The Institution of Engineers (India)

AN ISO 9001 : 2015 CERTIFIED ORGANISATION
(ESTABLISHED 1920, INCORPORATED BY ROYAL CHARTER 1935)
8 Gokhale Road, Kolkata-700 020

A Century of Service to the Nation

NOTICE INVITING TENDER

No. T-1865 **Dated: 13.02.2026**

Supply, Implementation & Support AI-Driven Front Desk System (AI Voice Receptionist) at IEI-HQ

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The Institution of Engineers (India) [IEI] invites Sealed Tenders in Single Stage two Envelope bid system for engagement of an organization for ***"Supply, Implementation & Support AI-Driven Front Desk System (AI Voice Receptionist) at IEI-HQ".***

1. The organization who shall be engaged has to perform the above mentioned task as per the scope of work mentioned in the tender document.

2. The sealed tenders are to be submitted in prescribed format along with details/supporting documents wherever applicable, if attached with the tender should be duly authenticated by the vendor/s. No over-writings shall be accepted unless authenticated with full signature of the vendor/s.

3. The tender shall be in two parts viz. **Technical Part – (Envelope – 'A')** and **Financial bids (Envelope 'B')** (Envelope 'A' and 'B' with the content shall be clearly marked on the top of the envelopes separately). **Technical Part (Envelope – 'A')** shall comprise of compliance documents against Qualification Requirement, GST Registration certificate and any other document in support of technical capability (Refer Table-A). The Technical bid should not contain any financial indication, violation of which will invite disqualification. Financial bid shall comprise of quoted price only in the format provided with the tender document in **Envelope – 'B'.** Both Envelope – A & B shall be put in a third envelope, sealed and submitted within the prescribed date & time and with signature of the tender applicant over it.

4. The sealed tender duly superscribed with **"Supply, Implementation & Support AI-Driven Front Desk System (AI Voice Receptionist) at IEI-HQ"** with Tender No. should be addressed to Deputy Director (IT &Administration) sent at the Institution's address either by registered post/speed post/or by hand. Postal / couriered tender must reach to this office within stipulated date & time i.e., **upto16.00** hrs of **23 Feb 2026.**

5. Tenders received after the stipulated date and time shall not be entertained. The Institution shall not be liable for any postal delays what so ever and tender received after the stipulated time/date are liable to be rejected summarily without giving any reason and any correspondence.

Deputy Director (IT &Administration)

Aim of Incorporation

The aim of incorporating an AI-based human receptionist front desk is to automate visitor handling and customer interactions with a natural, human-like experience. It ensures 24/7 availability, faster response times, and consistent multi-lingual communication while reducing operational costs. The system enhances efficiency by managing inquiries, appointments, and routing requests seamlessly. Overall, it improves customer satisfaction and allows staff to focus on higher-value tasks.

Qualification of Bidder

1. The bidder should be registered company and submit the certificate of incorporation.
2. The bidder should have valid GST Registration Certificate & PAN. Bidder shall have to
3. submit photocopy of the documents.
4. The bidder should be a AWS (authorized) Advanced or Premier Partner and shall have to
5. submit the certificate of AWS authorization.
6. The bidder should have minimum 3 years of experience implementing AWS solutions comprises of EC2, S3, Cloud watch, AWS WAF etc.
7. Bidder has to submit their clientele.
8. Bidder must ensure Single point of contact for troubleshooting or a helpdesk with 24 X 7
9. team will function as a single point of contact for all sorts of problem.
10. Bidder have to assist Institution with proper support, as and when required.
11. Bidder must have to do a successful PoC (Proof Of Concept) of the entire solution to qualify and participate in the bid.

Guidelines on Bid submission:

1. The language of the documentation & details in the Bids must be in English.
2. All bids to be submitted in single stage two envelope in separate covers:

a. **Technical Bid** :- Envelope A should be superscribed with Tender No and Name of Job i.e.**"Supply, Implementation & Support AI-Driven Front Desk System (AI Voice Receptionist) at IEI-HQ"** and word "TECHNICAL BID" along with the duly signed and stamped photocopy of documents in support of their candidature for Tender and each document to be signed by authorized representative.

b. **Financial Bid** :- Envelope should be superscribed with Tender No and Name of Job i.e. **"Supply, Implementation & Support AI-Driven Front Desk System (AI Voice Receptionist) at IEI-HQ "** and word "FINANCIAL BID" containing rate coated by the party duly signed and stamped by authorized representative.

