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Home Automation System Software Requirements

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1. Introduction

In recent years, home automation systems have become increasingly popular among homeowners. The ability to control devices such as lighting, heating, and security systems remotely through a single system has made life much easier for homeowners. In this document, i will imagine an home automation system software and come up with a requirements document , use case & sequence diagrams and possible wireframes of web or mobile app.

2. Requirements

In my project document there are 2 user types one of them is admin that controls over devices in our web or mobile app. And the second user type is proadmin that has control over the admins.

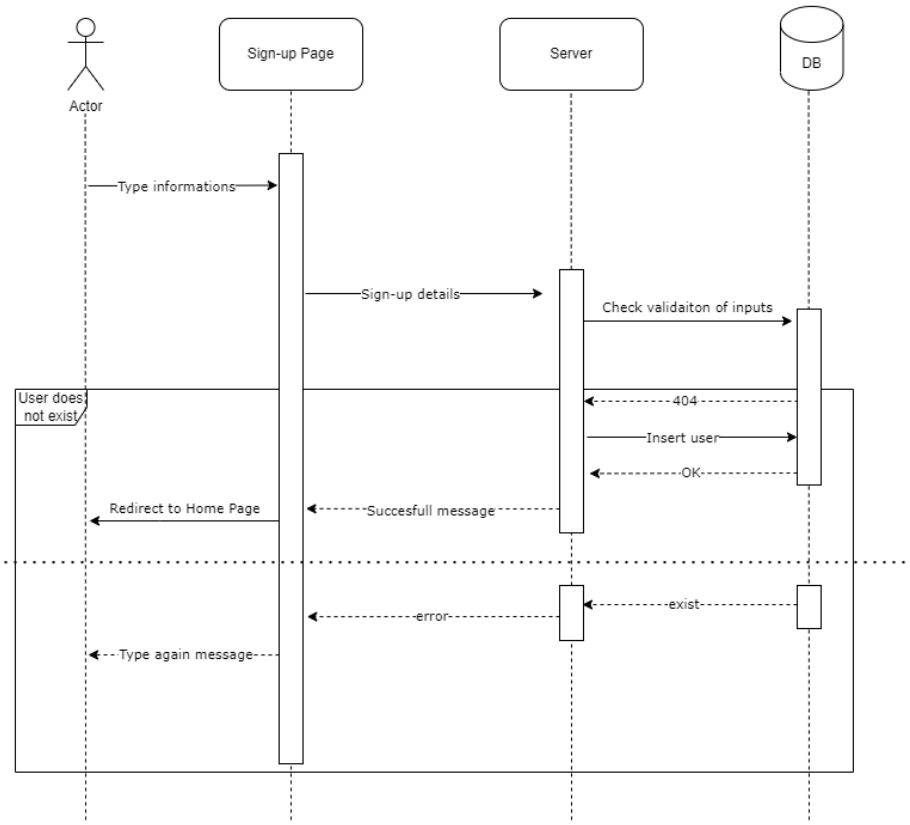
2.1 Functional Requirements

- **Authentication:**
  The ability to access the system. This system has 2 different roles which are admin & proadmin. These two should be authanticated seperetaly and differently. Proadmin will enter the system with special password only the owners of the product. Admins will enter the system with sign up & login.
- **Device Management:**
  The ability to list and manage all the devices connected to the home automation system software. This may include add/remove new device configure its IP/etc. Connect devices to Wifi/Bluetooth
- **Device Control:**
  The ability to control devices remotely. This may include turn off/on lights , activating/deactivating air conditioner etc.
- **Device Monitoring:**
  The ability of monitor the status of the devices. This may include runtime of an air conditioner , how many electricity did air conditioner cost etc.
- **Device Malfunction Alerts:**
  The ability of receiving alerts in case of any unusual device activity. This may include if a device made short circuit we will get alerted.
- **Device Scheduling:**
  The ability to arrange the events of devices. For example if a person wakes up at 7 a.m. we should be able to start thermostat at 6.50 a.m. before we wake up.
- **Voice Control:**
  The ability to control devices with voice input. For example if a person wants to start an air conditioner with the words spelling “Start Air Conditioner”.
- **Energy Saving Tips:**
  The ability to suggest energy-saving tips. For example if a person has worked his air conditioner for many hours program should tip to relax an air conditioner little bit.
- **Admin Management:**
  The ability to create multiple user profiles with different levels of access like (admin, proadmin) , this will be helpful to admin user to be in full charge and if system has unauthorized users somehow this will give an ability to kick that user.
- **Admin Control:**
  The ability to control over admins permissions over devices.

