

Graduation Project

Smart Home

Team members:

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Problem Statement:

Smart home is an automated home controlled using computer technology. Using microcontrollers with various degree of intelligence and automation, lighting and temperature can be controlled remotely. Smart home provides remote interface to home devices to provide control and monitoring using an application. It provides a high level of security and ease of use.

Application description:

- The application is developed using Flutter framework.
- Devices are controlled remotely using ESP8266 NodeMCU wireless module connected to the home network.
- The UI enables the user to control his house rooms, add new rooms and delete rooms.
- Each room contains controllers to control this room devices and sensors readings.
- Each room has a preconfigured modules connected to the devices.
- The application connects to each module through the home network to enable communication between the application and devices.

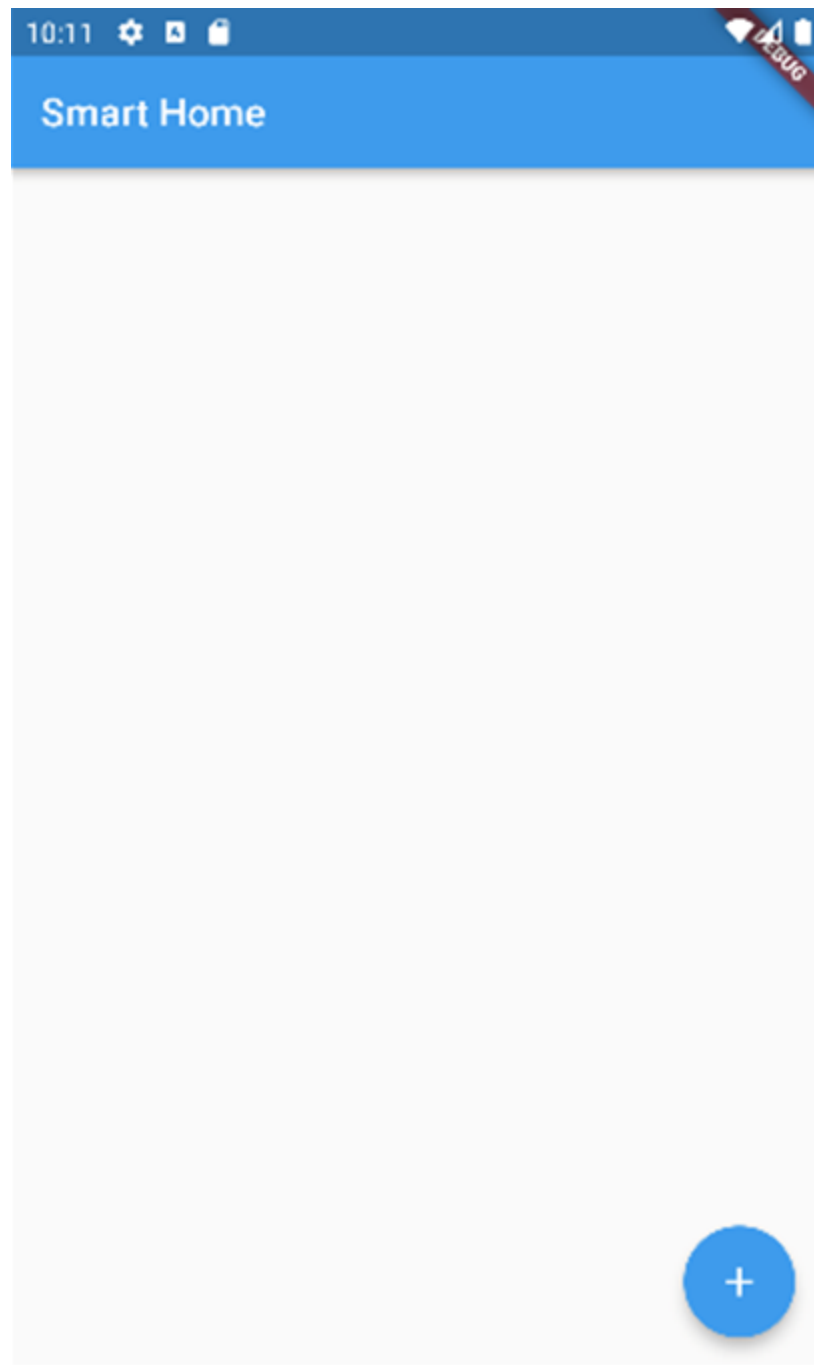
Done:

- Control switch-based devices.
- Ability of adding and customizing rooms.
- Support for multiple clients.
- State feedback among multiple clients.
- Support for sensors like temperature sensor.
- Support for voice commands.

