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TEAM 2

Software Top Level Design Document

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Version History

| Version | Date | Responsible | Description |
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1 Introduction

This document describes the top level design of the Lamp Controller Application, which is an application used to control a light bulb and a sensor device. The application is developed as a project within the course "Software Development for Large Systems - ETSN05" at LTH.

2 Reference Documents

SRS - Software Requirements Specification, PUSS154212 v1.1

3 Overview

The main purpose of the Lamp Controller Application is to provide an interface used to control a light bulb and a sensor device from an MVD via a REST API provided by the backend. The application will provide three different views to detect and control the different devices.

3.1 Controller Application

- **BaseActivity:** The BaseActivity for the application that will connect the Activities with the NetworkManager.
- **MyDeviceActivity:** Is the start screen of the application. Will contain a ListView and has methods for detecting devices and control a device that was selected from the ListView.
- **DeviceListAdapter:** Adapter that handles the list in MyDevicesActivity, the ListView can display any data provided that it is wrapped in a ListAdapter.
- **Device:** Is an Abstract class that controls the two devices we are handling.
- **SensorDevice:** Class containing the SensorDevice information.
- **LightBulb:** Class containing the LightBulb information.
- **DeviceActivity:** Is an abstract class that holds the shared parameters deviceName and macAddress. It also contains an abstract method toggle that controls the on/off switch on the devices.
- **SensorDeviceActivity:** Is the controller in the interaction with the user in the Sensor-Device View. Controls the TextView fields and the buttons that will retrieve information regarding the sensors from NetworkManager.
- **LightBulbActivity:** Is the controller in the interaction with the user in the LightBulb View. Controls the EditText fields and the buttons that will retrieve and send information from/to the NetworkManager.
- **NetworkManager:** Handles all the communication with the API. The different methods for controlling both receiving and setting data.
- **SensorValues:** A class for the information of the different sensors.

3.2 Packages

- Network
- Activity
- Adapter
- Model
- Sensor

3.3 UML diagram

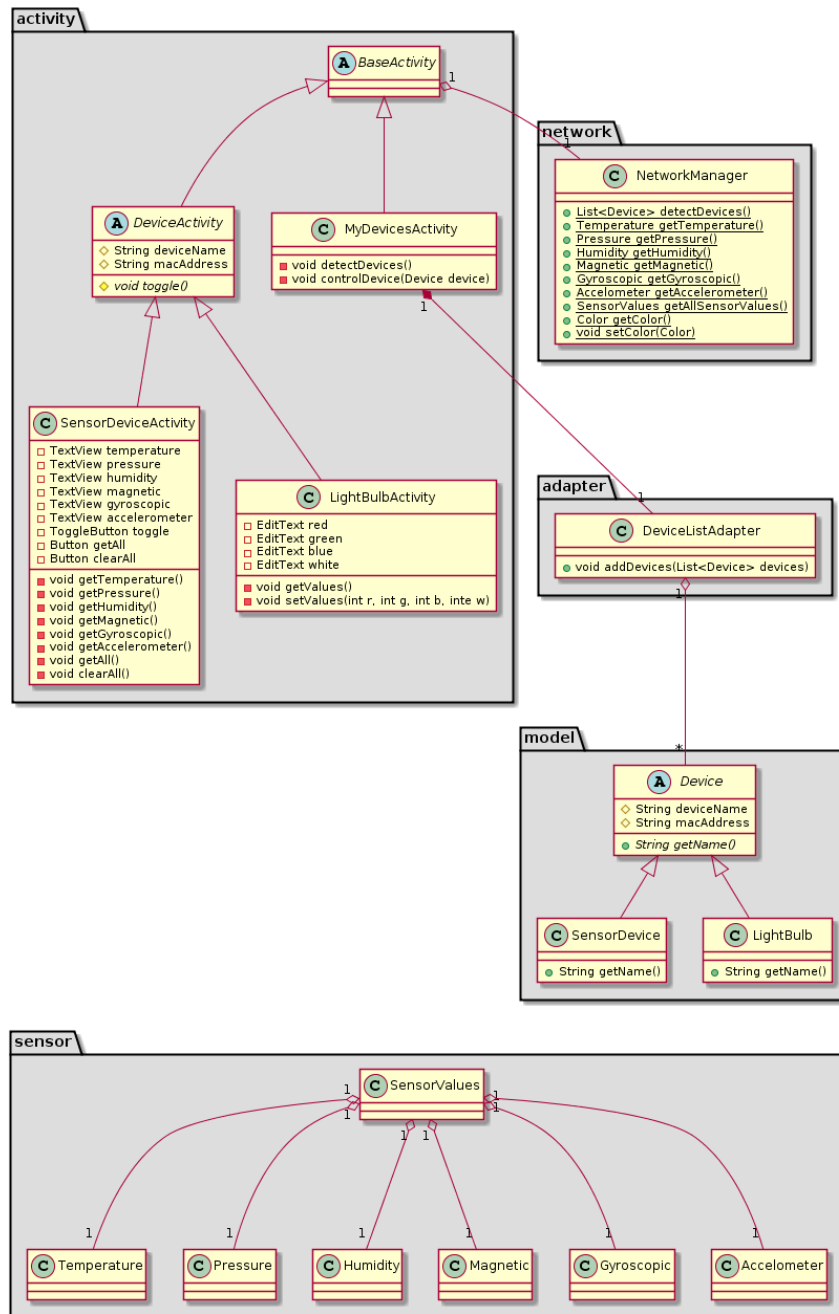


Figure 1: The design of the system.