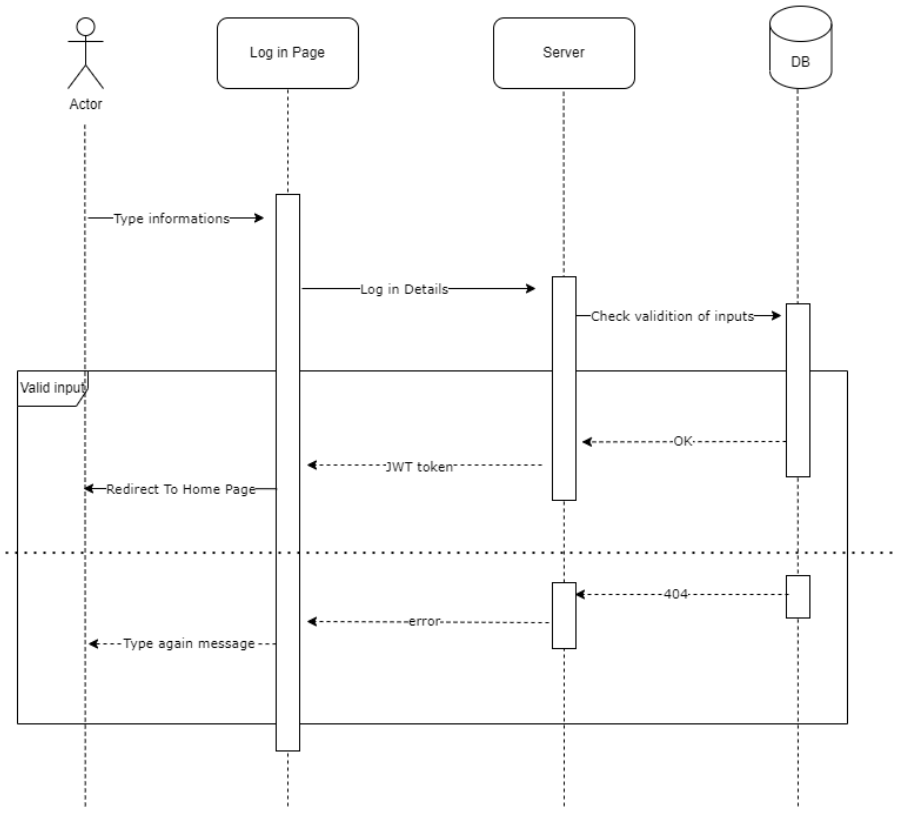
3. Use Case & Sequence Diagrams

Registeration & Login Sequence Diagram

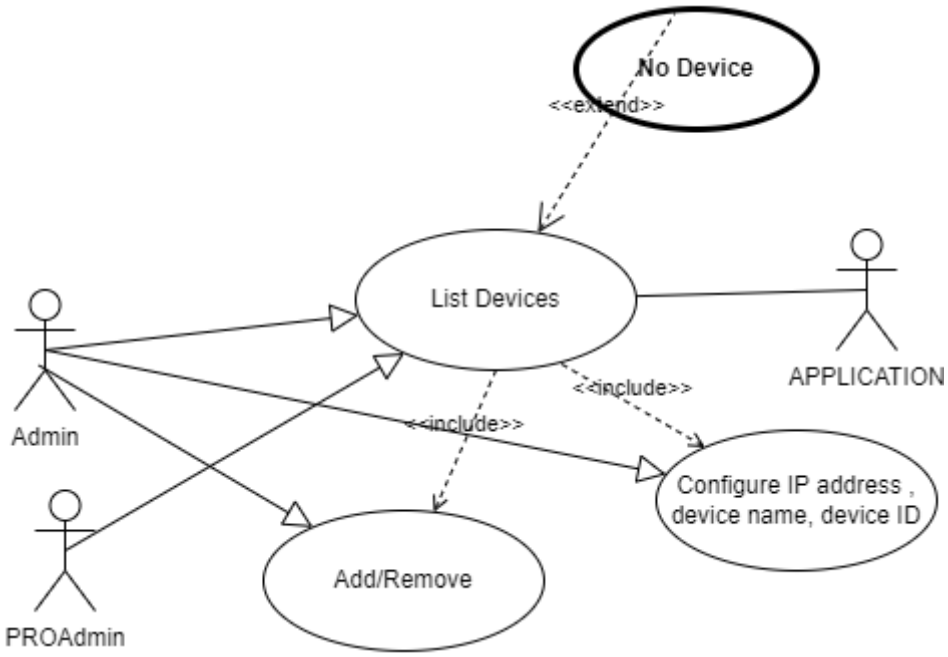
Registration Sequence Diagram:



