SMART HOME

Team X

Team members

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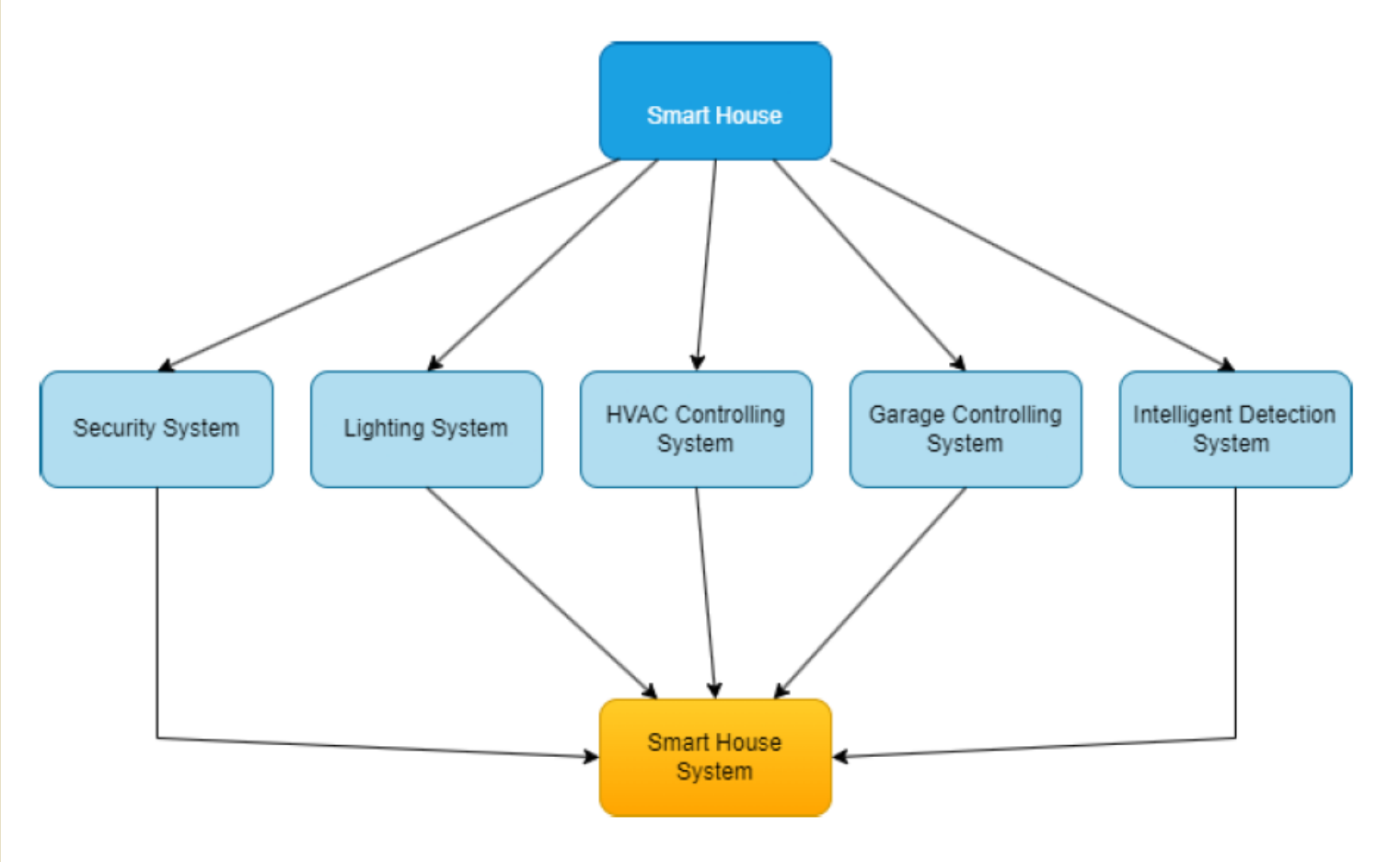
HOME CONTROL
21°

What is a smart home?

A smart home refers to a convenient home setup where appliances and devices can be automatically controlled remotely from anywhere with an internet connection using a mobile or other networked device.



Types of Interface

- *System Interface:*

Smart home system basically includes sub-systems such as: Security System, Lighting System, HVAC Controlling system, Garage door system and intelligent detection system. If any of these subsystems having a problem or failed it doesn’t affect the other sub-systems.

