MUMBAI PORT AUTHORITY
EDP DIVISION
MECHANICAL AND ELECTRICAL ENGINEERING DEPARTMENT

EXPRESSION OF INTEREST [EOI] FOR – Procurement of AI-enabled Chatbot for Mumbai Port Website

- REQUEST FOR BUDGETARY OFFER.

Mumbai Port Authority intend to invite Expression of Interest from the reputed firms from those who have provided AI-enabled Chatbot Systems to Government/public sectors and other leading private organizations. The Expression of Interest (EOI) documents can be downloaded from Mumbai Port website https://mumbaiport.gov.in/

The completed EOI (Expression of Interest) – Budgetary offer shall be submitted with supporting documents on or before 15.02.2024.

The EoI may be sent by email to cp.uparkar@mumbaiport.gov.in.

Chief Technology Officer

MUMBAI PORT AUTHORITY
MECHANICAL AND ELECTRICAL ENGINEERING DEPARTMENT
EDP DIVISION

EXPRESSION OF INTEREST [EOI] DOCUMENT – BUDGETARY OFFER

FOR

EXPRESSION OF INTEREST [EOI] FOR - Procurement of AI-enabled Chat-bot for Mumbai Port Website

Last date for submission: 15.02.2024

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Chief Technology Officer

Mechanical & Electrical Engineering Department

MUMBAI PORT AUTHORITY

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– Request for Budgetary offer

1. **Project Overview :**

   Mumbai Port Authority intend to invite Expression of Interest from the reputed firms from those who have provided AI-enabled Chat-bot for websites. The Mumbai Port Authority aims to elevate customer interaction and assistance by incorporating an AI-powered chatbot into its official website www.mumbaiport.gov.in. It should also include our data bases of Access control for Permits, Legal Dept. cases, Estate Management DB, Our contracts DB, Invoices status DB, etc.;

   This strategic initiative is driven by the core objective of delivering prompt and efficient responses to customer inquiries, simplifying the process of retrieving information, and ultimately enhancing the overall user experience on the platform which will quickly answer questions from customers, make it simpler to find information, and make the whole website experience better for users.

2. **Project Scope and Eligibility Criteria:**

   The company name and logo containing chatbot will be implemented on the company website to address customer queries about port information, berth statuses, traffic and estate regulations and rates, sustainability efforts, ease of doing business initiatives, and other commonly asked questions found on the website. It will be a text-based chatbot with natural language processing (NLP) & Large Language Model (LLM) capabilities, offering a conversational user experience. The chatbot is designed to facilitate customer interactions and to be built with provision of integration with Mumbai Port's CRM system for future expansion.

3. **Functional Requirements:**
   The chatbot should be capable to

   Provide information on Port services from Mumbai Port Authority's (MbPA) official website:

The chatbot should be able to access and retrieve up-to-date information from the official website of Mumbai Port Authority regarding various port services, including but not limited to, port facilities, available services, and any other relevant details.

Assist in availing Port services by sharing relevant links from the official web:

The chatbot needs to generate and provide clickable links to specific pages or sections on the official website that relate to the services inquired about by the user. This ensures that users can easily navigate to the relevant information.

Handle common customer queries and FAQs:

Implement NLP/LLM capabilities to understand and respond effectively to common customer queries related to port services, regulations, sustainability initiatives, and any other frequently asked questions. The chatbot should be able to provide accurate and relevant information in a conversational manner associated with the website.

Integrate with the CRM system to retrieve customer-specific data:

Able to Establish integration with Mumbai Port's CRM system whenever required to retrieve and access customer-specific data. This may include information such as customer profiles, transaction history, preferences, and any other relevant data that can enhance the personalization of customer interactions.

Escalate complex queries to human agents when necessary:

Provision to Implement and Design a process for escalating any unanswered or request based queries to human agents or customer support representatives. This ensures that more intricate or sensitive issues receive the attention and expertise they require.

It's important to note that the implementation of these functional requirements may involve collaboration with the IT team, web developers, and CRM system administrators. Additionally, the design should prioritize user-friendly interactions and ensure that the chatbot enhances the overall customer experience by providing accurate and timely information. Regular testing and updates will be necessary to maintain the effectiveness of the chatbot in meeting these functional requirements.