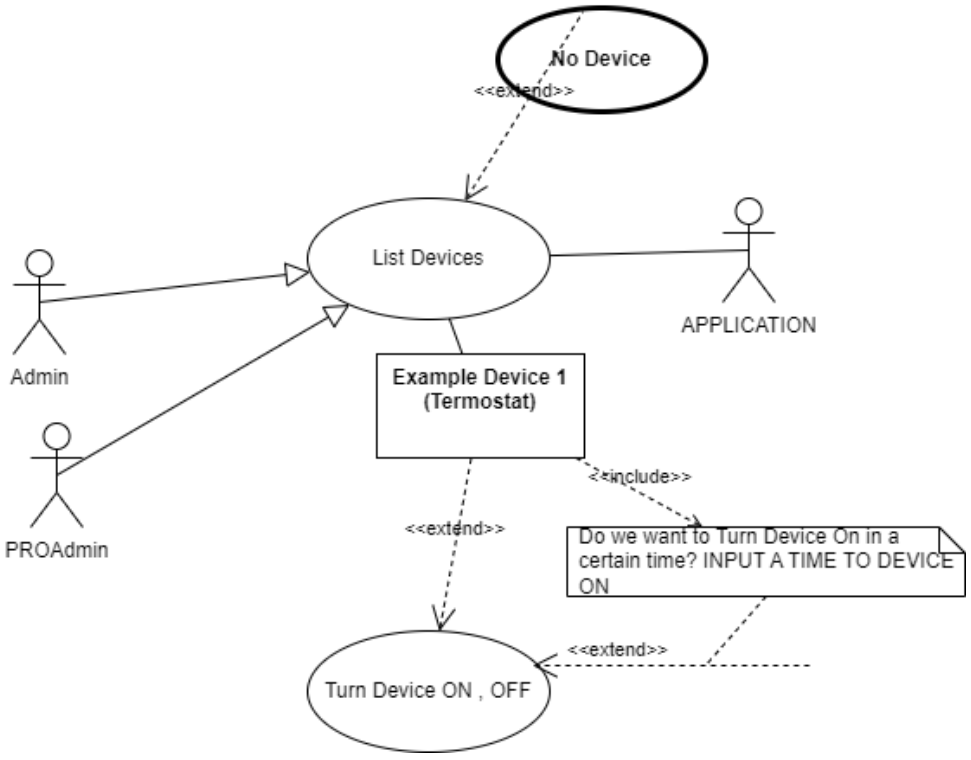
Log in Sequence Diagram:



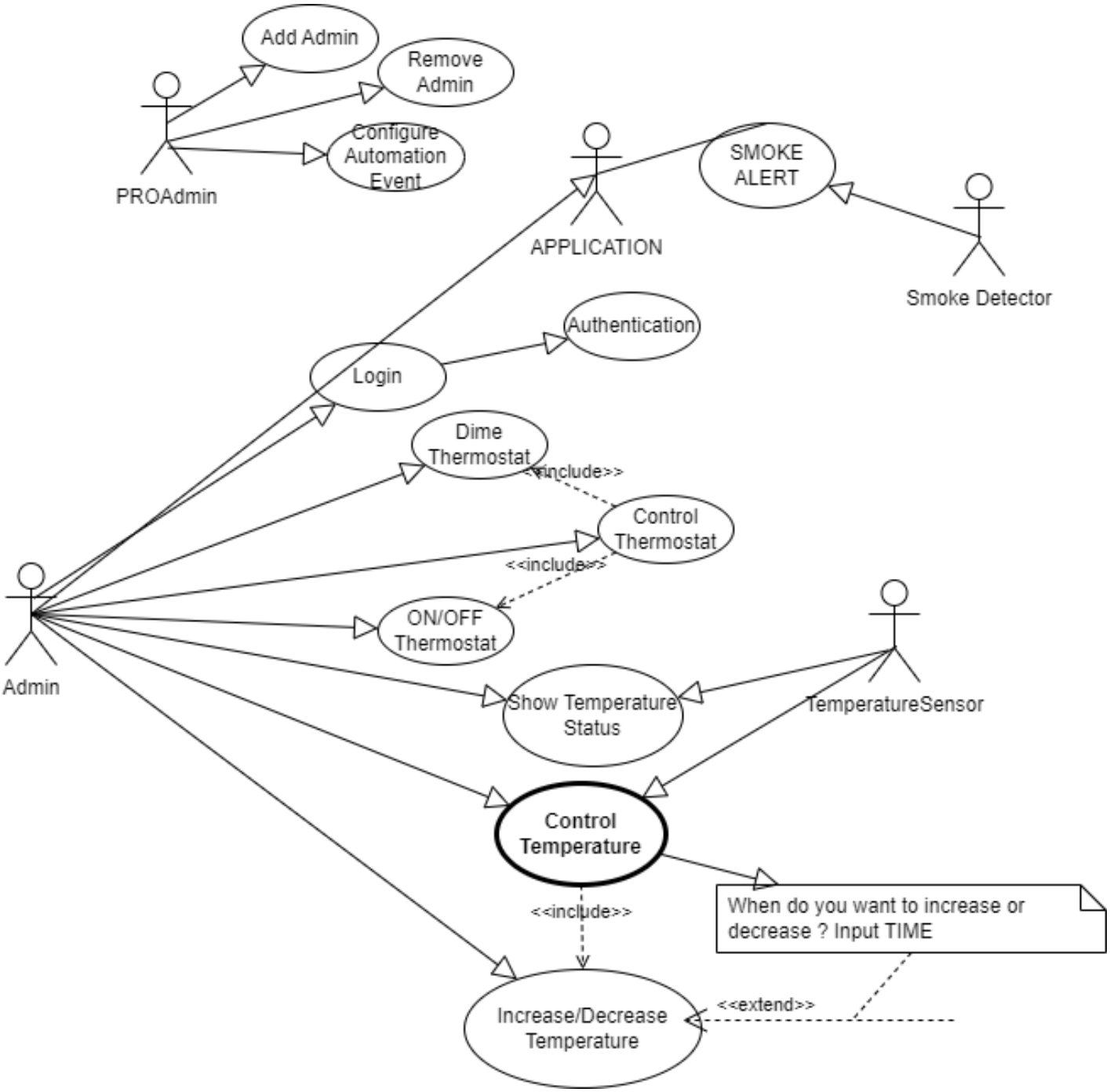
Device Management Use Case Diagram:



Device Control & Scheduling Use Case Diagram:

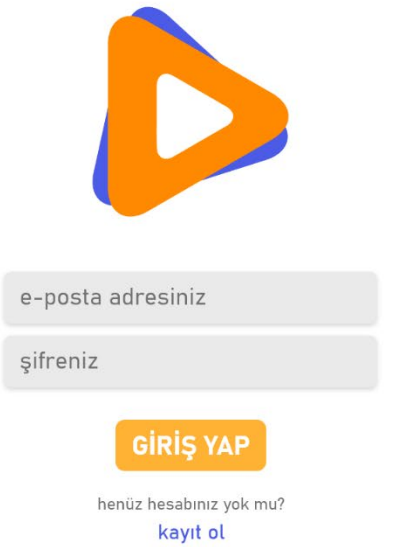


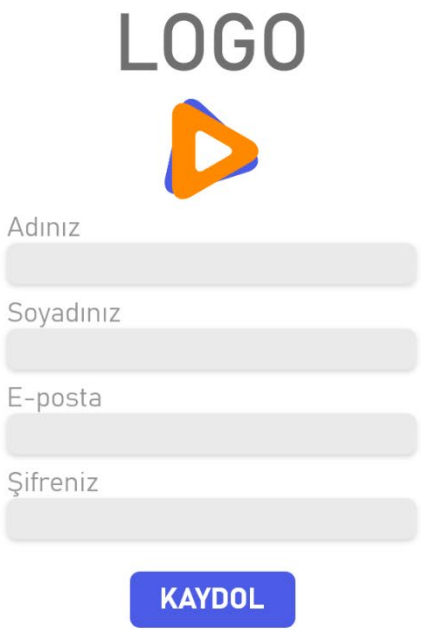
General Admin & Pro Admin Use Case With Possible Devices:



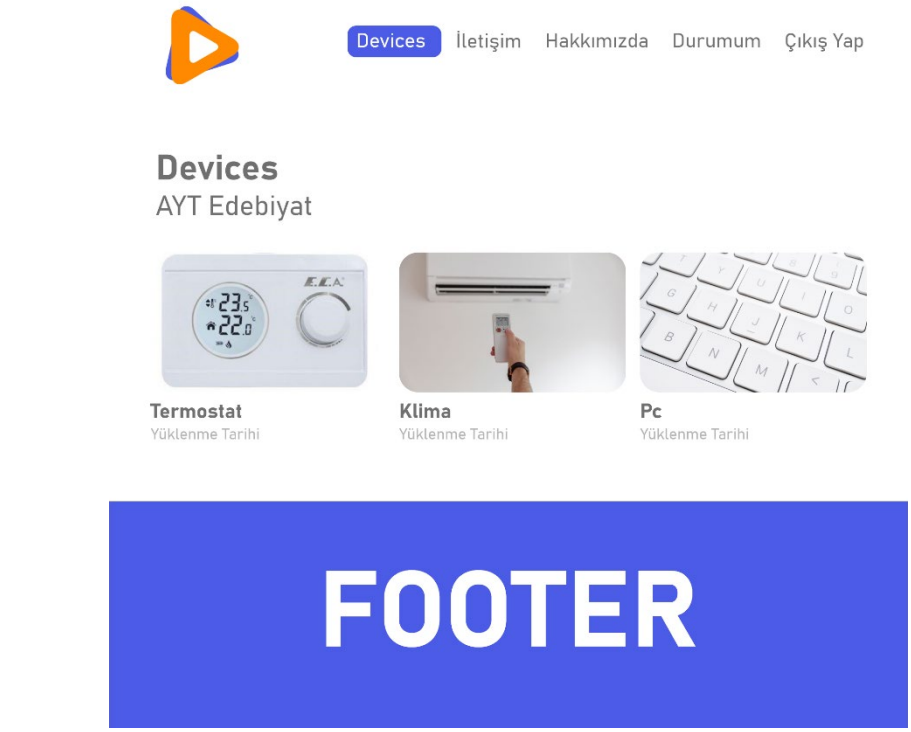
4. User Interface Wireframe

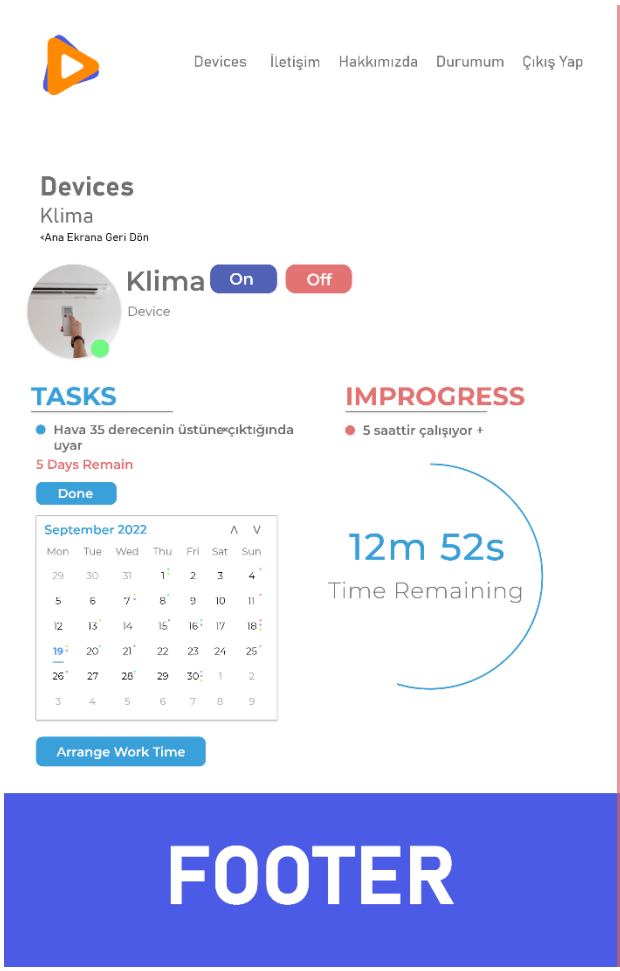
Login & Signup Page