- *User Interface:*

Only a user with valid password will have the access over the controlling system of the house.

- *Hardware Interface:*

User will have the ability to control motors such as servo for opening and closing the garage door, dc motor for controlling the speed of the fan, Sensors will be controlled by the system meaning of based on some readings of these sensors the system will take some actions.

- *Software Interface:*

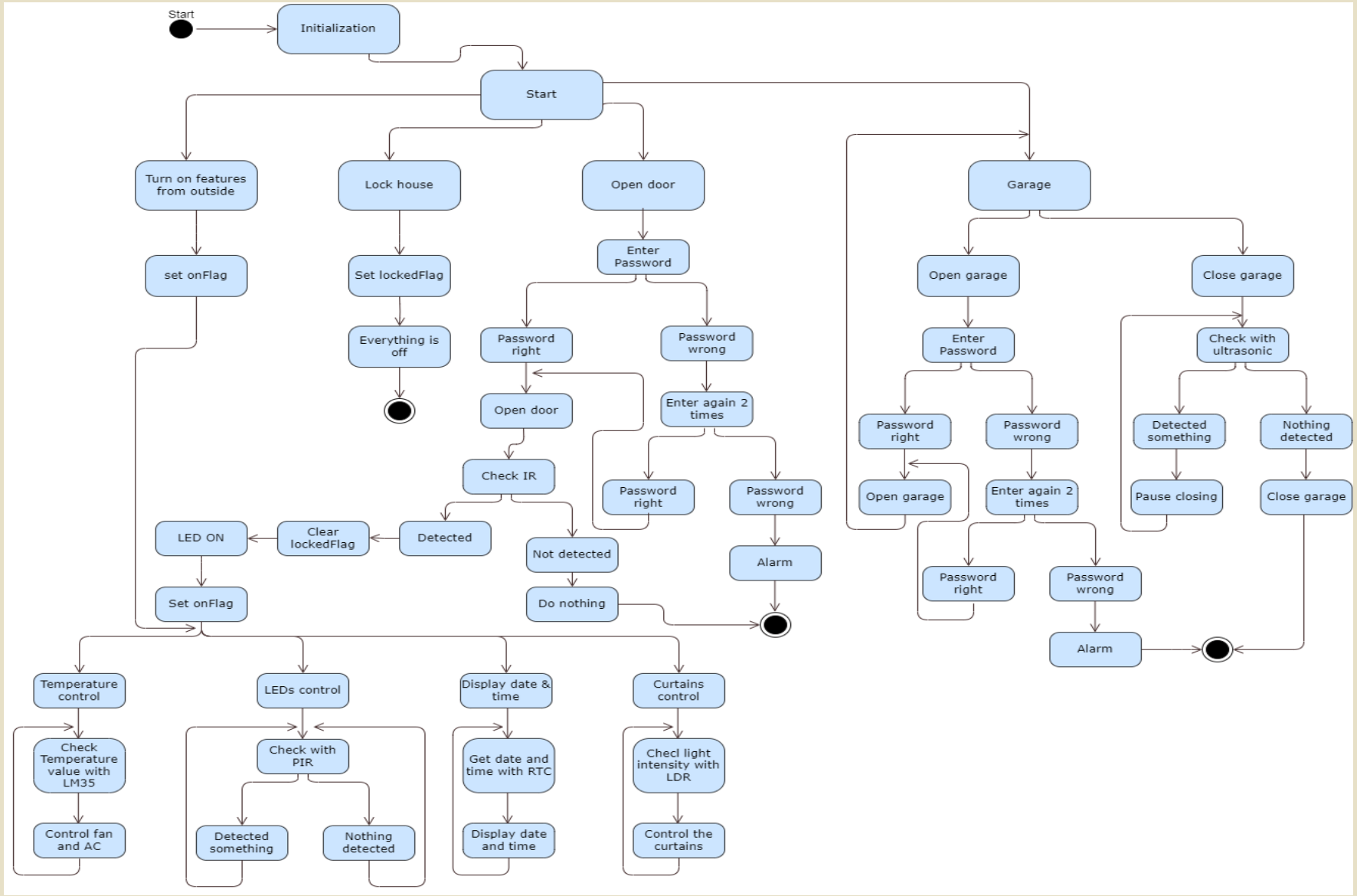
User will have the ability to control the whole home system using mobile phone application supported by the developers and the data will be displayed on LCD screen inside the house.