To Do:

- Modules configuration.

Empty home screen:



Add room:

The image shows a mobile application interface for a 'Smart Home' system. At the top, a dark blue header bar contains the text 'Smart Home'. Below the header, the main area is a light gray grid. In the top left of the grid is an icon of a bed, and in the top right is an icon of a sofa. In the center of the grid is a white modal dialog box. The modal has two text input fields: 'Room Name:' and 'Modules IPs:'. Below these fields are two buttons: a blue 'Cancel' button and a gray 'Save' button. At the bottom of the grid, the words 'Kitchen' and 'Bathroom' are visible. In the bottom right corner of the screen, there are two circular blue buttons: one with a pencil icon and one with a plus sign icon. The status bar at the very top shows the time '3:03' and various system icons.

3:03

Smart Home

Room Name: _____

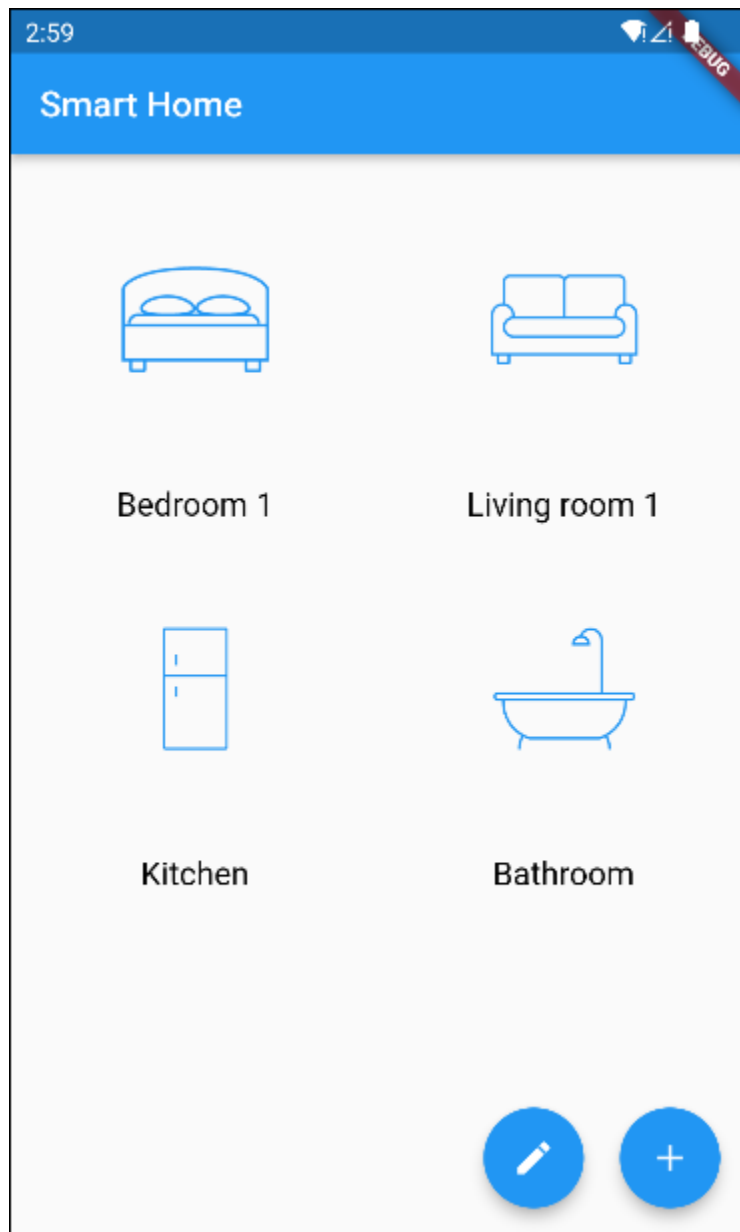
Modules IPs: _____

Cancel Save

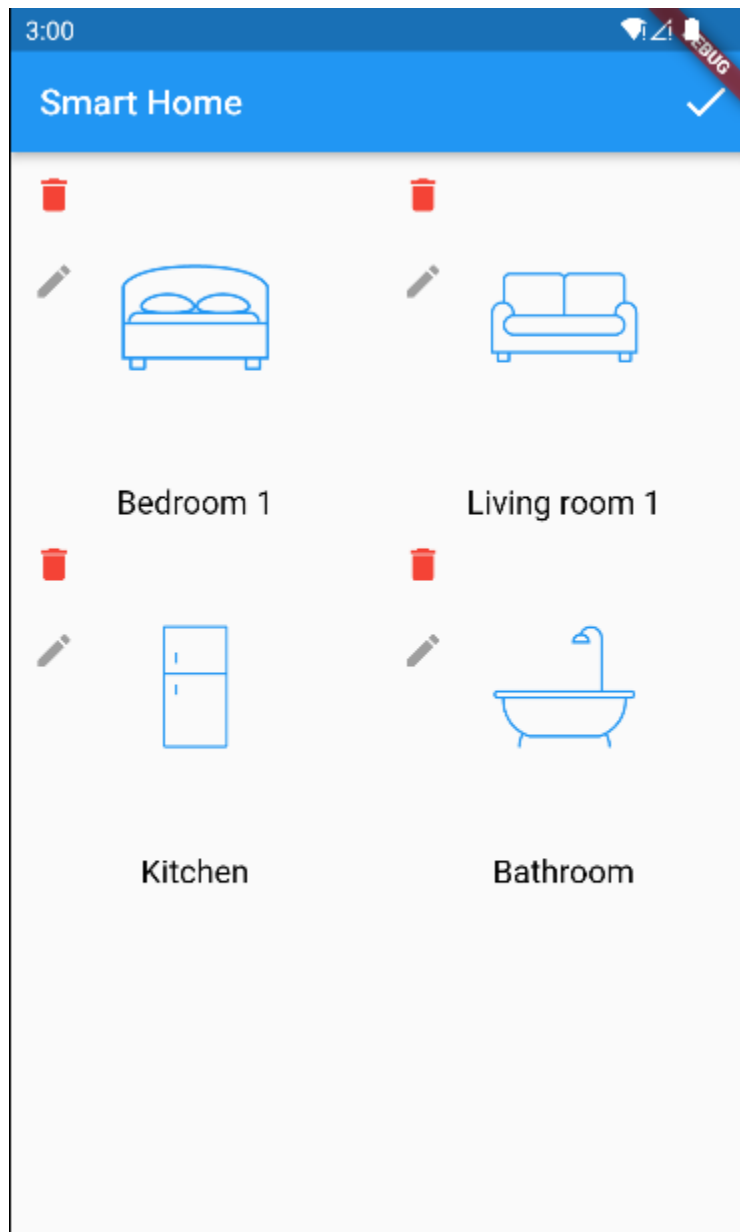
Kitchen Bathroom

+

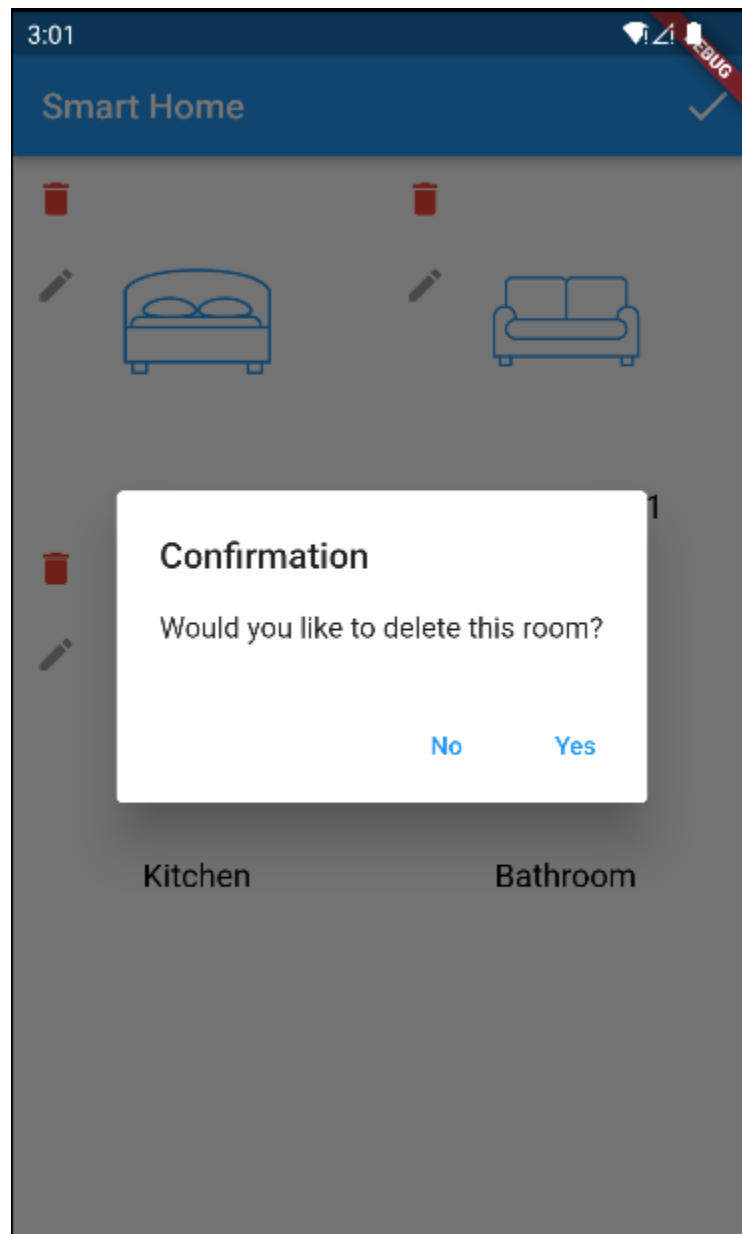
Home screen after adding rooms:



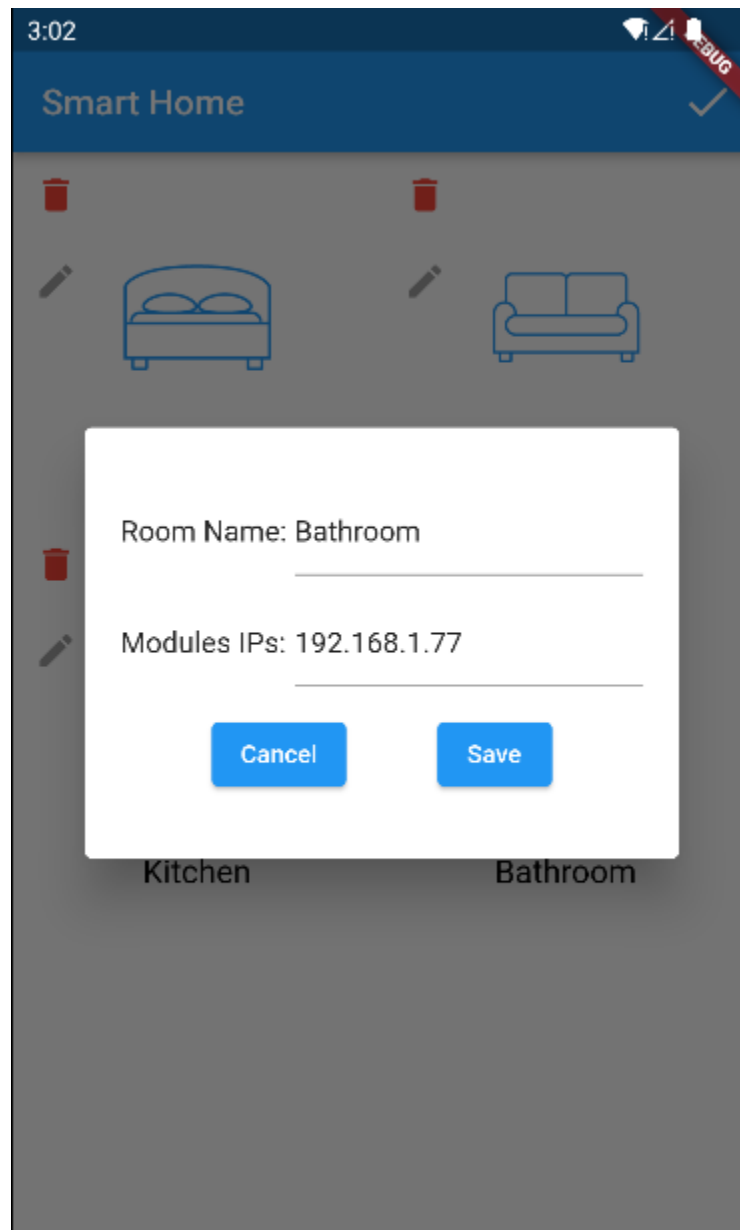
Pressing Edit button:



