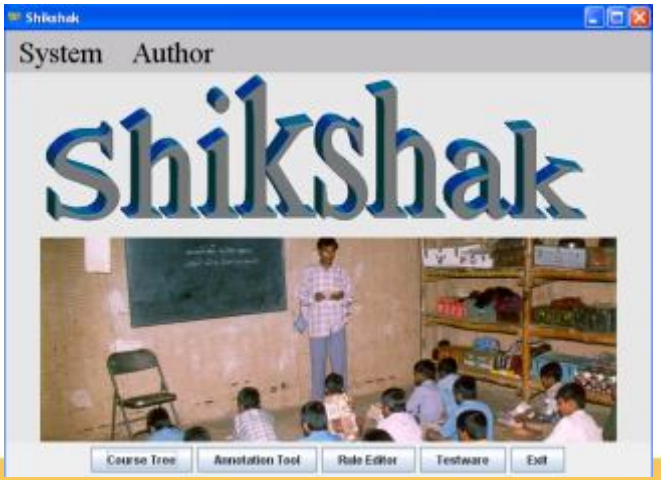
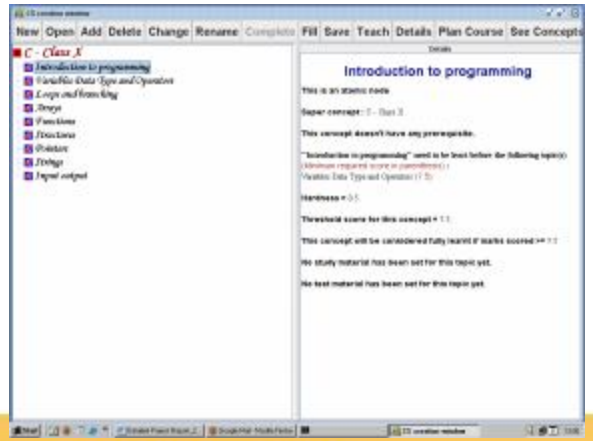
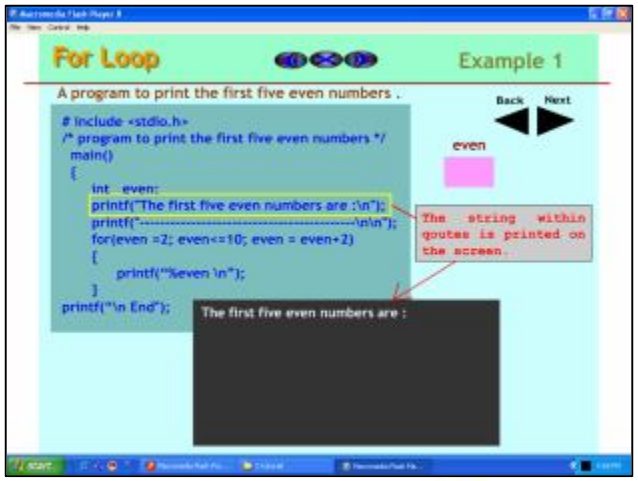
- Intelligent Tutoring System (ITS) contains a control engine as a common teaching model and stores all the information of the students.
- Provides an interactive environment for the children to access the educational material at their own pace.
- Platform to teachers to make teaching more effective and interesting.
- Facility to present the same courseware in different forms and delivery paths.
- Adaptability on assessment of the student's status.







