Digital India BHASHINI Division: National Hub for Language Technologies Powers End-to-End AI at Population Scale

The Digital India BHASHINI Division (DIBD), under the Digital India Corporation (DIC), Ministry of Electronics and Information Technology (MeitY), has enabled the **availability of advanced AI models, including open-sourced Sarvam models, on the BHASHINI platform**, further strengthening India's capabilities in building and deploying **population-scale artificial intelligence systems**. As one of the world's largest public sector AI systems by volume, BHASHINI's National Hub for Language Technologies (NHLT) operates on India's first fully vendor and cloud-agnostic **AI Sovereign Cloud**, **ensuring absolute data sovereignty, high-performance scalability, and hyper-resilience**. Powered by a highly specialized **MLOps pipeline** leveraging robust open-source orchestration frameworks, the platform efficiently manages an exclusive ecosystem of over **350 deeply optimized models**. This infrastructure seamlessly powers more than **500 government websites** and processes over **15 million inferences daily**, surpassing **6 billion total inferences** leveraging NVIDIA's NVCF, all while maintaining strict **sub-second response times**. By architecting a secure, highly scalable foundation independent of foreign hyperscalers, BHASHINI delivers an unparalleled suite of over **20 niche NLP services**, such as **Automatic Language Detection, Speaker Diarization, and Keyword Spotting**, **across 36 text and 23 voice languages**, encompassing complex tribal dialects alongside **35+ international languages**.

From a technical standpoint, BHASHINI's model architecture demonstrates extraordinary depth in **handling the complex syntactic and acoustic realities of the Indian linguistic landscape**. The system disrupts legacy pipelines through advanced **Neural Machine Translation (NMT)** that executes **direct Indian Language-to-Indian Language processing**, eliminating the computationally inefficient reliance on Hindi as a pivot. Complementing this, the **Automatic Speech Recognition (ASR) ecosystem** is rigorously trained on massive, fully open-sourced datasets, ensuring **transparency, community-driven robustness, and highly accurate acoustic modeling** for real-world speech. The ASR framework seamlessly integrates with a sophisticated **Text-to-Speech (TTS) stack**, featuring **hybrid CTC-RNNT decoders, FastPitch acoustic modeling, and HiFi-GAN V1 vocoders**. Fortified with **customized denoisers** and context-aware **Text Normalization (TN) and Inverse Text Normalization (ITN)**, this **end-to-end pipeline delivers unmatched precision**, cementing **BHASHINI as a technically unassailable, highly exclusive powerhouse in sovereign AI**.

By integrating open-sourced foundation models such as Sarvam, the BHASHINI platform further strengthens its position as India's **population-scale Language Digital Public Infrastructure (DPI),** providing a **fully end-to-end AI ecosystem** for **developers, startups, government institutions, and enterprises**. The platform supports **real-world use cases** including **multilingual conversational assistants, citizen service platforms, governance interfaces, knowledge access systems, and digital public service applications**, while enabling **scalable deployment at population scale**.

Amitabh Nag, CEO, Digital India BHASHINI Division, stated: *"BHASHINI is being developed as a fully end-to-end AI ecosystem where models, infrastructure, and applications converge on a single national platform. The integration of advanced open models and large-scale inference capabilities enables developers, institutions, and innovators to build, deploy, and scale AI solutions that are reliable, accessible, and designed for real-world use at population scale."*

BHASHa INterface for India (BHASHINI) is **India's AI-powered language technology initiative** under the **Ministry of Electronics and Information Technology (MeitY)** that enables **multilingual AI capabilities across Indian and international languages through speech and text technologies**, helping bridge **literacy and language divides while strengthening inclusive digital access across the country.**

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