Customer requirement

- Open my door with a password.
- Good fire detector and fire alarm.
- Turning on and off the air conditioner based on the temperature and control it with a custom remote specific to the product.
- Automatic opening and closing of window blinds.
- Lights being turned on when I open the door.
- Temperature and humidity monitoring system.
- Garage door being controlled remotely using password to open and close
- Smart home applications that controls all the internal features of the system

Customer requirement

- Can open microwave before I come back
- Can control it remotely from outside (ex: through phone app)
- Can set alarms to wake me up
- Can detect if there is someone inside the house
- Can also lock doors or lock someone in
- Water level detection to see if I have enough water supply if water got cut
- Backup electricity
- Can control house devices (turn it on and off)

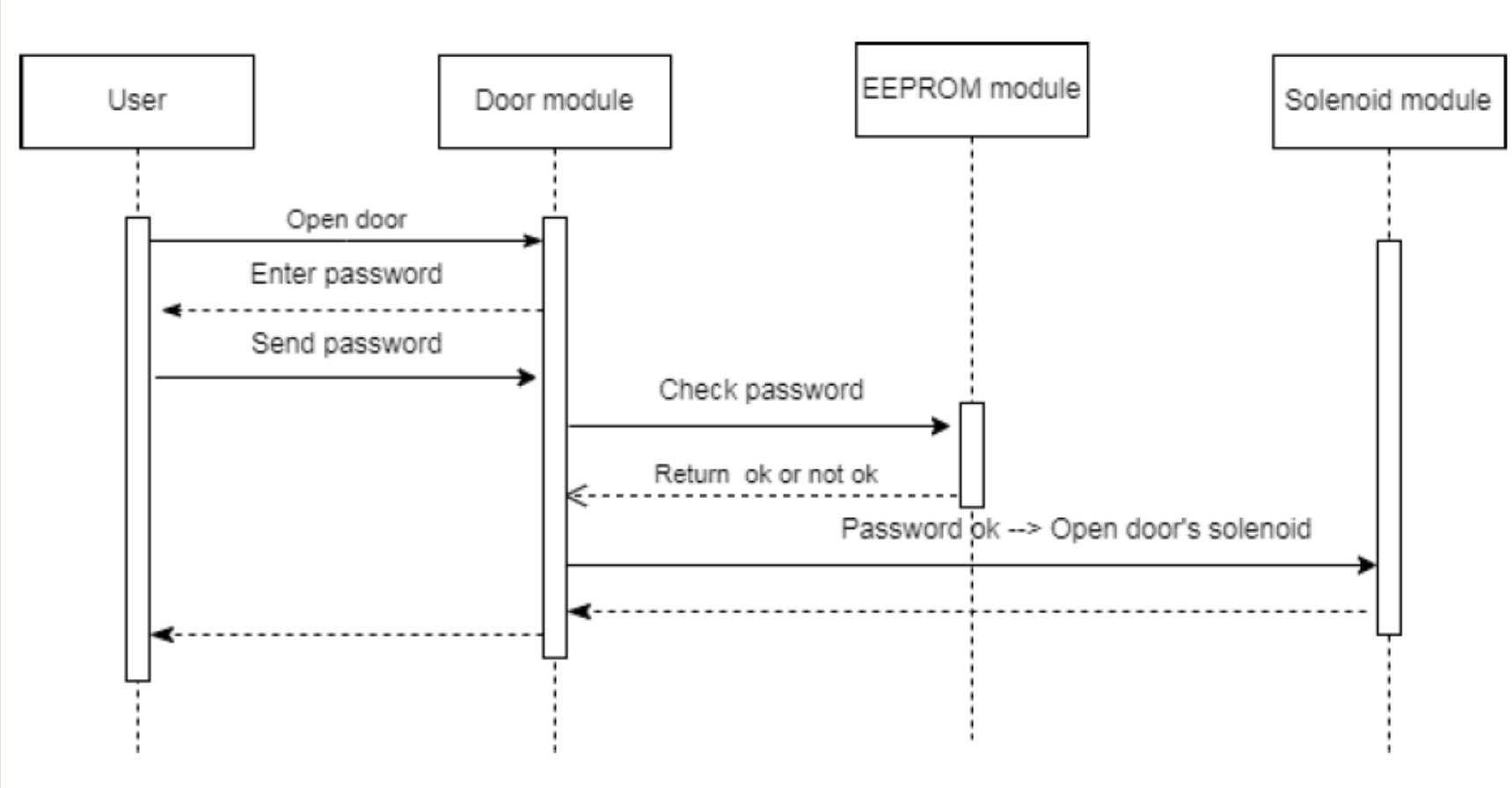

Start
Initialization
Start
Turn on features from outside
Lock house
Open door
Garage
set onFlag
Set lockedFlag
Enter Password
Open garage
Close garage
Everything is off
Password right
Password wrong
Enter Password
Check with ultrasonic
Open door
Enter again 2 times
Password right
Password wrong
Password right
Password wrong
Detected something
Nothing detected
Check IR
Password right
Password wrong
Open garage
Enter again 2 times
Pause closing
Close garage
LED ON
Clear lockedFlag
Detected
Not detected
Alarm
Password right
Password wrong
Set onFlag
Do nothing
Alarm
Temperature control
LEDs control
Display date & time
Curtains control
Check Temperature value with LM35
Check with PIR
Get date and time with RTC
Checl light intensity with LDR
Control fan and AC
Detected something
Nothing detected
Display date and time
Control the curtains