Sakshar/Sishushiksha

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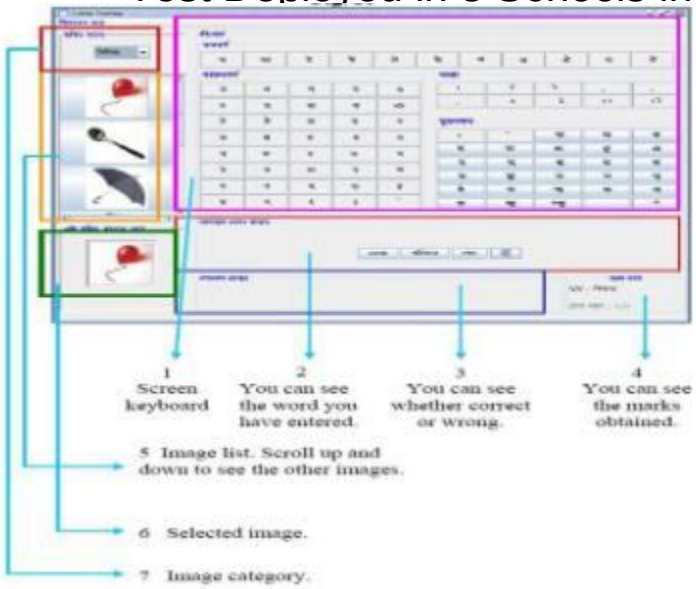
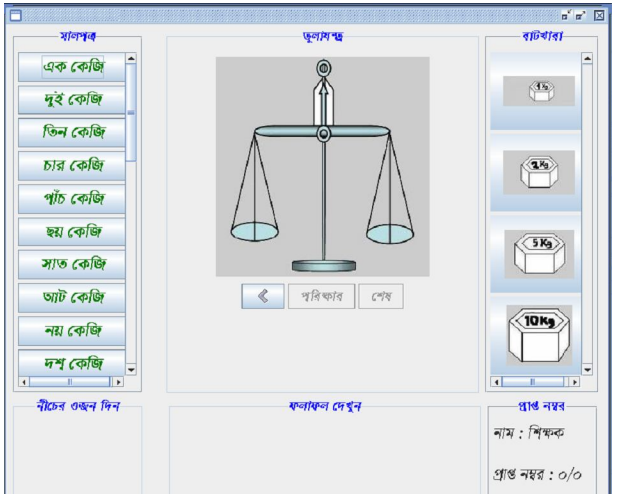
- Multimodal software for adult literacy/Primary school Children.
- A learning interface. Topics organized in an easy to access hierarchical manner to learn letters, numbers, environment, health and hygiene in a very attractive and interesting form.
- Test interface with simple test materials.
- Facility for instructors to add new learners, delete those who already learnt the syllabus, create questions sets and test material
- Test Deployed in 8 Schools in West Bengal.





Sahayika™

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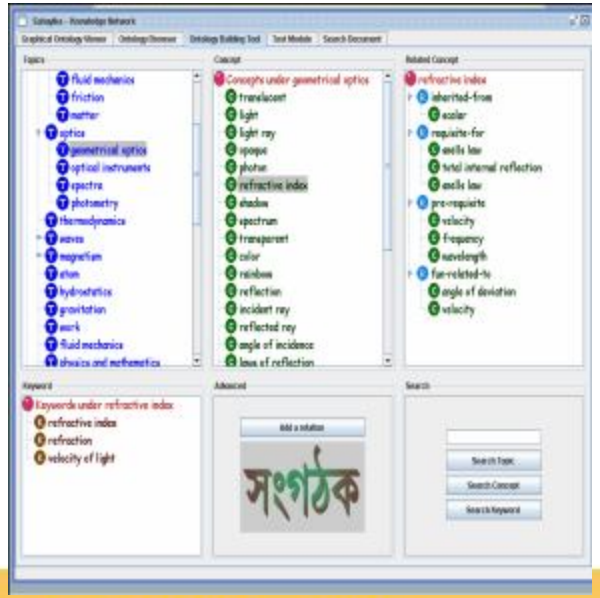
- An interface to create a new ontology for subjects belonging to school curriculum.
- Ontology Builder, Ontology Browser and Ontology Visualization through navigation
- Automatic indexing & manual Document Indexing to attach actual contents to any entity belonging to the ontology.
- Indexing tools enabling the system to be used as, a course organizer, or a self learning system to a student.
- Currently supports English and Bengali.
- Test Deployed in 8 Schools in West Bengal.