3. These two bids to be placed in separate large envelope superscribed with Tender No and Name of Job i.e.**"Supply, Implementation & Support AI-Driven Front Desk System (AI Voice Receptionist) at IEI-HQ ".**

4. **For any query please contact:**

   Sudip Roy, Deputy Director, IT & Admin
   9830744323 / sudip.roy@ieindia.org

Functional Requirements

- **Call Handling and Voice interaction** - The system shall automatically receive incoming telephone calls on designated number. The Al agent shall interact with callers using natural, conversational voice in real time. It should support for multi-language interaction

(English, Hindi and other Indian languages). It should have the ability to handle simultaneous calls with configurable concurrency limits.

- **Intelligent Query Processing -** The Al agent shall understand caller intent using NLP and context awareness. The system shall answer routine and frequently asked queries without human intervention. It should have ability to ask clarifying questions where required. It should support for script-based, rule-based, and Al-driven dynamic responses.

- **Database and Backend Integration** - It should be a secure integration with enterprise databases and applications (ERP systems, etc.). The Al agent shall be able to query data at database level (read-only or role-based access). All database access shall be logged and audit-able and it should support Real-time retrieval of information such as:
  Member / customer details
  Application or request status
  Office timings, services, departments
  Contact details and procedural information

- **Call Transfer and Escalation -** It should have intelligent call routing and transfer to:
  Specific department
  Designated officer / extension
  Call queue or human receptionist

It should have routing based on:
- Caller intent
- Language preference
- Time of day / working hours
- Availability of staff

It should have support for warm transfer (Al announces context to human executive before transfer) and feedback collection from the user.

- **Call Recording, Logging and Analytics -** All calls shall be recorded (subject to policy and consent on cloud).

Automatic generation of call logs, including:
Caller number
Date and time
Duration
Query category
Outcome (resolved / transferred / dropped)

Dashboard for:
Call volume trends
Resolution rate X
Peak hours analysis
Agent performance metrics
Replay of recorder call for quality check

Export of reports in CSV / Excel / PDF formats.

- **Administration & Configuration -** Web-based Admin Control Panel with role-based access.
  Ability to:
  - Configure call flows and scripts
  - Add/update FAQs and knowledge base

- Manage extensions and routing rules
- Enable/disable services or languages

No-code or low-code interface for functional administrators

- **Security Compliance & Audit -** Role-based access control (RBAC).

Encryption of data in transit and at rest.

Compliance with:

- ISO/IEC 27001 Information Security controls
- DPDP Act, 2023 (where applicable)
- Organizational IT & data policies

Complete audit trails for system access and database queries

- **Business Continuity & Availability, Vol (Wo2) -**High availability architecture with fail over mechanisms. Configurable fallback to manual call handling in case of Al service disruption. Backup and restore mechanisms for configurations and logs.

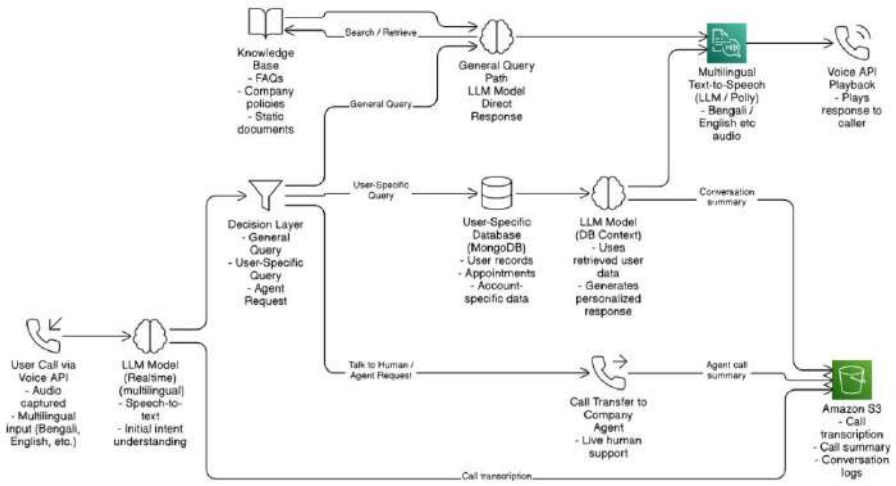
- **Call Recording Storage & Associated Metadata Management -** The system shall record all AI-handled calls, subject to applicable consent and organizational call-recording policies. Each call recording shall be securely stored in a cloud-based storage system with appropriate access controls. Along with the audio file, the system shall store structured metadata for each call, including:

