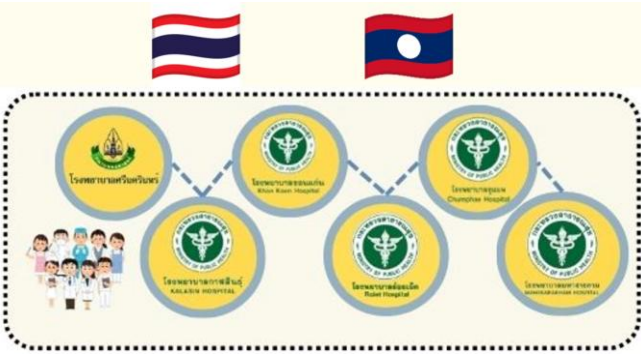
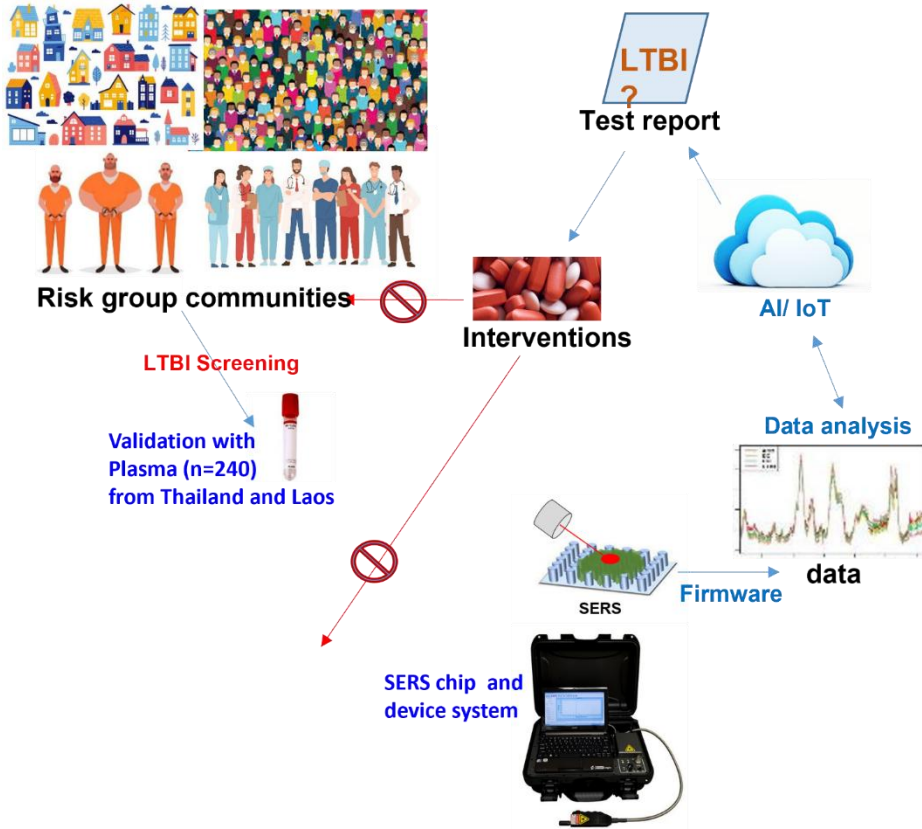


Development of a Spectroscopic AI-IoT Database for TB Screening Across Thailand and Laos

Tuberculosis (TB) remains a major global health problem: 10 million active cases and 1.5 million deaths/year and 25% of the world population has latent TB infection (LTBI). Thailand and Laos are high-burden countries. Current LTBI testing (IGRA) is expensive, slow, and unsuitable for mass screening. Raman spectroscopy and SERS offer rapid, label-free, POC-compatible diagnostics but skill need to be further validated at least from different country. **Here, we aim to Develop a cross-border, cloud-based SERS/RS AI-IoT platform for rapid, low-cost LTBI screening in Thailand and Laos.** This project aims to create a **decentralized, AI-enabled Raman diagnostic platform** that supports the WHO End-TB strategy and advances TB screening across Thailand and Laos.



This project will collect 240 plasma samples from risk groups in Thailand and Laos, acquire Raman/SERS spectra using portable and benchtop systems, and develop a cross-border AI-IoT spectroscopic database for decentralized TB screening. Expected outcomes include a new Raman-based TB screening platform, performance comparison with IGRA, and strengthened Thailand–Laos research collaboration. Overall, the project aims to advance AI-assisted TB diagnostics, improve community screening, and reduce healthcare costs.



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