

4.6 Bliss Intelligent Technologies

Introduction



Bliss Intelligent Technologies, India works on Artificially Intelligent Software Technologies. 21st Century is a century of Fifth Generation Software Technologies.

They are experiencing the revolution in IT sector since 1970s. BLISS has taken an honest step towards the revolution in Intelligent Technologies. BLISS is trying to develop various intelligent software like Text To Speech Synthesizers, Speech To Text Systems, Automatic Speech Recognition Systems, Speaker Recognition Systems, Computer Vision, Intelligent Interactive Voice Response Systems etc.

BLISS is a first company of this world who has launched a Windows based Hindi Text To Speech System using RecSimCat Technique. The quality of the output sound of this system is unbeatable. This System is quite useful for those who have low vision or are visually impaired.

BLISS has a dream to bring the IT Revolution among the masses of India. Currently penetration of Computers into the Rural India is negligible. Technology development for Indian Languages will bring the popularity of computers into the rural India.

BLISS is developing Text To Speech Systems for various Indian Languages to gain its aim.



Products

Hindi Text To Speech System (Bahuropia)

21st century is a century of revolution in Artificial Intelligence and Human Machine Interface Systems. Text To Speech Technology is a branch of Artificial Intelligence. Text To Speech Synthesis is a voice technology in which raw text is converted into audible speech. Text To Speech (TTS) is a process through which input text is analyzed, processed, and “understood”...then the text is rendered as digital audio and then “spoken”. Most Text To Speech Systems can be categorized by the method that they use to translate phonemes into audible sound. Some of them are listed below :

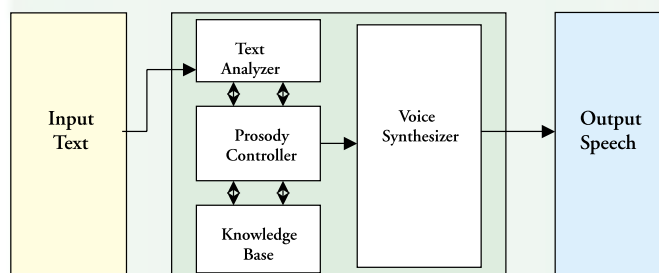
- **Prerecorded**
- **Formant**
- **Concatenated**

We are proposing a new technique (RecSimCat Technique) for the generation of Highly Intelligible synthesized voice with a natural sound.

Comparison of **RecSimCat Technique** with existing Text To Speech Technologies

	Prerecorded	Concatenated	Formant	RecSimCat
Resource requirement	Very large storage, Small memory	Large storage, Very large memory	Low storage, relatively small memory	Low storage, Low memory
Vocabulary	Limited	Unlimited	Unlimited	Unlimited
Voice quality	Natural, Most pleasant	Natural	Robotic, Sometimes not appreciated by the user	Natural
Multiple featured voices	Need high storage in that case	Need high storage in that case	Can produce multiple featured voices without any major changes	Can produce multiple featured voices without any major changes
Intelligibility	High	Highly Intelligible	High	Highly Intelligible

Block Diagram of Hindi TTS



Features:

- Output Sample Rate and Sample Size of generated speech are 22 khz, 8 bit, mono.

- Multiple featured voices of adult female, naughty child, strong female, adult male etc.
- User can vary the speed of pronunciation.

It can run with this configuration or above:

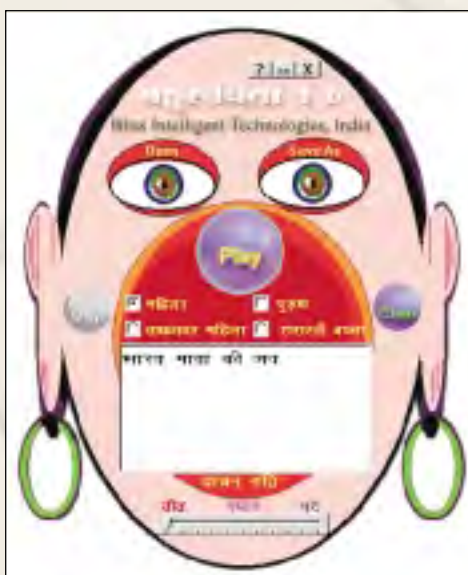
- Pentium Processor 200 MHz
- OS = Windows 95/98, Me, NT, 2000
- 16 MB RAM

Applications where Hindi TTS can be used:

- Dictation Systems
- Telephony
- Unified Messaging
- Information Kiosks
- Reader
- Talking Web Pages
- Games/Edutainment
- Automobile
- Intelligent Agents

