

E I M S™ - Interactive Voice Response System

Redox Technologies is a pioneer in computer telephony development and IVR service bureaus. We have developed, implemented and maintain no. of applications currently serving educational institutions, professional corporations, retail corporations, government organizations and many other industries.

What is an IVR system?

Interactive Voice Response (IVR) is a software application that accepts a combination of voice telephone input and touch-tone keypad selection and provides appropriate responses in the form of voice, fax, callback, e-mail and perhaps other media. IVR is usually part of a larger application that includes database access.

An IVR application provides pre-recorded voice responses for appropriate situations, keypad signal logic, and access to relevant data, and potentially the ability to record voice input for later handling. Using computer telephony Integration (CTI), IVR applications can hand off a call to a human being who can view data related to the caller at a display.

Interactive Voice Response (IVR) systems allow callers to get access to information without human intervention. Thus callers hear a pleasant and cheerful voice 24-hours a day, 7 days a year without any attendant human fatigue.

Since even the cost of the call is borne by the caller, apart from the one-time installation cost, there is no running expense for the company who deploys the IVR systems. Another advantage to the company is that it would otherwise be impossible to handle high loads of callers, both in terms of time, and the cost of the large number of individuals that it would require.

Interactive Voice Response Features

- Simple to use Graphical System Design Interface
- Multiple telephone line support both on Analog and Digital
- Advanced call screening and call switching options
- Can be integrated with any type of database. Playback data retrieved from database
- Text to Speech
- Call Transfer to other extensions, optionally announcing the Caller ID, allowing the recipient to accept or decline the call
- Full logging of callers' details and all the selections made during the call
- Multi-Language support (English /Hindi)
- DNIS: (Dialed number identification service)
- ANI: (Automatic Number Identification)

Common IVR applications include:

- Schools, Colleges and Educational Institutions
- Bank and stock account balances and transfers
- Surveys and polls
- Call center forwarding
- Simple order entry transactions
- Selective information lookup (movie schedules, etc.)
- Ticketing and Reservation
- IT Enabled Services
- Hotels, Airline & Train Ticket Enquiry & Booking Centers
- Entertainment Industry
- Complaint Booking and Customer Support Centers
- Banks, Finance and Credit Corporations
- Tele-Marketing Industry –Outbound Calls

IVRS for an Educational Institution

An IVRS is an exemplary innovation in the area of voice assisted browsing and data retrieval on telephone, data that contains information of interest and has straight relevance to the user.

This application software allows full resource sharing and integration with the existing database of **EIMS™**, Our Software solution for the complete computerization of Educational Institutions. The software first converts the data into a voice format and then sends it on to the telephony network. The voice response by the system is then heard by the caller, and as discussed, shall cover the following informational requirements:

- 1) Fees Installment Paid/Due Status of the Student.
- 2) Attendance status for any day, week, month or entire year.
- 3) Marks scored in any test or exam.
- 4) Rank in any test or exam.
- 5) Percentage scored in exam.
- 6) Score, rank and percentage in any particular subject.
- 7) Homework for any day.
- 8) Remarks given by teachers.
- 9) Timetable.
- 10) Test schedule and test syllabus.
- 11) Dates of admission, pre-requisites for admission and status of admission for any application.
- 12) Vacancies for faculty, if any.
- 13) Any important announcements for parents like dates for parents-teachers meetings or any other messages.
- 14) Automatic Fee Reminders on student telephone numbers.

- 15) **Voice mail accounts** for each and every student (especially in case of a boarding school), to help parents leave important messages for their wards.
- 16) **Parents' Grievance Box**, to make parents leave their grievances about their child's performance, for any subject. The recorded grievance is then automatically sent to the **voice mailbox of the teacher** who takes that particular subject in the class.

The basic system can handle 4 incoming calls at one point of time, **24 hours a day, 7 days a week and 365 days a year.**

The Hardware Requirement

The hardware generally required for such systems is:

- A Server computer
- Telephony cards that answer calls
- IVR software

Apart from this, there needs to be connection to the database from where the information will be picked up. This is generally through an IP based network.

Apart from delivering information by voice, there are other methods, as well that one should consider. They are fax, email & SMS. For instance, if the caller wanted an account statement from his bank, voice is quite useless, Fax or email are better options.

The system can be integrated with applications to send Emails, fax, SMS features.

Why IVR?

Interactive Voice Response systems can play a significant role in providing efficient customer service. Properly implemented, they can increase customer satisfaction, lower costs and offer new services. The return on investment (ROI) on these systems is also quite amazing, making them the most popular Computer Telephony systems in the world. Compare them to a call center. The price for the extra “human touch” translates into a huge running cost in the form of Agents, Supervisors, infrastructure maintenance, training, call center performance & discipline reviews, etc. World over, the first systems that any company deploys with a view towards enhancing customer satisfaction are IVR's. Call centers come much later.

IVR's can provide information to callers in one of two ways:

1. Pre-recorded information. Common examples are audio movie snippet previews (e.g. at PVR). Though it is possible to build these IVR's through live information from databases (using text-to-speech engines as explained later in this document), one doesn't get the voice variations, which are so important for the moviegoer. Other examples are around procedural (or “how to”) information dissemination like Income tax filing procedures, bank account opening or credit card application procedures, etc.

2. Live information from databases. These IVR's get information from databases, convert to voice, and speaks it back to the caller. Practically all industry segments are potential users for this, and examples include Phone banking (where you call in, dial in your account number & TPIN and can hear your account balance on phone) Courier packet trace (where you call in, dial the AWB number, and the system tells you whether the packet has been delivered, if it is in transit, etc)

How it works?

Example 1. Lets say you called your bank, dialed your account number and TPIN, and chose to hear your account balance. The IVR finally speaks out:

Your current account balance is rupees **one lakh and fifteen thousand.**

The first part of the sentence (in italics) is fixed, and the second part (bold) is picked from a database. The fixed part is pre-recorded (or canned) voice file, which never changes. However, the second part changes from caller to caller. The account balance number is picked from the database or calculated, converted to voice and spoken out. The conversion for numbers, currencies, dates and characters (“A”, “B”, “C”, etc) can happen automatically inside the IVR. For doing this IVR system must incorporate algorithms for the languages (eg English, Hindi) that it supports. Hence you should specify the languages that you want the IVR to support, and explicitly confirm with the vendor that it is possible.

However, few IVR's pick text from a database field and speak it out (e.g. weather service that accepts city STD code from the caller, picks the text of the current weather for that

city from a database field, and speaks it out). Such systems require an additional component called “text to speech” engine. Such engines accept text and convert it to voice. Though this voice cannot replicate human voice, it is quite close. These engines are generally available in English and other world languages only. No other Indian language is supported as of now.

Example 2: You call a courier company to track your packet, and it speaks out:

Your packet number **123456** dated **July 3** was delivered on **July 5**.

The portions in bold are the ones where data was picked from a database and spoken to the caller.

Example 3: An example of TTS (text to speech) engine is if the courier company speaks out:

Your packet number **123456** dated **July 3** was delivered on **July 5**, and was accepted by **Mr. Murli**.

The part in italics is text picked from a database, converted to speech and appended to the whole voice “string”.