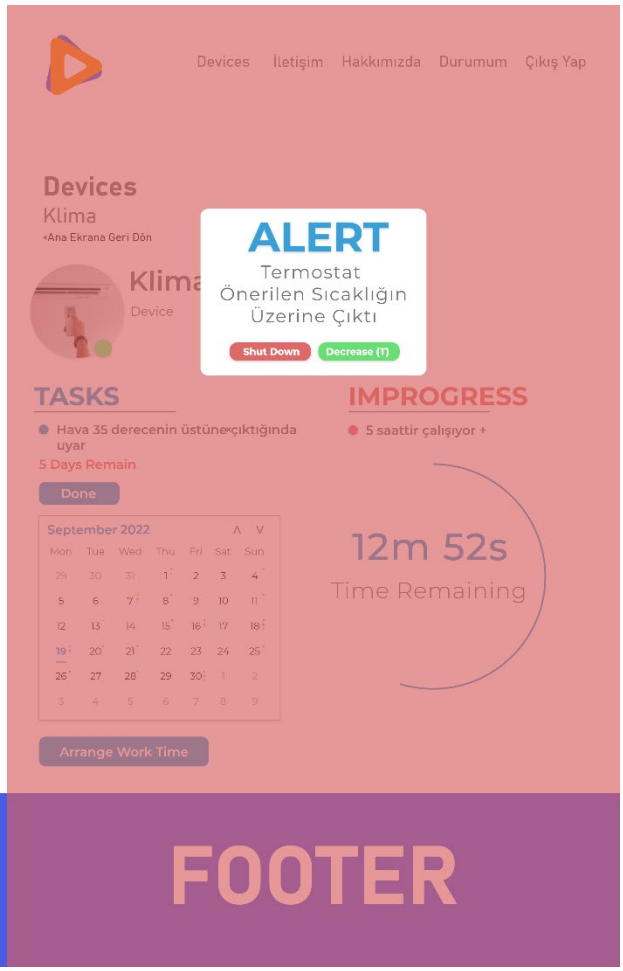




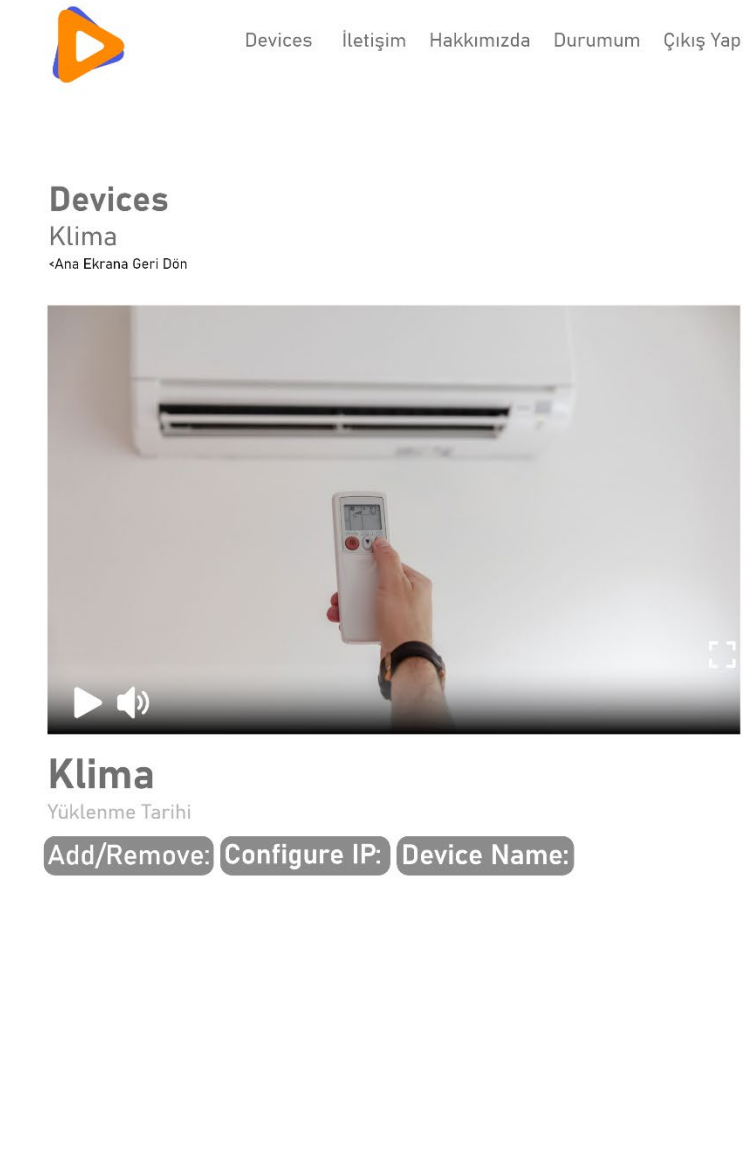
Main Page – Admin – Device Control & Monitoring & Alerts

