

**Implementing Agencies:  
C-DAC, Kolkata & BIRSA, Ranchi**

## Objective


Creation of portal to provide vernacular (in 7 local languages) content in the domain of Agriculture, Animal Husbandry and Forestry to make it available over the Internet.

## Feature / Solution:

The system includes holistic information on the important cereal, pulse, oilseed, fruit and vegetable crops of Jharkhand. Besides technical information, it also includes information on market, bank, insurance, government schemes and weather.

Similarly the animal husbandry will have modules on livestock, reproductive management, housing, feed management, general management, health and disease management, marketing, value addition, finance, marketing, project for formulation, schemes, FAQ and ask a question. The forestry will have ten modules viz. Crop, soil, health, nursery management, fertilizer, water management, crop protection, implements, post harvest, finance and market.

The value addition of existing portal of BAU will be undertaken, wherein picture related to unidentified problems or scientists and dissemination of solution can upload movie for further investigation.



## Technology

This portal is developed based on WAMP technology. Domain knowledge is the most significant part of the portal, which is available in 7 languages namely 'Ho', 'Santhali', 'Nagpuri', 'Kuruk', 'Mundari', 'Hindi' and 'English' which are most commonly used by locals of Jharkhand

## Our Achievements So Far

Agricultural portal on seven languages has been already hosted and operational for access over Internet (URL: [www.bau-agriculture.com](http://www.bau-agriculture.com))

