

RTC-Based Daily Alarm and Event Logger

Scenario

A daily medication reminder device that triggers an alarm at a set time every day and logs the event over UART. Even after power loss or reset, the RTC ensures the alarm continues reliably, helping patients stick to their schedule.

Project Statement

Design a system that triggers a daily alarm at a specific time using the RTC and logs the event over UART. The system should print a message each time the alarm occurs.

Success Criteria

- RTC alarm triggers at the configured time every day
- UART logs: "Alarm Triggered at HH:MM:SS"
- System handles leap years and 24-hour time format
- Alarm reliably triggers even after resets

Tasks to be Performed

- Initialize RTC with LSE and calendar time
- Configure RTC Alarm A for daily trigger
- Implement UART logging of alarm events
- Test alarm accuracy and reliability across resets and power cycles

