Smart House

Engineering Adaptive Mobile Applications

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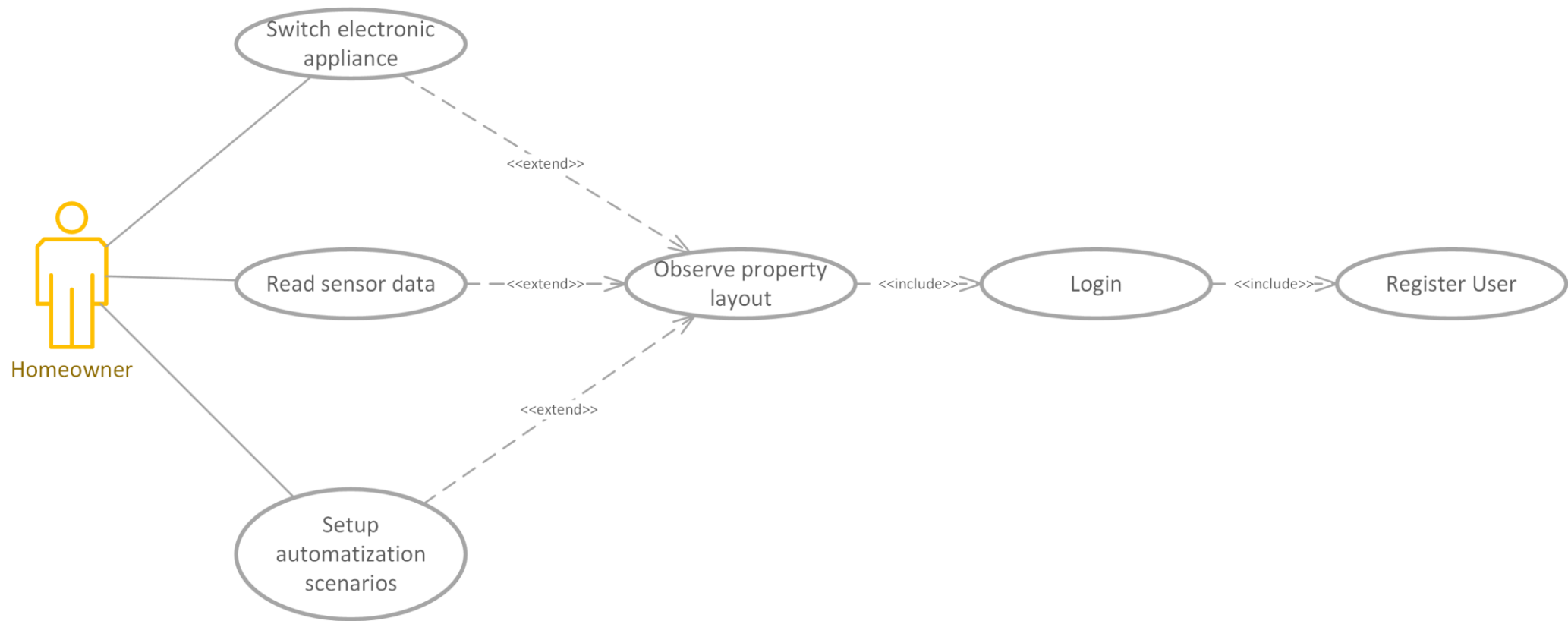
Problem of daily routines

- Apartments become bigger…

- User's time becomes more valuable

- We want to make domestic activities easier…

- And give the user information about his domestic environment…

- Accessible at any place!

Who is interested?

- Any homeowner wants to make some action automatic.

- Why is it so dark? Where is the switch?!

- What is the current temperature here? I want A/C on!

- What is the current humidity? I want dry air!

- Nowadays we need to do all this manually.

- Smart House will do your job!