# Dissemination of Vernacular Content on Agricultural Diseases & Remedies through LCMS Tool “Ekalavya”

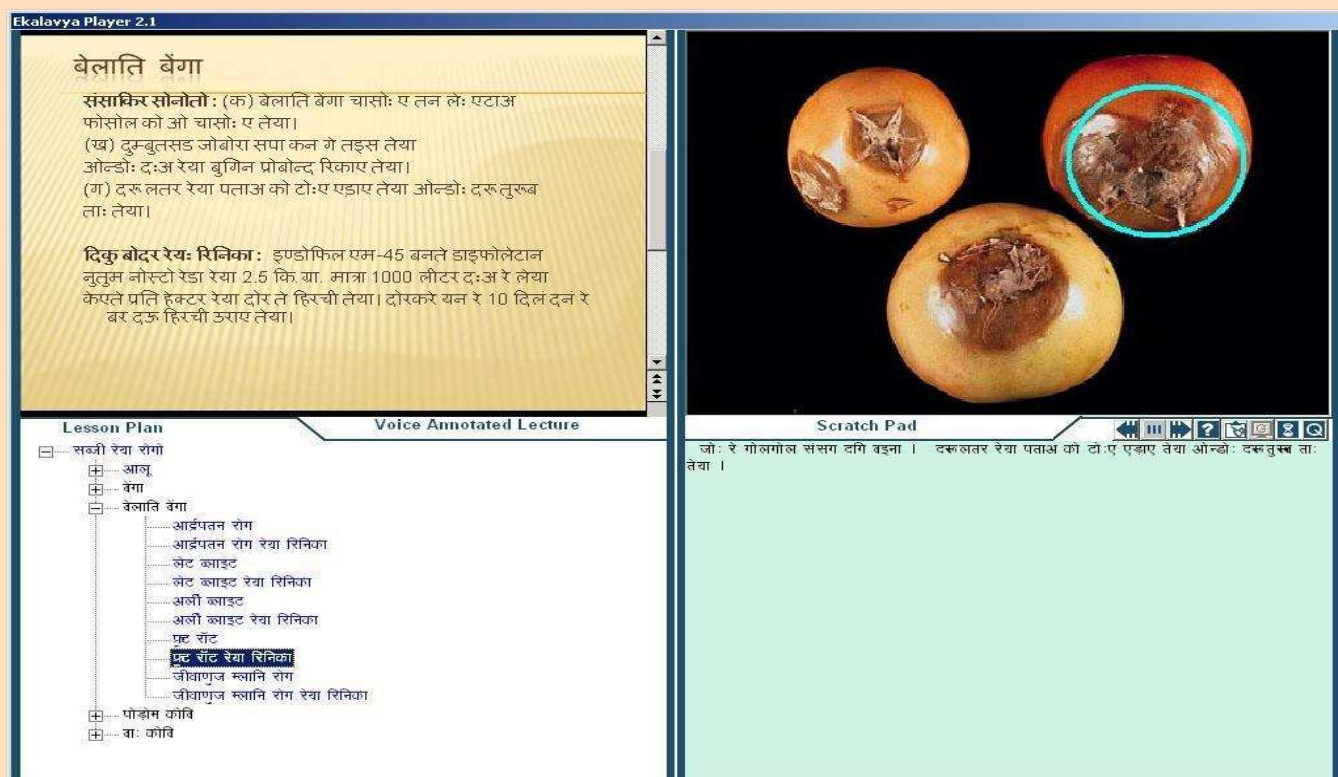
## Objective

To create a paperless, interactive learning environment for a farmer where he can gather knowledge about Diseases & Remedies in the Forestry, Animal Husbandry and Agricultural domain. In other words, the main aim is to disseminate the above mentioned information in such a way so that it can penetrate the common mass of rural India, most of whom are either illiterate or can read / write in vernacular language only.

## Feature / Solution

In India, about 80 per cent people are dependent on agriculture including animal husbandry and forestry. Substantial proportion of population in and around forest derives major income from forest. Animal husbandry including poultry is an integral part of the farming system. Contents on these areas are created for use by the farmers.

The current scope is for the state of Jharkhand. So, content creation and delivery is for 7 languages of Jharkhand namely English, Hindi, Nagpuri, Santhali, Kurukh, Mundari, Ho.



The screenshot displays the Ekalavya Player 2.1 interface. The main window is titled "वेलाति बेंगा" (Velaati Benga). It contains text in Hindi describing the disease and its treatment. The text includes: "संसाधन सौनोतो: (क) बेलाति बेंगा चासो: ए तन ले: एटाअ फोसोल को ओ चासो: ए तेया। (ख) दुम्बुतसड जीबोपा सपा कन गे तइस तेया ओन्डो: द:अ रेया बुगिन प्रोबोन्द रिक्वाए तेया। (ग) दरु लतर रेया पताअ को टो:ए एड्राए तेया ओन्डो: दरु तुरुब ता: तेया।" and "दिकु बोदर रेय: रिनिका: इण्डोफिल एम-45 बनते डाइफोलेटान नुतुम नोस्टो रेडा रेया 2.5 कि या. मात्रा 1000 लीटर द:अ रे लेया केएते प्रति हेक्टर रेया दोर ते हिरची तेया। दोरकरे यन रे 10 दिन दनं रे बर दऊ हिरची उराए तेया।". Below the text is a "Lesson Plan" section with a tree view showing the current lesson "वेलाति बेंगा" selected. To the right, there is a "Voice Annotated Lecture" section and a "Scratch Pad" section containing an image of three fruits, one of which is cut open to show internal damage. The scratch pad also contains the same text as the main window.

## Technology

Ekalavya is a multimedia based interactive learning tool designed keeping an eye on individuals. Through “Ekalavya” one learns about a subject with pictorial as well as text notations, slide shows and audiovisual presentations. The effective use of this tool heavily depends of the quality of the contents, as often synchronization is needed during the content show between different text, voice and pictorial notations.

## Our Achievements So Far

Two computers aided interactive CDs (in Hindi & Ho language) on “Agricultural Diseases and Remedial Measures” were released at a Workshop on “IT-enabled Services for strengthening Research-Extension-Farmer-Market Linkage” on January 7-8, 2011 at BAU, Ranchi.