Smart home features

1) Open door with password

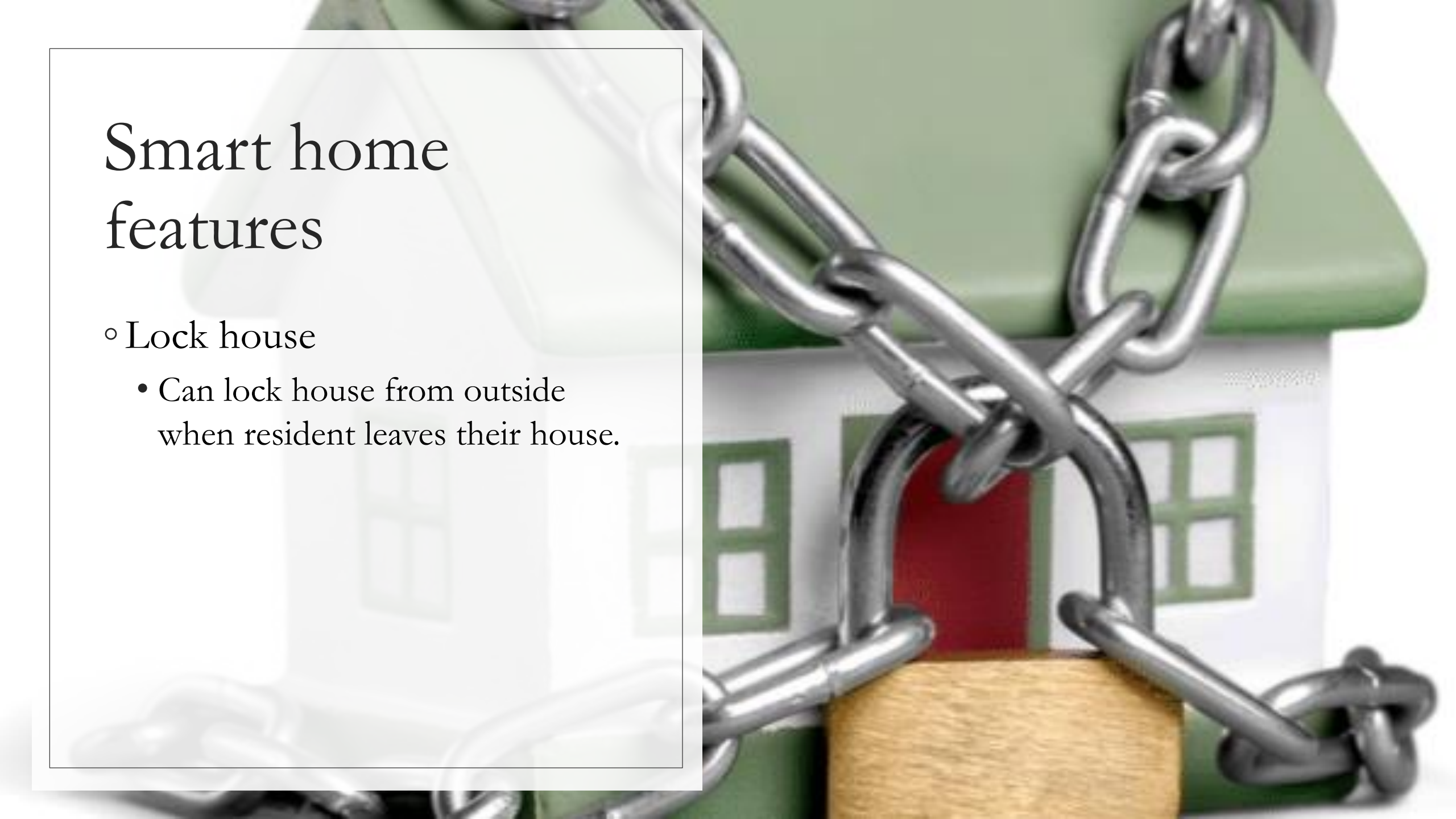
- Can’t open the door without password

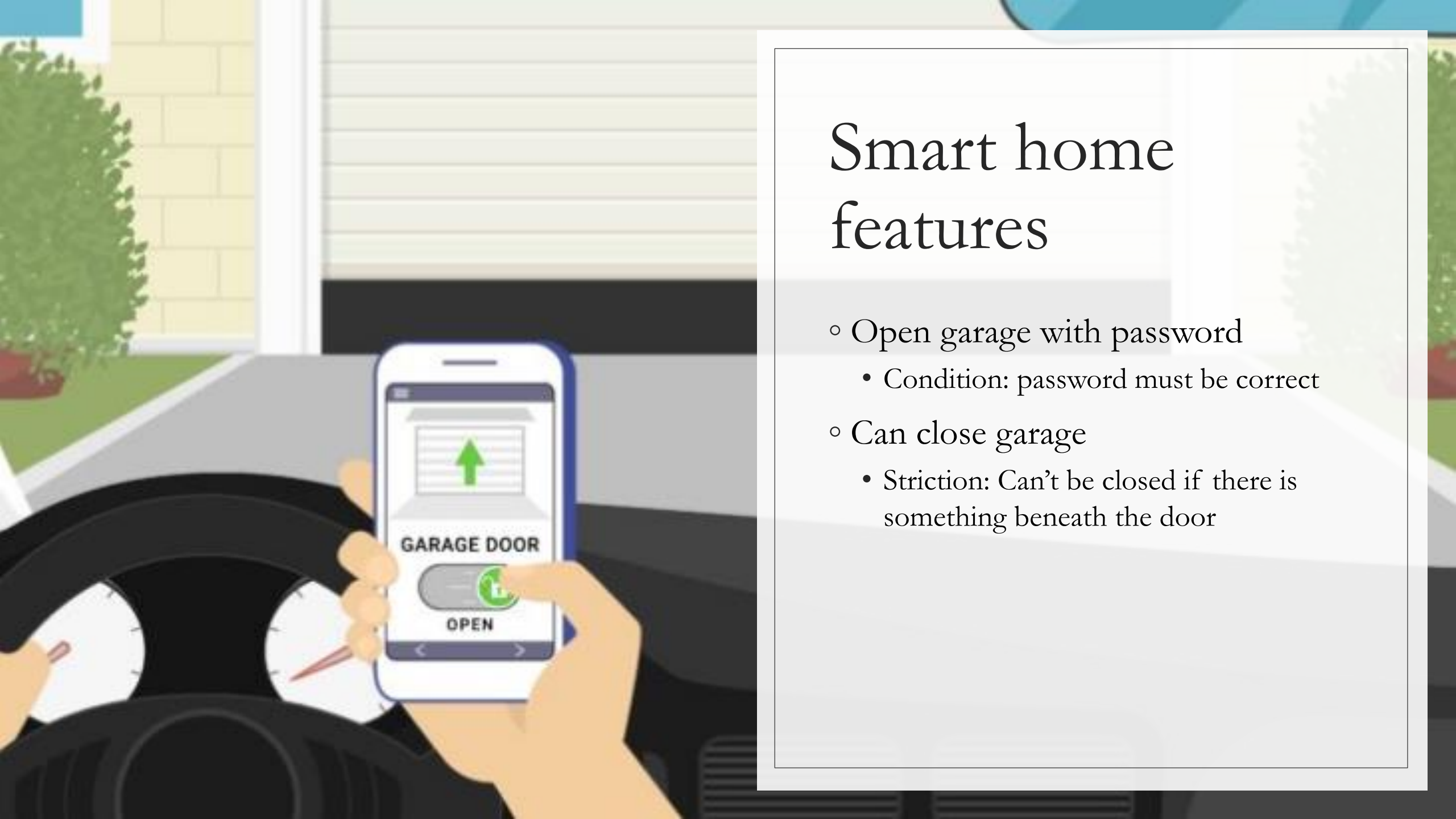
Open door with password



Smart home features

- Lock house
  - Can lock house from outside when resident leaves their house.





