

Terms of Reference (ToR)

Software Engineer, Consultant - Mobile Device Management (MDM) Platform

Engagement Type: Independent Consultancy

Duration: 12 Months

Primary Stack: Python FastAPI, React TypeScript

1. Background

Raising The Village operates a **field-based Implementation Application** deployed on managed Android devices used by field staff. To strengthen **data security, device reliability, and operational visibility**, the organization is establishing a **Mobile Device Management (MDM) Platform**.

The MDM platform will:

- Securely manage field devices.
- Monitor device and application performance.
- Enable proactive identification of failures.
- Support technical support and IT operations.
- Integrate device-level insights into the Implementation Application and management dashboards.

The organization is seeking a **Software Engineer, Consultant** to design and deliver this platform over a **12-month period**.

2. Objective of the Consultancy

The objective is to design and implement a **production-ready MDM platform** comprising:

1. A **backend MDM service** to manage enrolled devices, enforce security, collect telemetry, and expose analytics; and
2. A **dedicated internal web application** for Technical Support and IT teams to monitor devices, consume logs, and execute remote actions.

A core requirement of the platform is **proactive failure detection**, enabling issues to be identified **before they are reported by field users**.

3. Scope of Work

A. MDM Backend Services

The consultant will design and implement backend services that support:

- **Device Enrollment & Identity**
Register, tag, assign, and securely bind devices to users or officers.
- **Security & Data Protection**
Enforce PIN, lock, wipe, encryption, and compliance policies to protect sensitive data.
- **Application Management**
Control approved applications, enforce versions, and manage updates across devices.
- **Device Monitoring & Telemetry**
Collect health and performance signals including sync status, crashes, storage, battery, and connectivity.
- **Remote Commands & Control**
Securely issue commands such as reboot, configuration sync, updates, lock, and wipe.
- **Analytics & Insights**
Provide lifecycle and performance analytics to inform operational planning and device replacement.
- **Integration Layer**
Expose APIs to synchronize MDM data with the Implementation Application and operational dashboards.

B. Internal MDM Web Application (Support & IT Console)

The consultant will develop a **separate internal-facing web application** that enables Technical Support and IT teams to:

- View fleet-level and device-level health dashboards
- Access searchable device, application, and crash logs
- Identify devices at risk due to repeated failures or degradation

- Execute and audit remote troubleshooting and control actions

C. Proactive Monitoring & Failure Detection

The MDM platform shall be designed to:

- Detect abnormal patterns such as repeated crashes, failed syncs, or hardware degradation
- Surface warnings and critical risks automatically
- Enable support teams to intervene **before users report issues**

4. Technical Expectations

- Backend development using **Python FastAPI** and Web development using **React TypeScript**
- API-first, secure, and scalable architecture
- Strong emphasis on observability, logging, and diagnostics
- Clean documentation to support internal handover and long-term maintainability

5. Deliverables

Key deliverables include:

- MDM system architecture and technical documentation.
- Production-ready backend MDM services.
- Internal MDM Web Application for Support and IT.
- Integration APIs for the Implementation Application.
- Monitoring, alerting, and analytics capabilities.
- Handover documentation and knowledge transfer.

6. Engagement Model

- Fixed-term **12-month consultancy**.
- Deliverables and milestone-based engagement.
- Close collaboration with Product, Software Engineering, and Technical Support teams.

- This role is an **independent consultancy** and does not constitute employment or include employee benefits.

7. Required Consultant Profile Required

Qualifications and Experience

- Bachelor's degree in Computer Science or Software Engineering.
- Strong experience with **Python FastAPI** and **React TypeScript**.
- Proven experience in backend system design and API development.
- Experience integrating systems into existing production environments.
- Ability to work independently against defined deliverables.

Preferred Experience

- Experience with MDM, device management, telemetry, or monitoring platforms.
- Experience working in operational, security-sensitive, or distributed field environments.

8. Evaluation and Selection Criteria

Applications will be evaluated using the following weighted criteria:

1. Relevant qualifications and experience - **25 points**

Demonstrated competencies, qualifications, and experience aligned to the ToR.

2. Understanding of the assignment objectives and expected outputs - **20 points**

Clear articulation of the assignment's purpose, rationale, and intended outcomes.

3. Methodology and technical approach - **30 points**

Coherent and realistic approach outlining system design, implementation steps, and delivery of expected outputs.

4. Proposed timeline and delivery schedule - **15 points**

Feasible and well-structured schedule aligned with the scope of work.

5. Price quote - **10 points**

Competitive pricing aligned with market rates, including a brief justification of cost components.

9. How to Apply

Interested Consultants should submit the following documents electronically:

- A brief profile or CV highlighting relevant qualifications and experience.
- Examples of comparable systems or platforms delivered.
- A proposed technical approach and delivery schedule.
- A financial proposal indicating the proposed consultancy fee.

Applications should be submitted via email to:

tenders@raisingthevillage.org

Deadline for submission:

February 6, 2026, at 17:00 hours (Kampala Local Time) Late

applications will not be considered.