Example Applications :

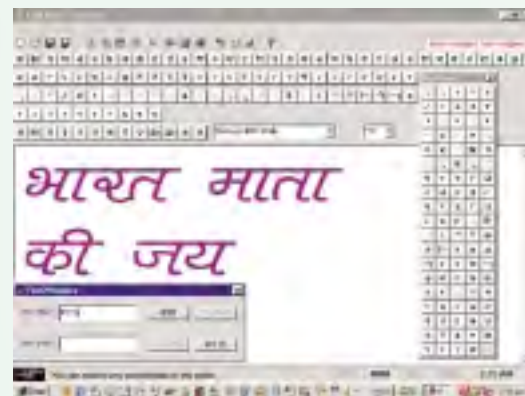
1. Bahuroopia 1.0



(Bahuroopia 1.0)

- Bahuroopia 1.0 is a fun generating program for children.
- Can produce multiple featured voices.
- User can vary the speed of speech.

- User can play any text of Hindi from any other external window.



2. Bolti Paati 1.0



(Bolti Paati 1.0)

Bolti Paati 1.0 is an intelligent text editor with integrated Hindi TTS support.

- A software package for those who have low vision or are visually impaired
- Blind people can draft a letter or compose a text file in Hindi.
- They can hear everything whatever they have written.
- They can edit their written text.
- Facility of speaking keys.
- Speaking menus.
- Overall it is a very useful product for those who can't see.

3. Zubaan 1.0

A component (dll) which can be easily integrated with any other third party software (like IVRS, Text Editors, Games, Information Kiosk Software, Embedded Software etc.) to provide Hindi Text To Speech support.

4. VoiceXML Interpreter

VoiceXML Interpreter with Hindi TTS integration.

Intelligent Interactive Voice Response System

- Information and services through any touch-tone telephone.
- All such telephones become, in effect, computer terminals for retrieval of information and service requests.
- This capability greatly enhances any company's position, particularly with the advances in hand-phones and the inevitable growth of wireless communications for the general consumer.

The BLISS IIVRS provides the following functions to customers and employees alike, via a telephone

- Automated access to information
- Automated services
- 24 hour operations
- Consistent quality voice responses

Functionality :

Customer calls on a telephone number, the Voice System answers the call, greets the customer and prompts for instructions via spoken menu. In response to the caller's commands, database information may be retrieved or service requests executed. Responses to the caller are via pre-recorded digitized voice. At any point of time, the caller may opt to transfer to an operator, request for hard copy of information or confirmation of service via fax. Outgoing calls can also be initiated by the system complete with the capability to detect and retry busy or answered calls.

Impact on Business :

BLISS IIVRS will help you to:

- Increase customer service levels
- Extend customer service hours
- Improve information dissemination
- Increase employee productivity
- Secure voice conveyed transactions
- Reduce operations cost

Industries Benefited :

The Voice System is proven beneficial in the following industries:

- Financial institution
- Government
- Transportation
- Civil
- Defense
- Stock Markets
- Insurance
- Courier companies and many others.

Other features :

- Capability of generating speech in Hindi.
- ASCII standard support. Supports various Hindi Fonts like Devlys.
- Dashamkhari based intelligent speech engine for Automated Voice Response.
- Capable of pronouncing values to the series of digits.
- User can vary the speaking speed.
- Intelligent Interaction with User

Portability/Expandability :

- Can be very easily ported to any platform.

Type of Technology :

- Human Machine Interface (HUMIS)

Potential beneficiaries :

- Railways, Roadways, Airways, Telecommunication Service Providers etc.

Conclusion

Proposed Applications which used RecSimCat Technique has all the combined advantages like need of low disk space, intelligibility, capability of producing multiple featured voices, elimination of robotic voice, ability of reading text from any external window etc.

By the progress of time this technology will gain popularity because of its simplicity. We can make TTS System for any language by using RecSimCat Technique.

Other ventures of BLISS :

- Bliss Artificial Intelligence
- Bliss Robotics
- Bliss Speech
- Bliss Vision
- Bliss Telecom
- Bliss Business Solutions
- Bliss Multimedia
- Bliss Web Art
- Bliss Education
- Bliss Music

*(Source Website/Courtesy :
Bliss Intelligent Technologies,
India 61, Patel Nagar, Hawa Sarak,
Civil Lines, Jaipur - 302006, Rajasthan, India.
Tel : +91-141- 2211585 Fax : +91-141- 2213202
E-mail : shakti@blissit.org
Website : http://www.blissit.org)*