Mobile and Internet based Math Prep Guide

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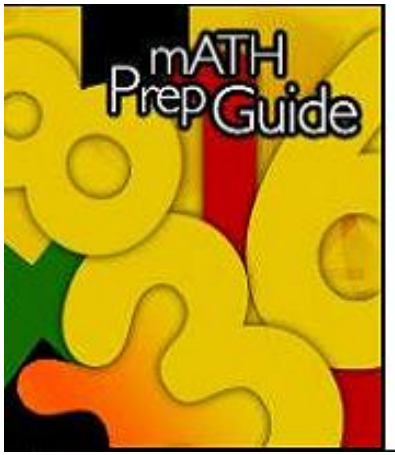
- A comprehensive chapter-wise manual on the wireless platform brought out by experts in the most scientific manner to take on the examination
- Concepts in each chapter ,explained with visual and voice aid in an interactive and in depth mode along with related questions asked previously to make preparations more focussed .
- Development on 4 Platforms – SMS, WAP, Flash & JAVA



Internet based Virtual Laboratory for Life Science Experiments

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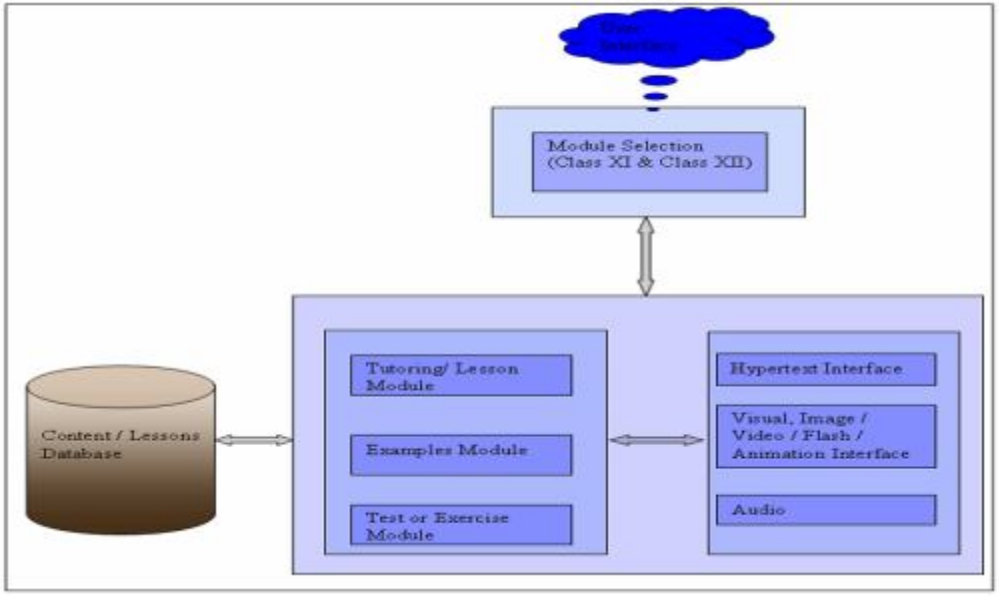
- Development of 40 VLLS with the help of multimedia Technology for simulating the virtual classroom environment
- Interactive Practice & Exercises
- On screen instructions for navigations
- Comprehensive Dictionary / vocabulary specific to a specific VLLS
- Developed for Desktop and MMC Platform as well.



Multimedia based Pre-primary Teacher's Resource kit for English, Marathi & Hindi

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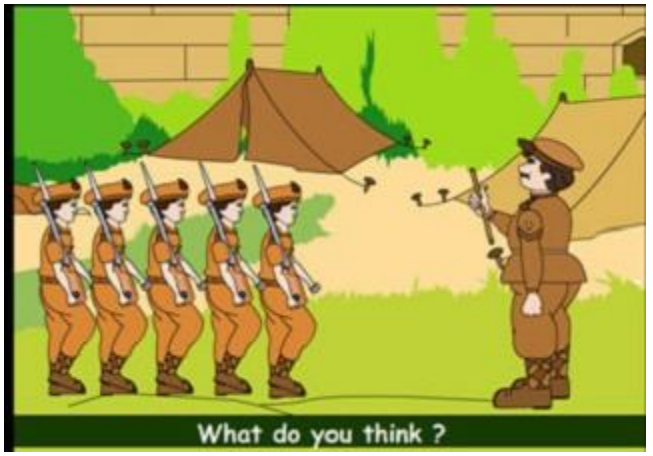
- Facility to teach Reading and Pattern Writing of Alphabets, two letter, three letter word formations and introduction to articles (a, an, the).
- Speech Interface to enable correct pronunciation and intonation.
- Vast Visual Vocabulary, Visual aids, Interactive Games, Nursery Rhymes, Story Telling and Exercises with on screen instructions for navigations.
- Introduction to Number system and pre-primary mathematics



