

# BATTERY HEALTH REMAINDER SYSTEM

## TECH STACK, ARCHITECTURE & TOOLS

### 1. Project Overview

This project is a complete **end-to-end battery reminder system** that identifies locks whose battery levels have not been checked in over **1 month**, sends **FCM notifications** to their assigned users, and tracks **user clicks** to measure the campaign's effectiveness. The process runs **weekly**, fully **locally**, with **no AWS required**.

### 2. Tech Stack Used

#### Core Technologies

Component	Technology Used	Purpose
Programming Language	<b>Python 3.10</b>	Main project logic
Database 1	<b>SQLite (local file database)</b>	Simulated PostgreSQL user–lock mapping
Database 2	<b>Local JSON files</b>	Simulated DynamoDB + analytics storage
Notifications	<b>Firebase Cloud Messaging (FCM)</b>	Send push notifications
Tracking	<b>Local JSON events store</b>	Track campaign clicks
Scheduling	<b>Manual or Task Scheduler</b>	Run weekly

### 4. System Architecture (Local Version)

#### Components

##### 1. **locks.json**

- Simulates DynamoDB
- Contains lock IDs + last battery check timestamp

##### 2. **SQLite Database (users.db)**

- Simulates external PostgreSQL

- Stores: lock\_id → user\_id → fcm\_token

### 3. main.py

- Weekly job
- Reads stale locks
- Sends notifications
- Logs “sent” events

### 4. analytics.py

- Tracks click events
- Generates weekly CTR report

## Findings & Recommendations

### Findings

- The Battery Reminder System successfully tracks notification campaigns and user interactions (opens, clicks).
- The local setup works fully without AWS or cloud services.
- Analytics module accurately logs user behavior for each campaign with unique campaign IDs.
- The modular structure (main.py, analytics.py, firebas\_service.py) makes the system easy to maintain and extend.
- testing with sample campaigns shows the system correctly sends reminders and records user engagement.

### Recommendations

- Add a GUI dashboard to view real-time analytics (opens, clicks, reminder status).
- Enable scheduling so notifications can be sent automatically at fixed intervals.
- Add battery-percentage monitoring integration for real phone data.
- Store analytics in SQLite for better history tracking instead of text/log files.
- Add email/SMS support using a local SMTP server for multi-channel reminders.

### GitHub link

GitHub: [https://github.com/Anisha-1805/Atomberg\\_battery-reminder-/tree/main](https://github.com/Anisha-1805/Atomberg_battery-reminder-/tree/main)