- Target user group: Owner of a big house/flat
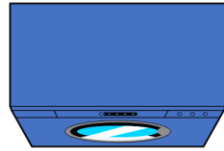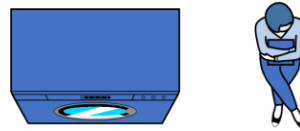
Use Cases

Challenge: User leaves the apartment

Storyboard   Persona: Student   Scenario: user leaves the apartment

User wants to go rest while the washing machine is working

User wants to return exactly when the machine stops

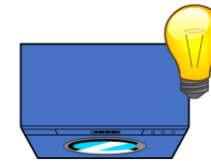SmartHouse notifies user about state change

Problematic situation: user leaves the apartment
The application cannot use trusted LAN connection to fetch updates

SmartHouse changes network mode to WAN
Enables untrusted connection features, e.g. authentication and encryption

SmartHouse notifies user about state change

User returns home, network mode is LAN again

Challenge: Battery low

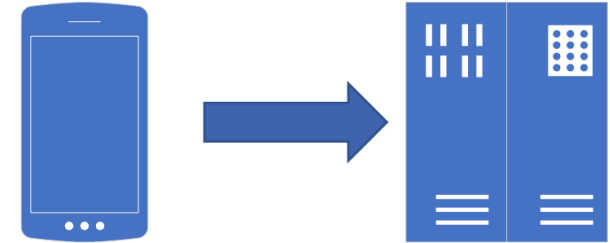Storyboard   Persona: Student   Scenario: smartphone battery is low

User actively uses the smartphone for the whole day

Problematic situation: Now the battery is low
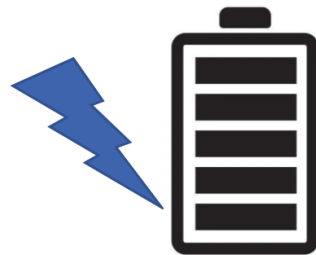The app is draining battery power to fetch updates regularly

SmartHouse changes interaction scheme to push-only
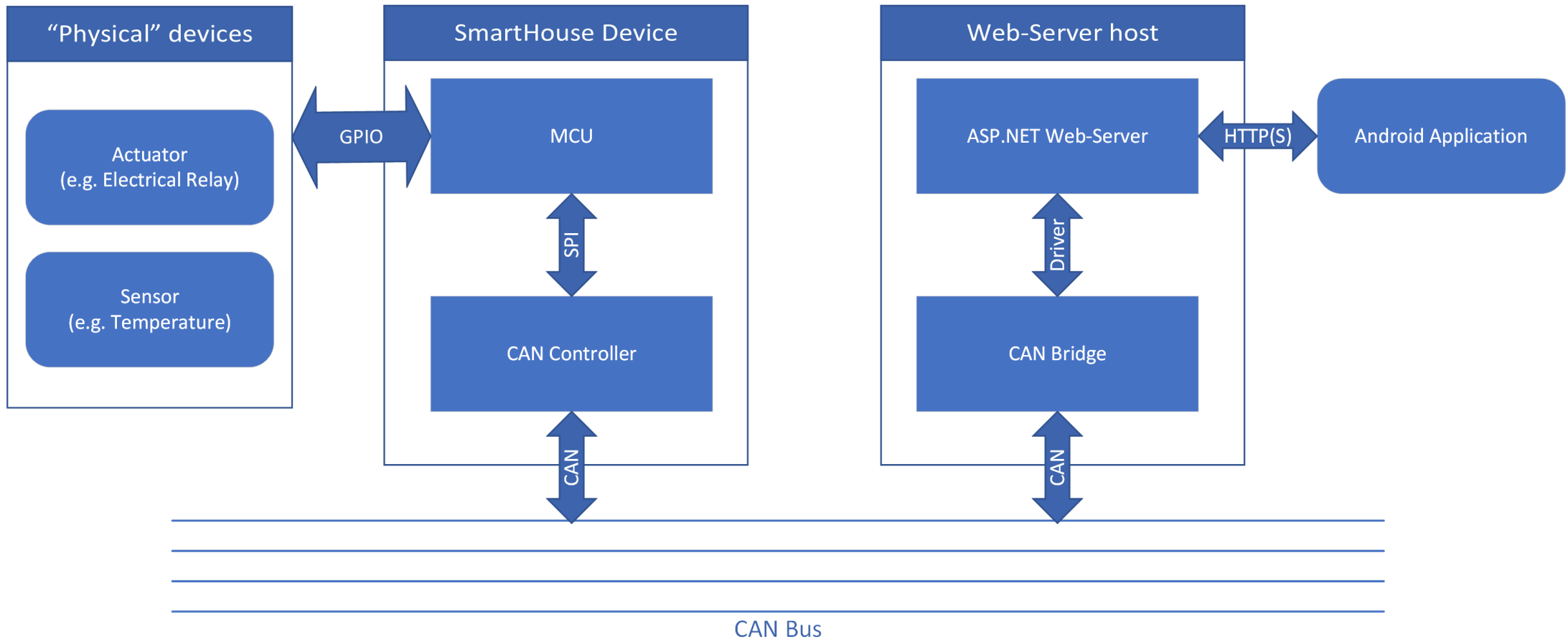
Battery life is extended

