Requirements Documentation

Interactive House – Subgroup 2: Units

Revision History

Date	Version	Description	Author
07/02/2026	1.0	Initial draft for Units subgroup (week 1)	Mustafa Al-Bayati

Requirements List

Requirement Name	Priority
R1. User authentication (login/logout)	Essential
R2. Connect to House Server / database	Essential
R3. Display device list and status	Essential
R4. Load device UI components	Essential
R5. Send control commands to devices via server	Essential
R6. Receive real-time updates/events from server	Essential
R7. Handle connection loss and reconnection	Essential
R8. Basic access control on client (authorized features only)	Essential
R9. Activity/history view (user actions + device events)	Desirable

R10. Notifications/alerts (e.g., alarm, device status change)	Desirable
R11. Multi-platform support (web+Mobile)	Essential
R12. Usability & accessibility (clear UI, large buttons, contrast)	Desirable
R13. Setting (language/theme)	Optional
R14. Voice and AI interaction	Optional

Requirements Descriptions

R1. User authentication (login/logout) - Essential

The unit shall provide a login screen where a user can authenticate against the House Server using credentials (e.g., username/password). The unit shall support logout and clear any locally stored session token on logout.

R2. Connect to House Server - Essential

The unit shall be able to connect to a configured House Server endpoint (IP/host + port). The unit shall indicate connection state (Connected / Connecting / Disconnected).

R3. Display device list and status - Essential

The unit shall show a device list including at minimum: device name/id, device type (if available), and basic status (e.g., on/off/temperature value/online).

R4. Load device UI components provided by server - Essential

The unit shall be able to receive device-specific UI definitions/components from the server and render them in the unit UI to control/observe the device (e.g., “Light ON/OFF” UI).

R5. Send control commands to devices via server - Essential

The unit shall allow the user to perform control actions (e.g., turn light on/off) and send the corresponding command to the server using the agreed protocol. The unit shall show command success/failure feedback.

R6. Receive real-time updates/events from server - Essential

The unit shall be able to receive device updates (state changes, sensor values, online/offline) from the server without requiring manual refresh (e.g., via WebSocket, SSE, long polling, or periodic polling if needed).

R7. Handle connection loss and reconnection - Essential

If the connection drops, the unit shall notify the user and attempt reconnection automatically (or provide a clear “Reconnect” action). The unit shall not crash on disconnect.

R8. Basic access control on client (authorized features only) - Essential

The unit shall only display devices and actions that the logged-in user is authorized to access, based on information returned by the server.

R9. Activity/history view - Desirable

The unit should provide history screen showing recent actions and events (e.g., “User X turned Light ON”, “Temperature updated to 22°C”), retrieved from server and/or cached locally.

R10. Notifications/alerts - Desirable

The unit should notify the user of important events (e.g., alarm triggered, device offline) via UI alerts and, on mobile, push/local notifications if feasible.

R11. Multi-platform support (Web + Mobile) - Essential

The Units solution should support at least one of:
Web UI (browser-based)
Mobile app UI (Android or iOS or both)

R12. Usability & accessibility - Desirable

The unit UI should be simple, with clear device names, large buttons for critical actions, readable font sizes, and high contrast options where possible (useful for healthcare context).

R13. Settings - Optional

The unit may provide a setting options like theme mode dark/ color, and two languages like en/se.

R14. Voice and AI interaction - Optional

User can prompt a voice command to make changing like turn off light/ start TV and get a smart advices from AI as we did at Lab2 .