Centre for Development of Advanced Computing, Kolkata Centre

Plot-E2/1, Block-GP, Sector-V, Salt Lake Electronics Complex, Bidhan Nagar, Kolkata - 700 091

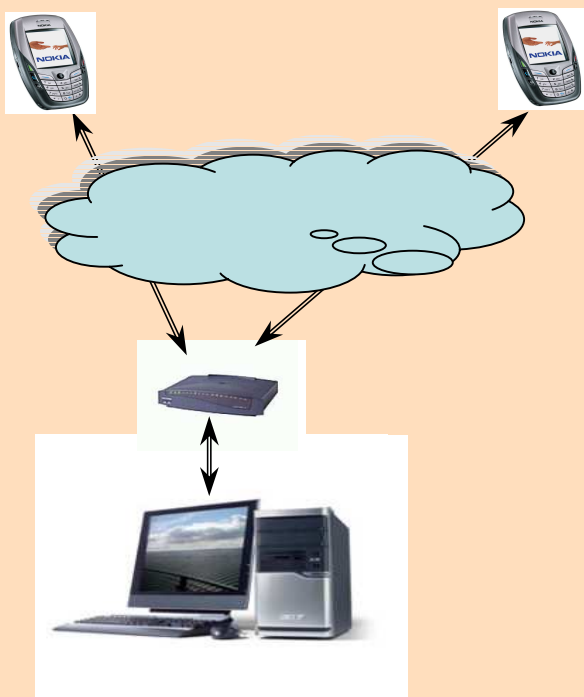
Telephone: 91 33 2357 9846/3581/3950/5989/4258 Fax: 91 33 2357 5141 Website: www.cdackolkata.in

## Objective

Any-time retrieval of useful information pertaining to Agriculture, Veterinary, Forestry in the absence of proper ambience (for e.g. Internet, PC, etc) as well as broadcast of important information (weather-forecast, market status, outbreak of pest and diseases, etc) in the above domain to the interested farmer segment at the earliest.

## Feature / Solution:

Mobile has been a widely accepted media of communication. The important messages will be disseminated to the farmers in push mode. As far as pull mode SMS is concerned, the mobile users can navigate to their requirement through the application to be installed on their mobile. A farmer can send queries in a guided mode. The system will respond with information enquired. In case of non-availability of the information the system will generate a docket number and pass on the same to the domain expert. Farmer will be further intimated against the docket number as soon as the domain expert posts a reply to the query. If the volume of information is more, the replies will be stored in the server; SMS intimation will be sent to the concerned farmer and the replies will be preserved for viewing from the portal against the docket number. Recent queries along with the solutions will contribute towards forming the Frequently Asked Questions (FAQs) at a later stage.



## Uniqueness

The uniqueness of the system is "Any-time, anywhere access of Agricultural Information in vernacular in both the guided & broadcast mode.

## Our Achievements So Far

A prototype of the solution have been demonstrated at a Workshop on "IT-enabled Services for strengthening Research-Extension-Farmer-Market Linkage" on January 7-8, 2011 at BAU, Ranchi.

# Speech-based Access for Agricultural Commodity Prices in Bengali

## Objective

To implement and deploy a speech access based system for users to get prices of agricultural commodities over telephone/mobile. Such systems would provide excellent value-addition to the already existing website <http://www.agmarknet.nic.in/> managed by the Ministry of Agriculture, since no computer, reading or writing skills are required for the proposed system. One possibility is to deploy such systems in Kisan call centers as an aid or assistant to human agents. The languages covered are Bangla, Assamese, Marathi, Tamil, and Telugu. C-DAC Kolkata is responsible for the system development in Bangla Language.