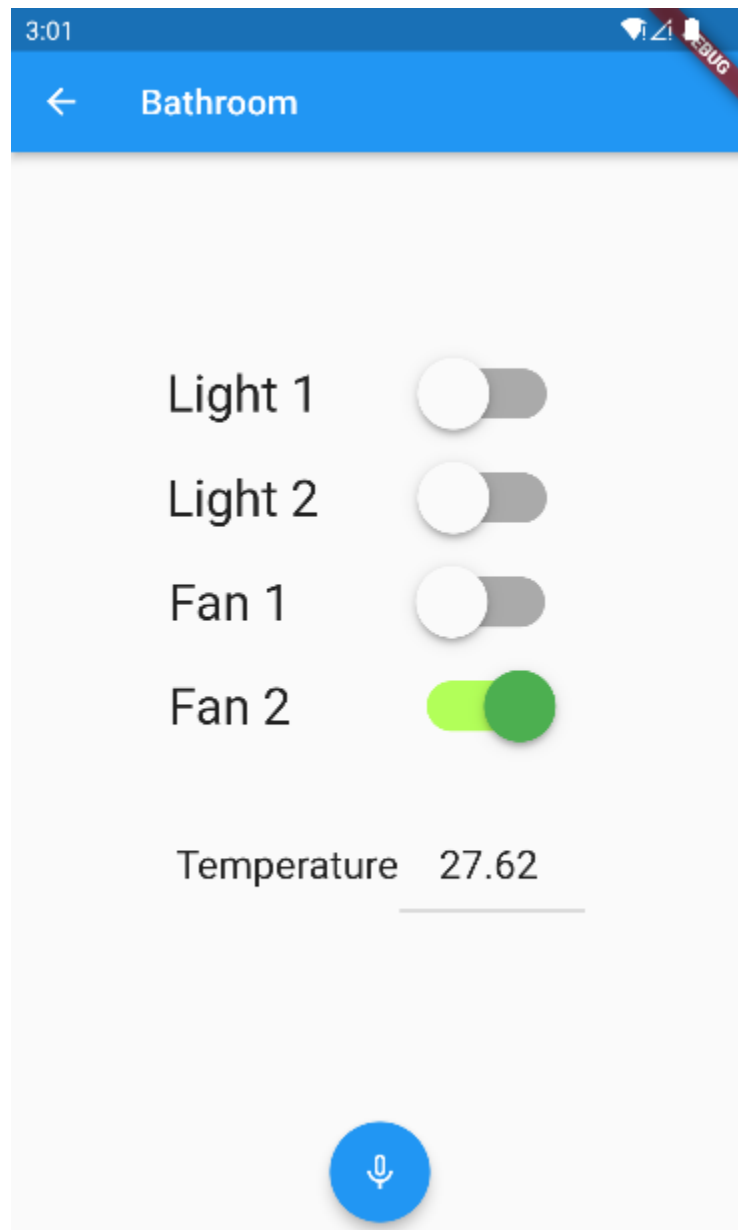
Delete confirmation:



Edit room details:



Room screen:



Block diagram:

