Republic of Liberia

Ministry of Health

P.O. Box 10-9009

1000 Monrovia, 10 Liberia

REQUEST FOR EXPRESSION OF INTEREST
FOR
Development of an Integrated Digital Solution System for Real-Time Monitoring of Temperature and Equipment Performance for Cold Chain Infrastructure
(IFB No: MOH/EPI/GAVI/QCBS/003/2025)

This Special Procurement Notice follows the General Procurement Notice published early January of 2025

Background

The Ministry of Health thought the Government of the Republic of Liberia has received finances from the Global Alliance on Vaccine and Immunization (GAVI) as support to the Liberia health system. The Ministry of Health (MOH) intends to apply portion of this fund for hiring a firm to develop an Integrated Digital Solution System for Real-Time Monitoring of Temperature and Equipment Performance for Cold Chain Infrastructure.

This project aims to address this; the Ministry of Health seeks to develop and deploy a **real-time digital monitoring solution** capable of tracking and analyzing freezer temperature and equipment performance across health facilities. This system will enhance operational visibility, reduce the risk of equipment failure, and ensure vaccine quality by providing instant alerts and performance reports.

Objectives

- Develop a robust web and mobile-based digital platform using JavaScript (or modern JavaScript frameworks) to monitor temperature and performance of 25 freezers.
- Integrate IoT-enabled temperature monitoring devices into the platform for real-time data transmission.
- Provide 25 temperature monitoring devices compatible with the developed system.
- Ensure offline data collection capabilities with automatic synchronization when internet is available.
- Enable real-time alerts for temperature breaches or equipment anomalies.
- Deliver training and user documentation for system operation and maintenance.

Scope of Work

The **Developer** will be responsible for the following tasks:

A. System Development

- Design and develop a responsive web-based frontend using JavaScript (e.g., Vue, React, or Angular).
- Implement a backend API server using Node.js or equivalent, with PostgreSQL as the main database.
- Build a lightweight Android mobile app for real-time notifications, monitoring, and remote configuration.
- Incorporate MQTT or similar protocols to enable real-time data streaming from IoT sensors.

B. Hardware Provision and Integration

- Procure and install 25 temperature monitoring devices (e.g., Bluetooth/WiFi-enabled sensors) compatible with the system.
- Ensure each device is calibrated and preconfigured for designated freezers.

C. Real-Time Monitoring Features

- Implement dashboards for live temperature data, historical trends, and performance reports.
- Set configurable thresholds and automatic SMS/email push notifications for temperature breaches.
- Log and analyze equipment uptime/downtime and alert patterns.

D. Testing & Quality Assurance

- Conduct comprehensive system and device testing.
- Perform field verification and user acceptance testing (UAT) with healthcare staff.
- Optimize for performance in low-bandwidth environments.

E. Deployment & Training

- Deploy the system and mobile application in production environments.
- Train relevant health personnel on system usage and maintenance.
- Provide all necessary user manuals and technical documentation.

F. Support & Maintenance

- Offer one (1) month of post-launch support.
- Develop a plan for system scaling, maintenance, and security updates.

Deliverables

- A complete, tested digital monitoring system developed in JavaScript with backend API and PostgreSQL.
- Android mobile application with real-time alerting and offline capabilities.
- 25 installed and functioning temperature monitoring devices.
- Fully deployed production system with dashboards, alert features, and reporting tools.
- Source code, user manuals, and training materials.
- One-month post-deployment technical support.

Timeline

The project is expected to be completed within **2 months (60 days)**. The following phases outline the accelerated project timeline:

Phase	Timeline	Deliverables
Phase 1: Requirements Analysis	Days 1–5	System and hardware specifications documented
Phase 2: System Design & Setup	Days 6–10	Architecture design, device procurement
Phase 3: Development (Web, API, App)	Days 11–30	Web system, backend, and mobile app prototypes
Phase 4: Device Integration & Sync	Days 31–40	IoT integration and real-time data streaming
Phase 5: Testing & Optimization	Days 41–50	System validation, UAT, and performance tuning
Phase 6: Deployment & Training	Days 51–57	Full deployment and user training
Phase 7: Final Review & Handover	Days 58–60	Project handover and support initiation

Roles and Responsibilities

Developer/Contractor

- Develop the digital system and mobile app
- Procure, configure, and install temperature devices
- Conduct training and testing activities

Ministry of Health ICT Unit

- Oversee project management and coordination
- Approve deliverables and facilitate deployments

Health Facility Staff

- Participate in UAT and training
- Operate the monitoring system post-deployment

Budget

The budget shall cover all aspects of system development, hardware acquisition, deployment, training, and post-launch support. Detailed cost estimates shall be included in the contractor's proposal.

Evaluation and Acceptance Criteria

- **Functionality**: All system features must be fully operational, including real-time alerts.
- **Hardware Integration**: All 25 devices must be successfully deployed and functional.
- **Usability**: The system should be user-friendly for health workers and ICT staff.
- **Performance**: Must support stable operation in intermittent internet environments.
- **Security**: Implement secure data transmission and storage protocols.
- **Compliance**: System must meet Ministry of Health operational standards.

Confidentiality and Ownership

All source code, hardware configurations, and project documentation will be the property of the Ministry of Health. The developer must maintain strict confidentiality throughout the project.

Application procedure Interested Firms to submit expression of interest (EOI) to the Procurement Unit of the Ministry of Health. All applications should include the following:

• Cover letter including a brief overview of the assignment as understood by the consultant
• CV of lead consultant and other team members to be involved in the work order
• Reference letter from two previous assignments
• Current Business registration and Tax Certificate of the consulting firm
• Annexes: Any documents, such as work samples, past relevant projects, or other information

Firms will be selected in accordance with the Quality Cost Baes Selection (QCBS) method set out in the Public Procurement and Concession Commission of Liberia Consultant Guidelines.

Applications; clearly marked with the reference above, must be delivered in the tender box situated on the Ground floor opposite the elevator at the central office in Congo Town at the address below by 2PM Local Time, on 11th August 2025, only short-listed firms will be contacted.

The address referred to above is:

The Procurement Director
Ministry of Health
P.O Box 10-9009
1000 Monrovia, 10 Liberia
E-Mail: proumoh24@gmail.com
IFB No: MOH/EPI/GAVI/QCBS/003/2025

Sign: _____
Director of Procurement