# Hospital IVR Modernization

## 1. Introduction:

This document describes the analysis of the existing hospital IVR system built using VXML technology and outlines the technical and functional requirements needed to integrate it with Conversational AI platforms. The objective of this milestone is to understand the legacy architecture, identify integration gaps, and define modernization requirements while minimizing redevelopment effort.

## 2. Existing System Overview:

## 2.1 Current IVR Use Cases

Write hospital features:

- Appointment Booking
- Lab Report Status
- Billing Enquiry
- Emergency Support
- Call Transfer to Reception

## 2.2 Current Call Flow

Welcome to ABC Hospital.

Press 1 – Appointment

Press 2 – Lab Reports

Press 3 – Billing

Press 4 – Emergency

Press 5 – Talk to Reception

## 3. Existing Architecture Analysis:

Components:

- Telephony Gateway
- IVR Server
- VXML Scripts
- Backend Systems (Database, Appointment System)
- DTMF Input Handling

## 4. Limitations of Existing IVR:

- Supports only DTMF input
- No natural language understanding
- Static menu-based navigation
- No conversation context retention
- Limited personalization
- Higher call handling time

## 5. Gap Analysis

| Current System | Required Modern Feature |
|---|---|
| DTMF Input | Voice Input |
| Static Flow | Dynamic Conversation |
| No AI | Intent Detection |
| No Context | Context Management |

### 6. Integration Requirements

### 6.1 Functional Requirements

- Speech-to-Text conversion
- Intent recognition
- Entity extraction (Doctor name, Date, Department)
- Backend API integration
- Multi-language support

## 6.2 Technical Requirements

- Real-time API communication
- JSON-based data exchange
- Secure communication (HTTPS)
- Low latency response (< 2 seconds)
- Fallback to DTMF

# 7. Challenges Identified

- Data privacy & patient information security
- Real-time synchronization with doctor availability
- Emergency routing priority handling
- High call volume scalability
- Integration compatibility between VXML and AI APIs

# 8. Conclusion

The current hospital IVR system effectively supports basic service requests but lacks flexibility and conversational capability. Through systematic analysis and requirement gathering, modernization pathways were identified to transform the IVR into an intelligent, voice-driven assistant. This milestone serves as the blueprint for delivering a more natural, efficient, and patient-friendly interaction model powered by Conversational AI.