National Network for Education and Empowerment of the disabled

RCI
Studio

14000 Block Resource Centres

3000 NGOs

Internet Cloud

235 MSJE office

28000 Special educators

Portal :

- National Disability Register
- Online courses through LMS run by RCI.
- Repository of Braille ready-Text, Audio files etc.
- List of MSJE offices, Special Schools, NGOs Special Educators.
- All Government policies, Schemes & circulars related to disabled people.
- Availability of Assistive Devices & its details.
- Programmes of RCI.

Networking for the Disabled

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Satellite & Internet based national network for education, training and empowerment of the Disabled

- Telecast of live programs for special educators, handling various kinds of disabilities & to assist efforts in Inclusive Education
- A comprehensive internet portal providing information regarding different disability issues such as National Disability Register, Government orders, Directory of Specialists & Caregivers, ADIP Schemes, Digital Audio Books, Text/Audio and Multimedia repository in Indian languages, Details of assisting devices, etc

For Visually Impaired Persons

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Digital Library of e-Text, Braille, Large Print and Audio Content

daisy consortium

- In Hindi, English, Sanskrit and law for visually impaired at graduate / post graduate level.
- e-Text can be used for direct reading with Screen Reading software, can be printed in Braille, can be used for Digital Talking Books.
- In first phase 13 subjects, 300 English, 200 Hindi books selected for DAISY form conversion.

Large
Print

For Cerebral Palsied/Speech impaired Children

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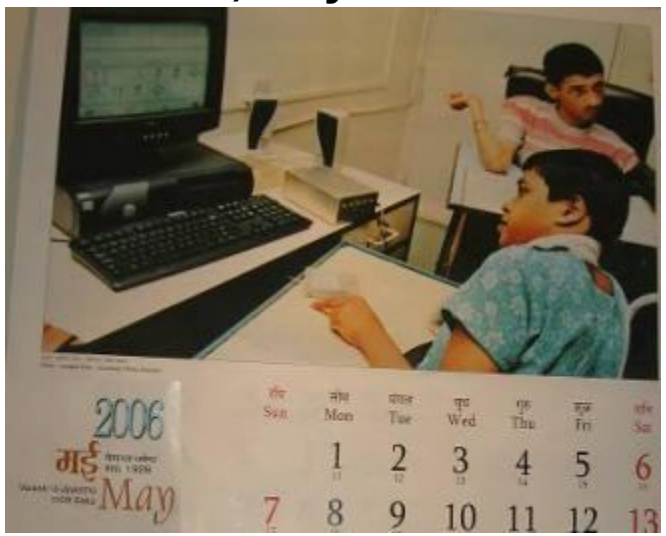
Sanyog™ – Iconic Communication Tool

- **Software Modules**
  - **Icon interpretation**
  - **Natural Language sequence generator**
  - **Text to Speech System**
  - **Varied Access Switches**
- **Tested at IICP, Kolkatta AADI, Delhi**