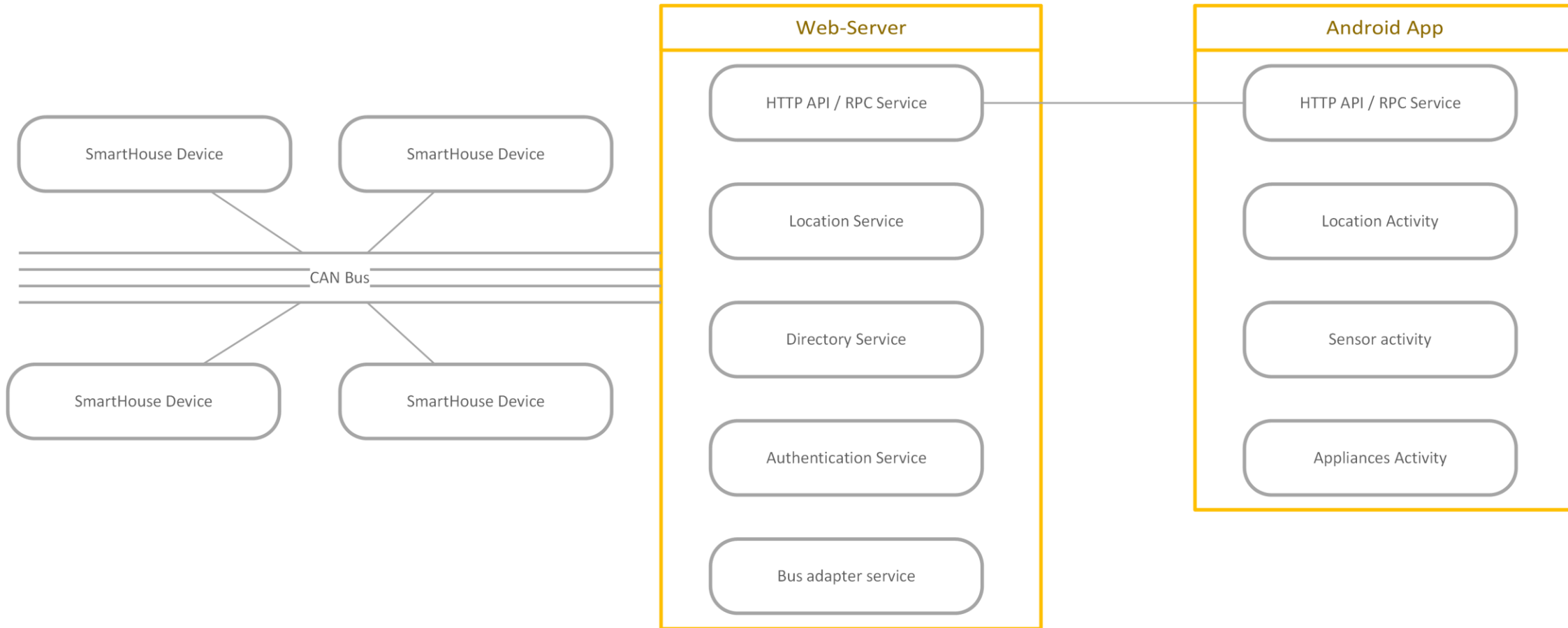User plugs the phone in and SmartHouse is pull-push again