4. Technical Requirements:

Chatbot Framework: Implement the chatbot using the latest version of the Generative/LLM available

Framework Selection: Choose the latest stable version of the framework for chatbot development. Consider compatibility with other required technologies and libraries.

Installation and Setup: Set up the framework on the development environment, ensuring that all dependencies are properly installed.

Configuration: Configure the chatbot framework based on project requirements, specifying intents, entities, and responses.

Customization: Customize the chatbot's behavior, dialog flow, and responses to align with the specific needs of Mumbai Port Authority.

NLP Engine/LLM : NLP/LLM engine to be utilized to enable the chatbot to understand, interpret, and generate human-like responses.

Intent Recognition: Implement required algorithms for intent recognition to understand the user's intention behind each message or query.

Context Management: Implement required context management to maintain a conversation's context over multiple user interactions.

Integration: Integrate the chatbot with the existing CRM module using secure APIs as per requirement.

API Documentation: Obtain and review the API documentation for CRM to understand the available endpoints, authentication mechanisms, and data formats when required.

API Integration: Implement secure API integration between the chatbot and CRM when required, allowing the chatbot to retrieve and update customer-specific data.

Error Handling: Implement robust error-handling mechanisms to gracefully manage communication errors, ensuring that the chatbot can handle API-related issues effectively enduring to zero hallucination.

Hosting: Deploy the chatbot on the cloud for scalability and reliability:

Cloud Platform Selection: Choose a reliable cloud service provider (e.g., AWS, Azure, or Google Cloud) based on project requirements, cost, and scalability.

Deployment Automation: Set up automated deployment pipelines to streamline the process of deploying updates and new versions of the chatbot.

Scalability: Configure the hosting environment to scale resources dynamically based on usage demands, ensuring optimal performance during peak periods.

Security: Implement end-to-end encryption and follow best practices for data security. All the data fetched and the data accessed should remain with SI in the protective and secured environment, this is mandatory.

Encryption: Implement end-to-end encryption to secure communication between users and the chatbot, protecting sensitive information.

Access Controls: Apply strict access controls to limit who can access and modify chatbot-related resources, including the CRM integration.

Data Storage Security: Ensure that any stored user data, logs, or chat transcripts are stored securely, following best practices for data security and privacy.

Regular Security Audits: Conduct regular security audits and assessments to identify and address potential vulnerabilities, keeping the chatbot system secure against emerging threats.

By addressing these technical requirements, the implementation of the chatbot using the framework, NLP/LLM engine, CRM integration, cloud hosting, and security measures can be executed effectively to meet the project's objectives. Regular updates and monitoring will be essential to ensure ongoing performance, security, and scalability.

5. User Experience (UX) and Design:
Design a user-friendly interface with a conversational tone consistent with Mumbai Port Authority's brand image.

6. Training and Maintenance:
Train the chat-bot and continuously update its knowledge base for precise responses and provide documentation and training for MbPA staff for ongoing maintenance tasks. Establish a quarterly maintenance plan for updates and improvements with Quarterly Business Reviews.

7. Performance Metrics and Monitoring:
Key Performance Indicators (KPIs): Response time, user satisfaction, and successful query resolution.
Implement monitoring tools to track and analyze chatbot performance.
This should also include the KPI customer sentiments or experience
Monthly reports on KPIs and recommendations for enhancements.

8. Project Timeline:
Development and Integration	: 2 Weeks
Testing and QA	: 2 Weeks
Deployment	: 1 Week
Training	: 2 Week
Maintenance Phase	: 2 year (Extendable on mutual agreement)

9. Payment Terms:
Payment Terms: 50% on start of Deployment followed by 50% payment after UAT completion/Go Live

10. Acceptance Criteria:

Successful completion of user acceptance testing (UAT) based on predefined test cases. Achievement of predefined KPIs during the initial post-deployment period.

11. Change Control Process:

Any proposed changes to the scope must be submitted in writing and approved by both parties.