  Caller number
  Date and time of the call
  Call duration
  Query category
  Call outcome (resolved / transferred / dropped)

The system shall store AI-generated call artifacts associated with each recording, including:

  Call summary
  Identified action items or follow-up notes
  Sentiment or mood indicators
  Detected intent or priority level

The system shall maintain a complete storage-level history of call forwarding and transfers, including timestamps and destination identifiers. Stored call recordings and associated metadata shall be retrievable by authorized users for audit, compliance, quality assurance, and review purposes. The system shall support configurable data retention and archival policies as per organizational and regulatory requirements.



Flow Diagram

Scope Of Work

Supply and commissioning of Hardware at the IEI as per Annexure-I & II.

- **Solution Design and Architecture -** Requirement study and finalization in consultation with the Client. Design of end-to-end system architecture, including telephony, Al engine, database integration, and security layers. Submission of architecture diagrams and technical documentation.
- **Software Development & Customization -** Development/configuration of the AI-Driven Front Desk application. Customization of Al models, workflows, and call scripts as per Client requirements. Multi-language voice model setup and tuning.
- **Integration Services -** Integration with:
  Existing telephony infrastructure (PBX/SIP/PRI/VoIP)
  Databases and enterprise applications
  API development and secure connector configuration.
  Testing of real-time data retrieval and call transfers.
- **Deployment & Commissioning -** Installation and deployment in:

  On premises/Private Cloud/Government Cloud/ Hybrid environment (as decided)
  Configuration of call numbers, routing, dashboards, and admin access.
  User Acceptance Testing (UAT) support and production rollout.
- **Documentation & Training -** Supply of complete documentation:

  User manuals
  Admin guides
  System architecture & security documentation

  Training for:
  System administrators
  Functional users / front-desk supervisors
  Knowledge transfer sessions.
- **Support & Maintenance**

Post-implementation support during warranty period. Defined SLA for incident response and resolution. Regular updates, bug fixes, and performance tuning. Annual Maintenance Contract (AMC) after warranty.

- **Call Recording Storage & Associated Metadata Management**

Supply and configuration of Amazon S3–based cloud storage services for secure storage of all AI-handled call recordings generated by the AI-based human receptionist system along with structured metadata including caller number, date and time, call duration.

Storage and linkage of AI-generated call artifacts with each recording, including call transcripts, summaries, action items or follow-up notes, sentiment or mood indicators, and detected intent or priority levels.

Utility installation and demonstration of the utility for backup and restore.

- **Compliance & Security Assurance**

Security hardening and vulnerability mitigation. Assistance during audits (ISO 27001 / internal IT audit).Submission of compliance declarations and security test reports (if required).

Financial Part

Sl No.	Description	Unit Rate (Rs)	GST Rate (in %)	Total Rate (Rs)
1	AWS Infra solution Implementation Cost (One Time)			
2	AWS Infra Cost (Per Month)			
3	Call cost (Per Minute)			
4	IVR Number Charge (Per Month)			
5	Application Development Charges (One Time)			

Annexure-I

Technical Specifications (Application)