Key functions

- Light control

- Reading Appliance state

- Remote control of appliance

- Automation scenarios

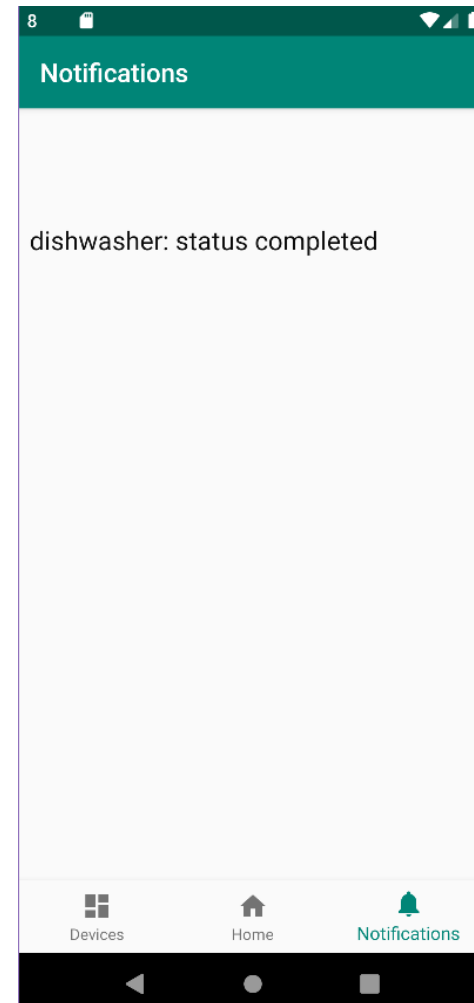- Authorization. Separation of roles
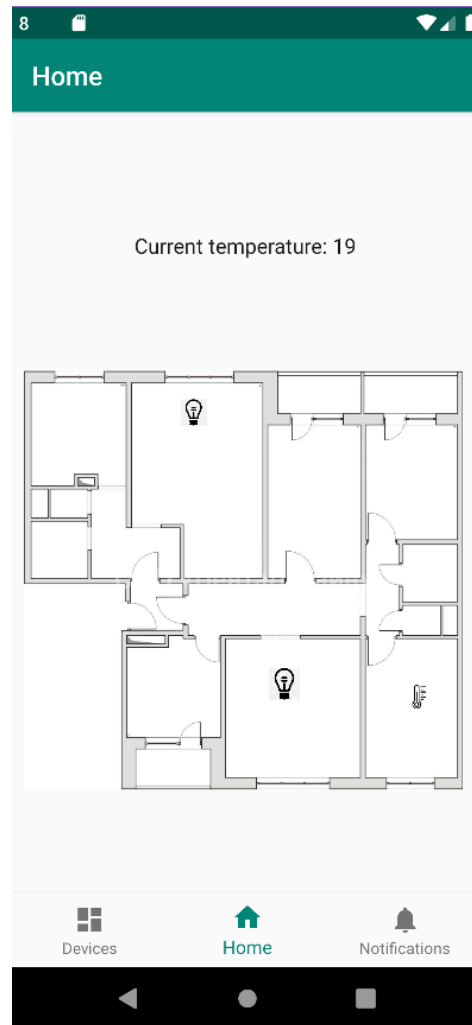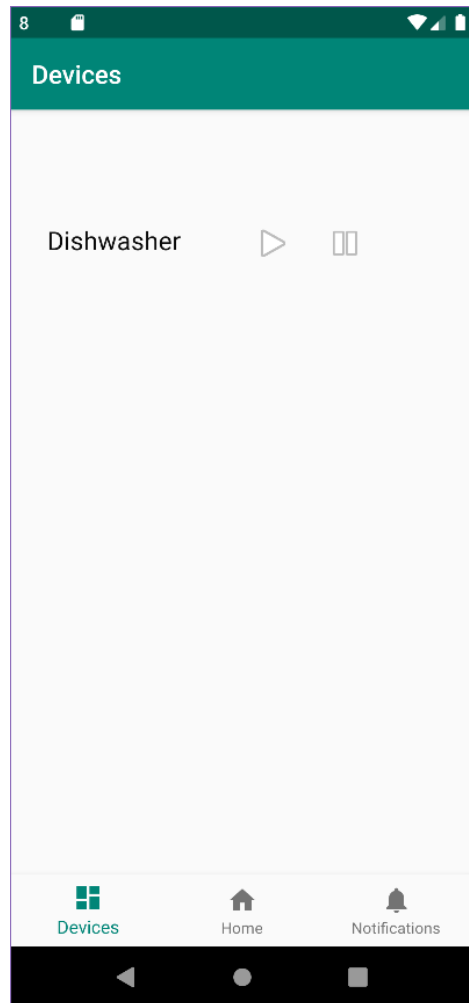
- Reading sensor data

Hardware Structure diagram

Software Component Structure diagram

UI

Contributors

Dmitriy Monakhov: Backend developing

Anastasia Lykhtar: Frontend developing