Picture on Government Calendar, May 06



Special Access Switches

For Cerebral Palsied/Speech impaired Children

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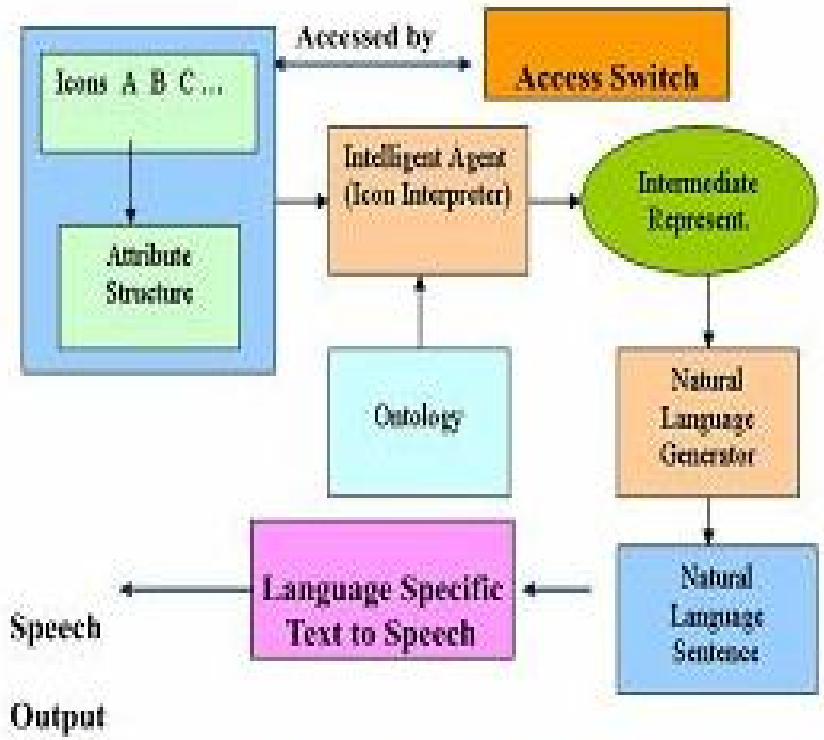
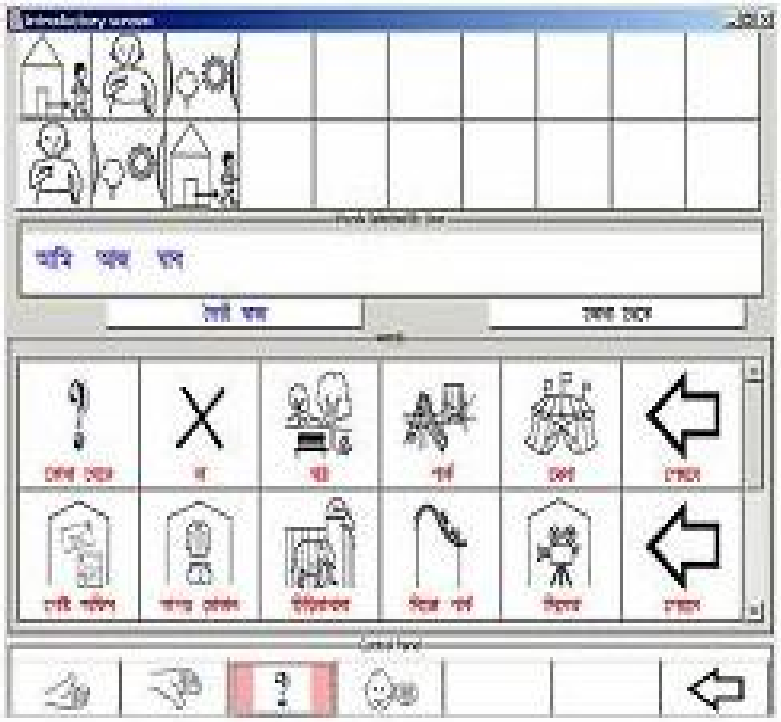
Sanyog™ – Iconic Communication Tool



Sanyog Technical Overview



Sanyog User Interface

Educational exemptions - IPR

- Copyright law allows the performance or display of copyrighted works in face-to-face classroom teaching without permission from the copyright owner.

- This privilege has facilitated the display of images, playing of videotapes, and the performance of plays and musical works in classroom settings.

- This could permit playing legally acquired videotapes of lectures or performances that occurred in one classroom for the benefit of students in another.

Conclusion

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- The use of the technology enablers can lead to innovative e-Learning methods. eLearning applications would have a wide impact on student's community especially who are on the other side of digital divide.

- Hybrid systems are necessary to take care of ever evolving field of education in terms of supporting it through ICT applications.

Thank You