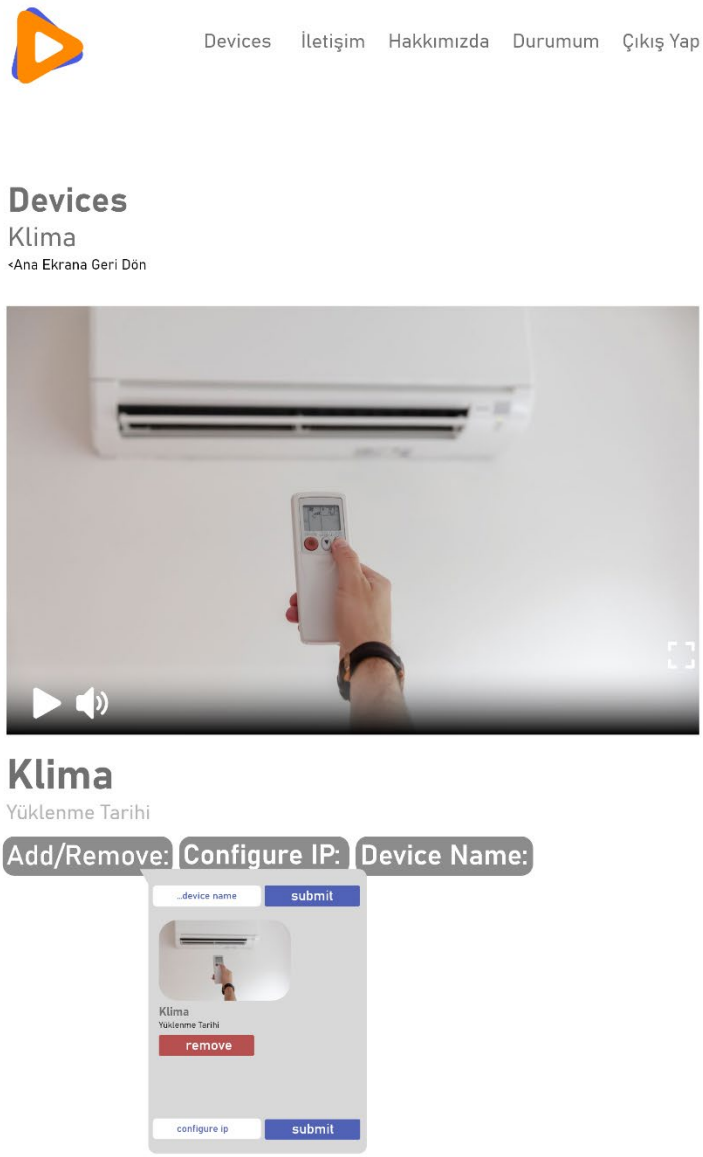






Admin & Pro Admin – Device Management





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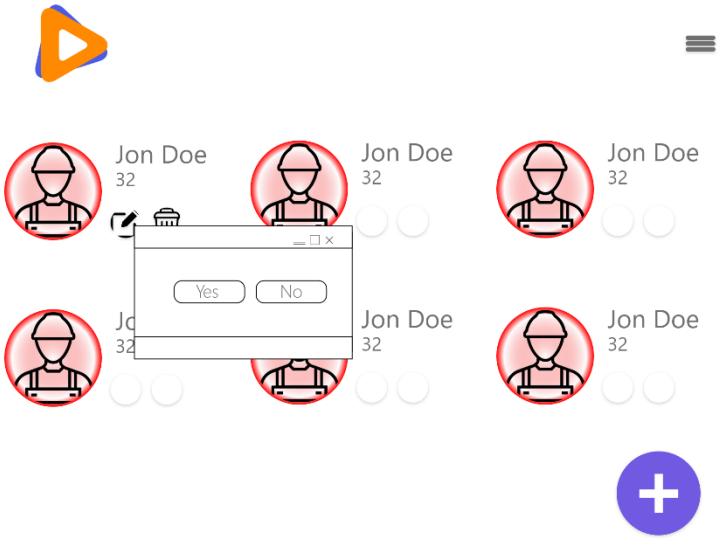
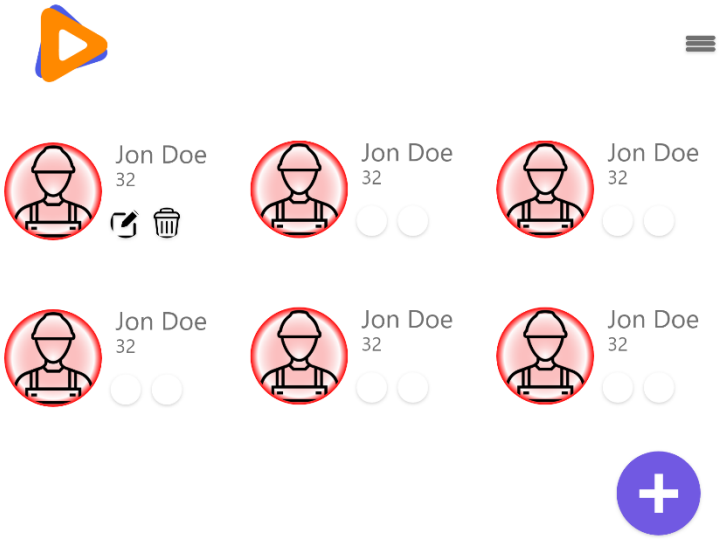
Pro Admin - Admin Management & Admin Control





