



Group: SDDEC25-08

# Smart Home Control Unit for Energy Optimization

# Smart Home Project Overview



## Objective

Automate home functions for convenience, energy efficiency, and security.



## Components

Home Assistant Open-Source Software  
Smart Sensors / Devices  
Raspberry Pi / Server



## Database

Firebase



## Features

Temperature  
Lighting

# Problem Statement



**Homeowners struggle with choosing between:**

**Closed-source systems**

**Open-source systems**



**Main Concerns**

Energy Savings

Ease of Setup

Customizability

Data Privacy



**Our Solution**

Best Aspects of Both Systems  
While Addressing All Concerns

# Requirements



Functional



Resource



Physical



Aesthetic



Environmental



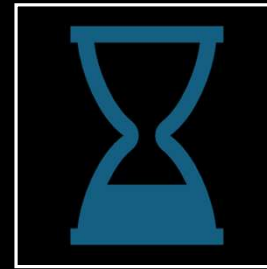
User  
Experience

# Constraints



## Cost Efficient

The product must be affordable for the user.  
The hardware components we use must be low cost.



## Time

The project must be completed within the year  
(timeframe of the course).

# Standards



IEEE 802.11 -WiFi



IEEE 802.15.4 -Zigbee



ISO Standards for  
Information Security  
Management



ISO Standards for Energy  
management



Thank you