Sln.	Technical Requirements	Compliance (Yes/No)	Remarks
Application Back-end			
1	Backend services shall be built using a modern, event-driven, service-oriented architecture supporting REST and asynchronous APIs like Node Js.		
2	The backend platform shall support horizontal scalability, stateless service execution, and container-based deployment.		
3	The system shall support secure API integration with telephony, AI inference engines, and external enterprise systems.		
4	Backend services shall support role-based access control (RBAC) and token-based authentication mechanisms.		
5	The platform shall support real-time processing for call events, metadata ingestion, and AI-generated artifacts.		
Application Front-end			
6	The frontend shall be developed using a component-based, single-page application framework supporting dynamic UI rendering like React. Js		
7	The user interface shall be web-based, responsive, and accessible across modern browsers and devices.		
8	The frontend shall support real-time updates for call status, logs, and interaction summaries without page reloads.		
9	The application shall support secure session management and integration with enterprise identity providers.		
Database Layer			
10	The system shall use a high-availability, distributed database capable of handling structured and semi-structured data like Mongo DB		
11	The database shall support schema flexibility for storing evolving AI-generated metadata and call artifacts.		
12	The database shall support indexing, full-text search, and fast query performance for large datasets.		
13	The data layer shall support encryption at rest and in transit with configurable retention policies.		
Call Intelligence & AI Processing			
14	The system shall integrate with a large language model–based voice AI platform to enable real-time, bidirectional voice-to-voice interactions for inbound and outbound calls.		
15	The system shall support context-aware, multi-turn conversations with intent detection and adaptive response generation.		

16	The AI platform shall support interruption handling (barge-in) during live conversations. The system shall support sentiment and mood detection from voice inputs and generate appropriate contextual responses.		
17	The system shall support real time multilingual and mixed-language conversations, including regional language handling.		
18	The platform shall automatically generate call transcripts, summaries, action items, and intent classification for each completed call.		
19	The solution shall support scalable concurrent call handling with consistent performance and availability.		
20	The IVR system shall support call routing, call transfer, call forwarding, and call termination based on defined business rules and AI decisions.		
21	The IVR system shall integrate with an enterprise-grade cloud telephony platform to handle inbound and outbound voice calls.		
22	The IVR system shall support call recording enablement, subject to applicable consent and organizational policies.		
22	The AI voice processing consumption shall be calculated on a per-minute basis assuming an average usage of ~13000–15,000 tokens per minute , comprising real-time audio input processing, cached and non-cached audio input handling, AI audio output generation, speech-to-text transcription, text input processing, cached and non-cached text inference, and text output generation, with total consumption further influenced by concurrent session count, language complexity, and conversational depth along with the telephony charges. Pricing should be calculated based on that.		

Annexure-II

Technical Specifications (Infrastructure)

Sln	Component / Purpose	Technical Specification	Qty	Region	Remarks
1	SSL VPN Server	Instance Type: t3a.microOS: Linux EBS: 20 GB On-Demand, 100% utilization	1	Mumbai	Secure administrative access
2	Application Server (Frontend + Backend)	Instance Type: t3a.medium OS: Linux EBS: 100 GB On-Demand, 100% utilization	1	Mumbai	Hosts application services
3	Database Server	Instance Type: t3a.mediumOS: Linux EBS: 100 GB On-Demand, 100% utilization	1	Mumbai	Dedicated DB workload
4	Application Load Balancer	HTTPS enabled Health checks Integrated with WAF	1	Mumbai	High availability & traffic distribution
5	Virtual Private Cloud	Dedicated VPC Public & Private Subnets Security Groups & NACLs	1	Mumbai	Network isolation
6	NAT Gateway	Regional NAT Gateway Single AZ	1	Mumbai	Outbound internet for private subnets
7	Public IPv4 Addresses	Static public IPv4 addresses	4	Mumbai	ALB, VPN, public endpoints
8	DNS Service	Hosted Zone management ALB integration	1	Global	Domain name resolution
9	Backup Storage	S3 Standard Capacity: 100 GB Encryption enabled	1	Mumbai	Application & DB backups (Subject to actual usage)
10	Monitoring & Alarms	9 Metrics 1 Dashboard 50 Alarm Metrics	1	Mumbai	Monitoring & alerting
11	Encryption Key Management	1 Customer Managed CMK Up to 1,000,000 requests/month	1	Mumbai	Data-at-rest encryption
12	Web Application Firewall	1 Web ACL10 security rules	1	Mumbai	10 Custom Rules
13	Internet Data Transfer (Outbound)	100 GB per month (estimated)	NA	Mumbai	Subject to actual usage