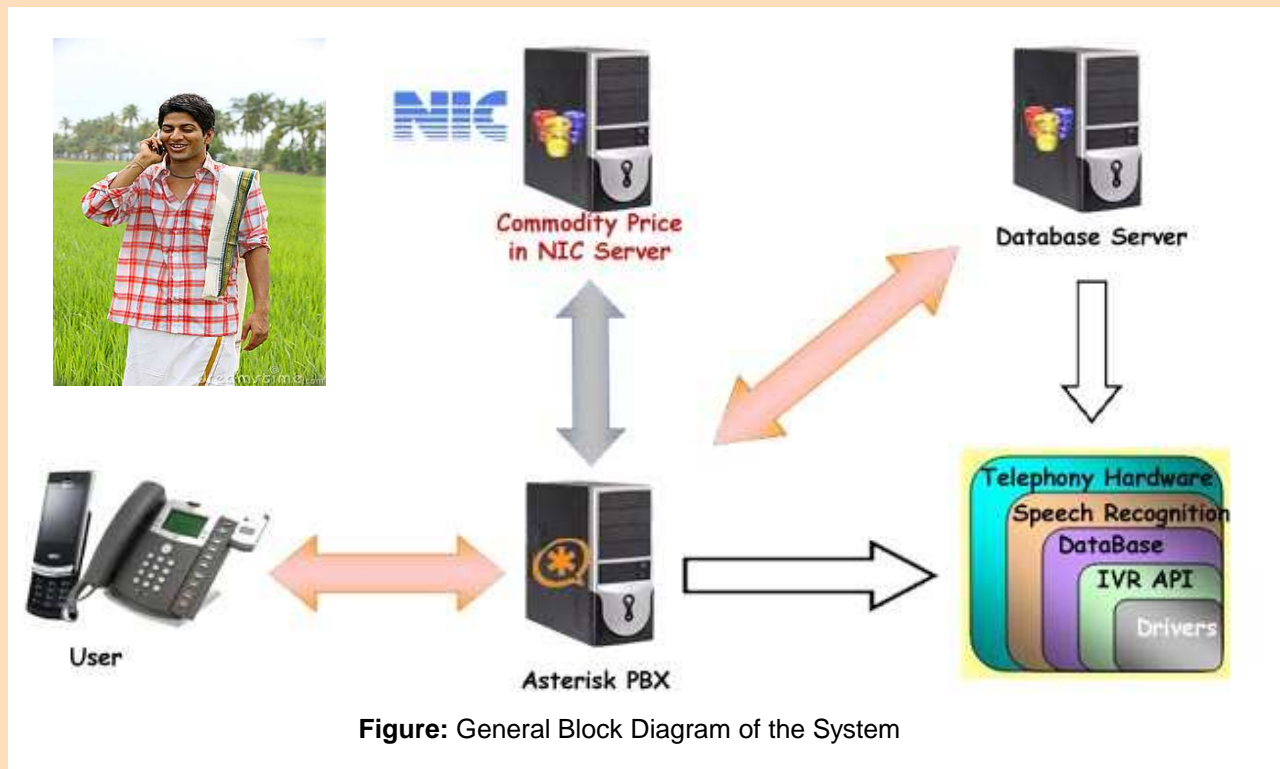


Figure: General Block Diagram of the System

## Progress So Far

Built a preliminary system that can recognize all district names of West Bengal and some most frequent commodity names. Pre-recorded prompts are used for asking questions. Hidden Markov Model (HMM) based ASR engines are used for conversion from speech to text. Open source Sphinx (3.0) is used for training HMM models and for decoding.

## System Features

- Remote access via mobile or landline phone, no need of computers and internet
- Easy to use: support Voice query and response, no need to type or touch
- 24 x 7 hrs Automated Service, no more waiting for reply from manual operators
- Mother tongue support, Bi-lingual (Bangla & English) prompts for better usability
- Helpful for illiterate and visually impaired farmers
- Toll free service via Kisan Call Centre
- Get a phone, Dial (033)-2357-9009, and within minutes the job is done

## Likely End-user(s)

Farmers and other users interested in obtaining the latest prices of agricultural commodities by just speaking over the telephone. This system will be especially useful for those who have no access to computers and Internet, and who may not have the required computer skills and reading/writing skills. Successful completion of this project would also enable development of similar speech-based systems for many other applications like Voice enabled Railway travel enquiry system, Health informatics, Tourist guide, Weather forecasting etc.



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