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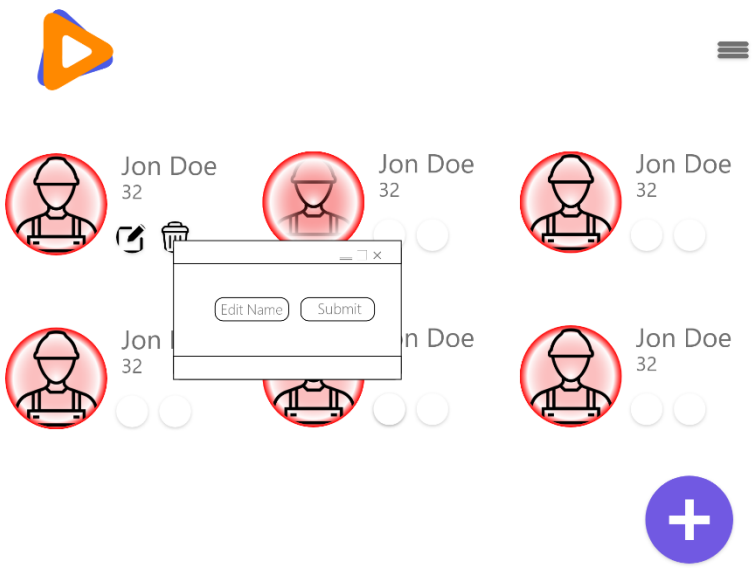
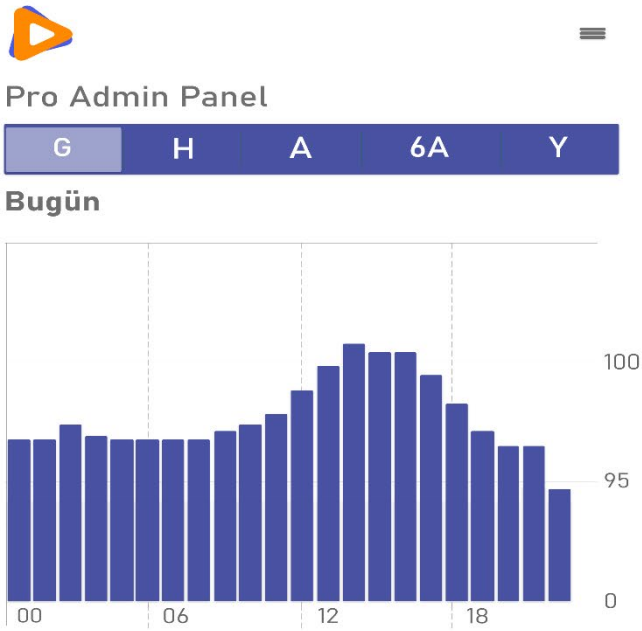
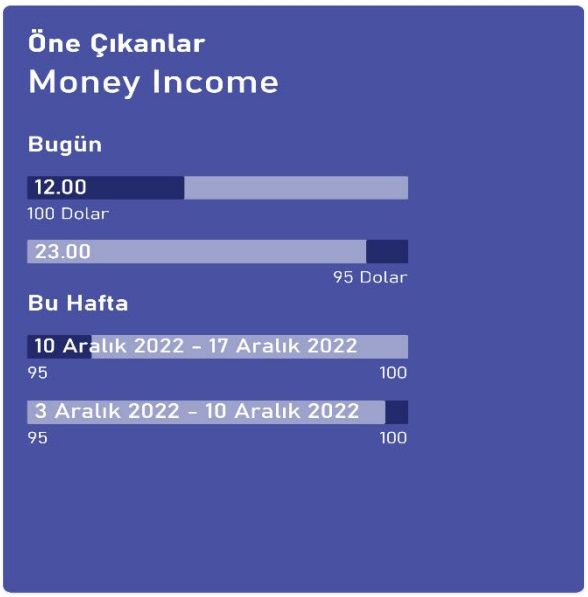
Pro Admin Statistics







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