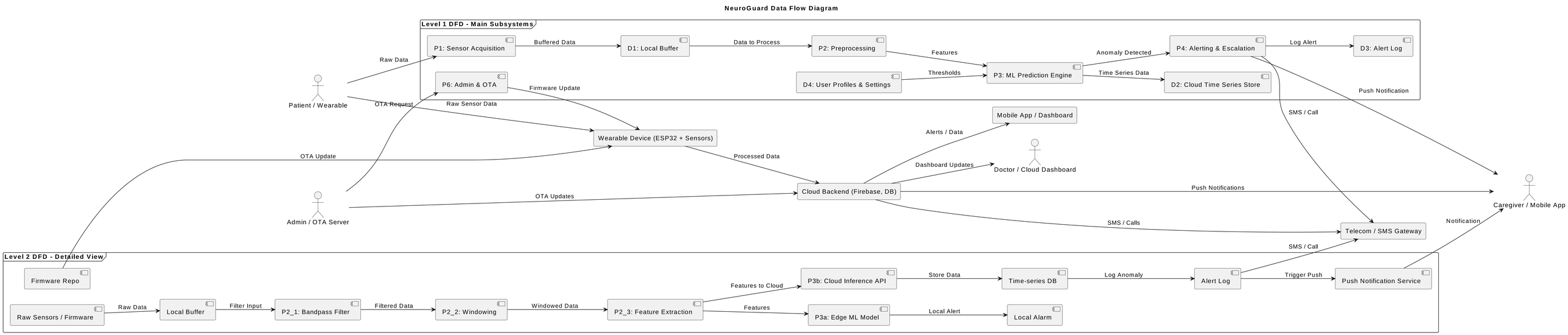
NeuroGuard Data Flow Diagram
Level 1 DFD - Main Subsystems
P1: Sensor Acquisition
Buffered Data
D1: Local Buffer
Data to Process
P2: Preprocessing
Features
P3: ML Prediction Engine
Anomaly Detected
P4: Alerting & Escalation
Log Alert
D3: Alert Log
Raw Data
Patient / Wearable
P6: Admin & OTA
Firmware Update
D4: User Profiles & Settings
Thresholds
Time Series Data
D2: Cloud Time Series Store
Push Notification
OTA Request
Raw Sensor Data
SMS / Call
Mobile App / Dashboard
Wearable Device (ESP32 + Sensors)
Alerts / Data
OTA Update
Processed Data
Dashboard Updates
Doctor / Cloud Dashboard
Admin / OTA Server
Cloud Backend (Firebase, DB)
Push Notifications
Caregiver / Mobile App
OTA Updates
SMS / Calls
Telecom / SMS Gateway
Notification
SMS / Call
Level 2 DFD - Detailed View
Firmware Repo
Features to Cloud
P3b: Cloud Inference API
Store Data
Time-series DB
Log Anomaly
Alert Log
Trigger Push
Push Notification Service
Raw Sensors / Firmware
Raw Data
Local Buffer
Filter Input
P2_1: Bandpass Filter
Filtered Data
P2_2: Windowing
Windowed Data
P2_3: Feature Extraction
Features
P3a: Edge ML Model
Local Alert
Local Alarm