AI Lab for Public Services

Artificial Intelligence (AI) is emerging as a key technology for transforming the delivery of public services. For Kerala, the adoption of AI presents an opportunity to make government services more accessible, responsive and citizen-centric, while addressing the linguistic and contextual requirements of the State.

The Centre for Development of Imaging Technology (C-DIT), through its various digital initiatives, has already undertaken the development and application of AI-based technologies in areas such as citizen services, government information access, language technologies, learning and public safety. These initiatives provide a foundation for establishing a dedicated **C-DIT AI Lab** at the ICT Complex, Pattom, Thiruvananthapuram.

The proposed AI Lab is envisioned as a common platform for consolidating existing AI capabilities, undertaking research and development, and creating reusable AI technologies specifically designed for public service delivery.

2. Objective

The primary objective of the C-DIT AI Lab is to develop and enable AI-based public services that are accessible, reliable, citizen-centric and responsive to Kerala's linguistic and governance context, with particular emphasis on Malayalam.

The Lab will:

- Consolidate and integrate AI technologies and systems developed through various C-DIT projects.
- Establish a common technological foundation for developing AI-enabled government services.
- Promote research and development in AI, with a focus on public-sector applications.
- Develop reusable AI components and services that can be adopted across government departments.
- Enable the development of Malayalam-centric AI capabilities for government and citizen services.
- Promote the use of government-controlled computing infrastructure for AI applications involving government data and services.

3. Core AI Capabilities

The C-DIT AI Lab will build upon and further develop a set of common AI capabilities that can support multiple government applications. These include:

Multilingual Conversational AI:
AI systems capable of listening, understanding and responding in Malayalam and English, enabling citizens to interact with government services through natural language.

Government Knowledge and Information Intelligence:
AI systems capable of providing responses based on authenticated and verified government information, thereby improving access to government orders, records, schemes, services and other official information.

Speech and Language Technologies:
Speech-to-text and text-to-speech capabilities that enable natural interaction with digital government services, including the generation of natural-sounding Malayalam and English speech.

Document Intelligence:
AI-based technologies for extracting, understanding, classifying and retrieving information from government documents and records.

AI Agents for Public Services:
Intelligent agents capable of guiding citizens through government services, processes and information requirements using conversational interfaces.

These capabilities will be designed as reusable building blocks so that they can be integrated into multiple government applications rather than developed independently for each project.

4. Existing and Emerging Initiatives

The proposed Lab will bring together and further develop AI initiatives currently being undertaken by C-DIT, including:

- **Sherpa** – an AI-enabled system supporting Non-Resident Keralites in areas such as investment and employment opportunities.

- **C-DIT AI Agent** – an intelligent assistant designed to guide citizens towards relevant government services and information.
- **Government Documents Portal** – an AI-enabled platform for discovering, accessing and understanding government orders and official records.
- **Sahaya-Maya** – an AI-enabled initiative supporting the emergency safety and assistance requirements of elderly citizens.
- **Cooperative Bylaw Verification System** – an AI-based system for assisting in the verification of bylaws of cooperative institutions.
- **AI-based Learning and Training System** – an intelligent learning environment supporting training and knowledge development.

These initiatives represent application-level implementations of AI capabilities that can subsequently be standardized, enhanced and reused through the proposed AI Lab.

5. Common AI Platform Approach

A key principle of the C-DIT AI Lab will be the development of common and reusable AI capabilities rather than creating independent AI solutions for each government project.

The Lab will establish shared components such as language models, conversational AI frameworks, speech technologies, document intelligence, knowledge retrieval, AI agents and supporting APIs. These components can be integrated into different departmental applications according to their specific requirements.

This approach will:

- Reduce duplication of AI development across projects.
- Accelerate the development and deployment of new AI-enabled services.
- Promote common technical and security standards.
- Enable continuous improvement of shared AI capabilities.
- Facilitate interoperability between AI-enabled government applications.
- Improve the maintainability and scalability of AI solutions.

6. Government-Controlled AI Infrastructure

Given the nature and sensitivity of government information, the Lab will place emphasis on deploying AI workloads and associated data-processing capabilities on government-controlled computing infrastructure, wherever technically and operationally appropriate.

Such an approach will support greater control over government data, AI workloads, access mechanisms and system operations. It will also provide a foundation for developing AI services that are aligned with government security, privacy and data-governance requirements.

The Lab can progressively establish the infrastructure required for model hosting, inference, knowledge retrieval, document processing, data management, experimentation and AI application development.

7. Malayalam and Kerala-Specific AI

A distinctive focus of the C-DIT AI Lab will be the development of AI technologies that understand the **Malayalam language, Kerala-specific terminology, government processes and public-service context**.

Generic AI models may not always adequately understand local administrative terminology, Malayalam usage, government documentation and the specific information needs of citizens. The Lab will therefore undertake research and development in areas such as Malayalam language processing, government-domain knowledge, speech technologies, document understanding and domain-specific AI models.

Over the long term, the Lab aims to establish the technological and knowledge foundation required to develop a government-controlled AI model or model ecosystem tailored to Kerala's language, governance environment and public-service requirements.

8. Proposed Role of the AI Lab

The C-DIT AI Lab will function not merely as an application development unit, but as a research, innovation and shared technology centre for AI in public services.

Its broad areas of activity will include:

1. AI research and experimentation.
2. Development of reusable AI components and platforms.
3. Malayalam language and speech technology development.
4. Government-domain knowledge and retrieval systems.
5. AI agent and conversational service development.
6. AI-based document and data intelligence.
7. Model evaluation, validation and responsible AI practices.
8. AI infrastructure and model deployment.
9. Integration of AI capabilities with existing government digital platforms.
10. Capacity building and technical support for AI adoption across government departments.

The establishment of the C-DIT AI Lab at the ICT Complex, Pattom, provides an opportunity to bring together C-DIT's existing AI initiatives and create a coordinated institutional framework for AI research and development in public services.

By focusing on reusable technologies, Malayalam and Kerala-specific AI capabilities, government-controlled infrastructure and public-interest applications, the Lab can become a common technological foundation for the next generation of digital government services.

The C-DIT AI Lab is therefore envisaged as a public-interest AI development centre that combines research, innovation and practical implementation to make government services more accessible, intelligent and citizen-centric.