3.4 Sequence diagrams

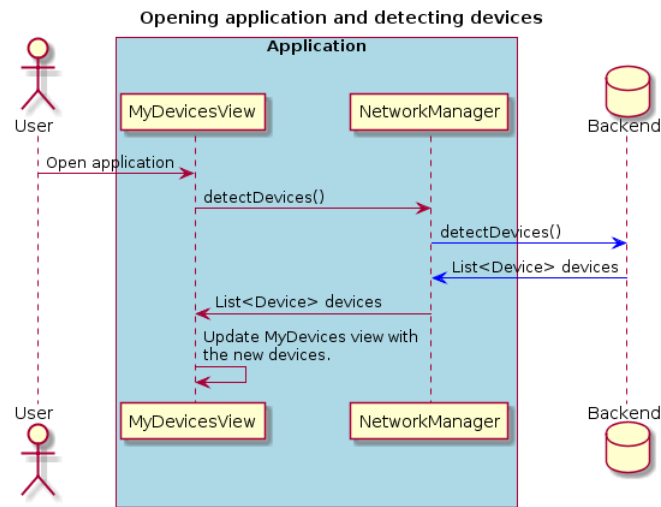


Figure 2: Opening application and detecting devices.

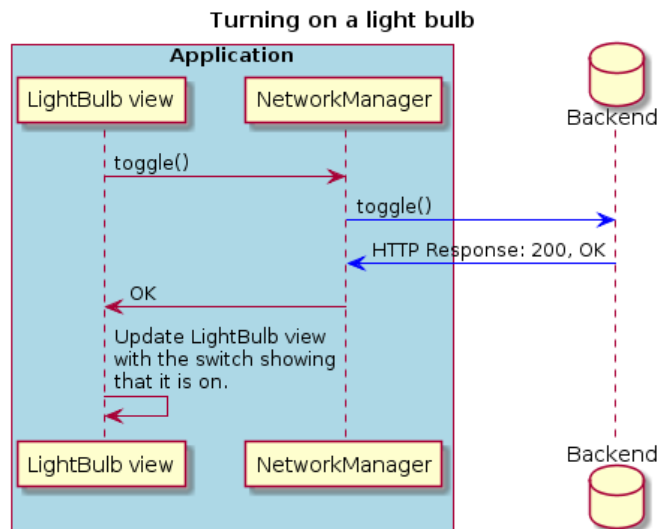


Figure 3: Turn on the light bulb with the user located in the LightBulb view.

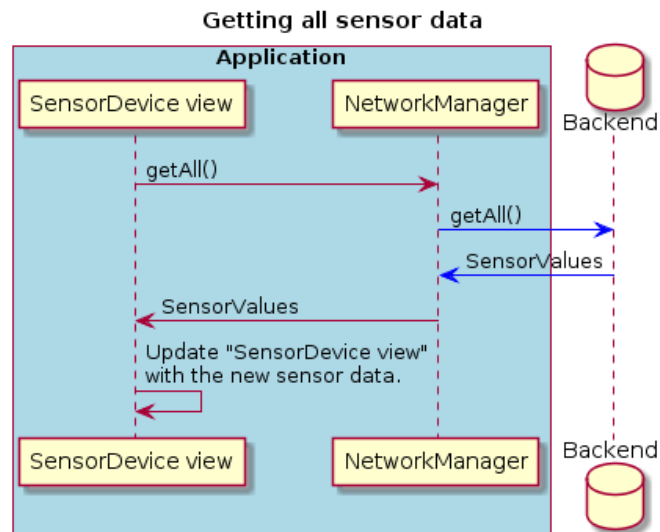


Figure 4: Get all sensor data with the user located in the SensorDevice view.

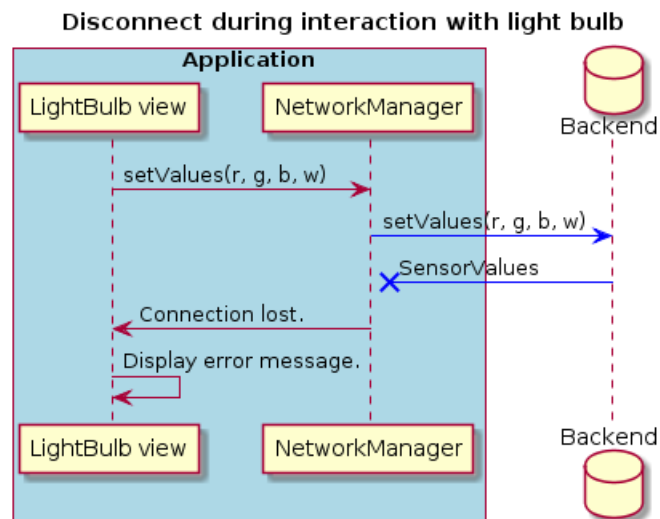


Figure 5: Set color of Light bulb with the user located in the LightBulb view and the backend is unresponsive.