Smart home features

- Open garage with password
  - Condition: password must be correct
- Can close garage
  - Striction: Can't be closed if there is something beneath the door

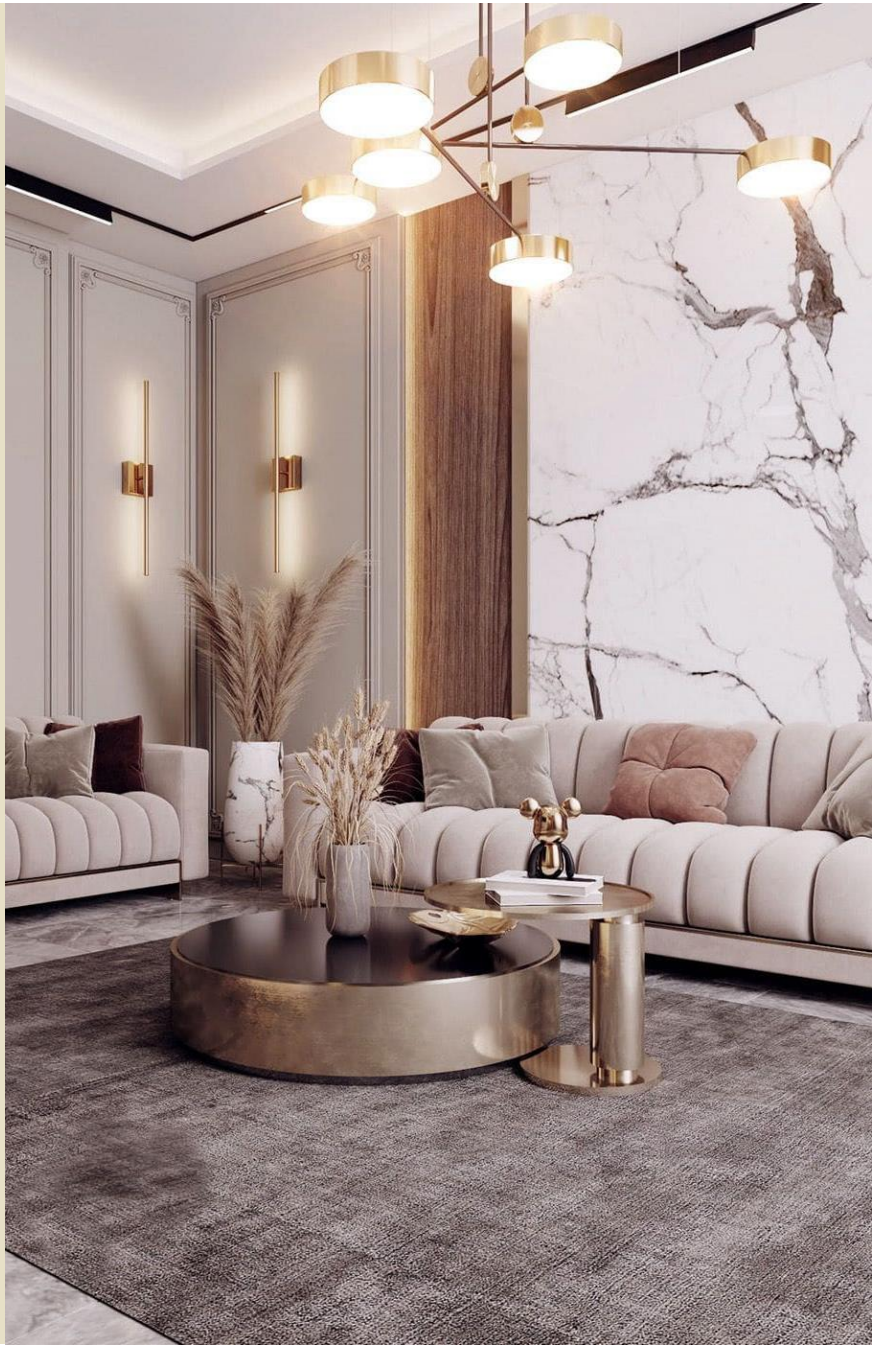
Smart home features

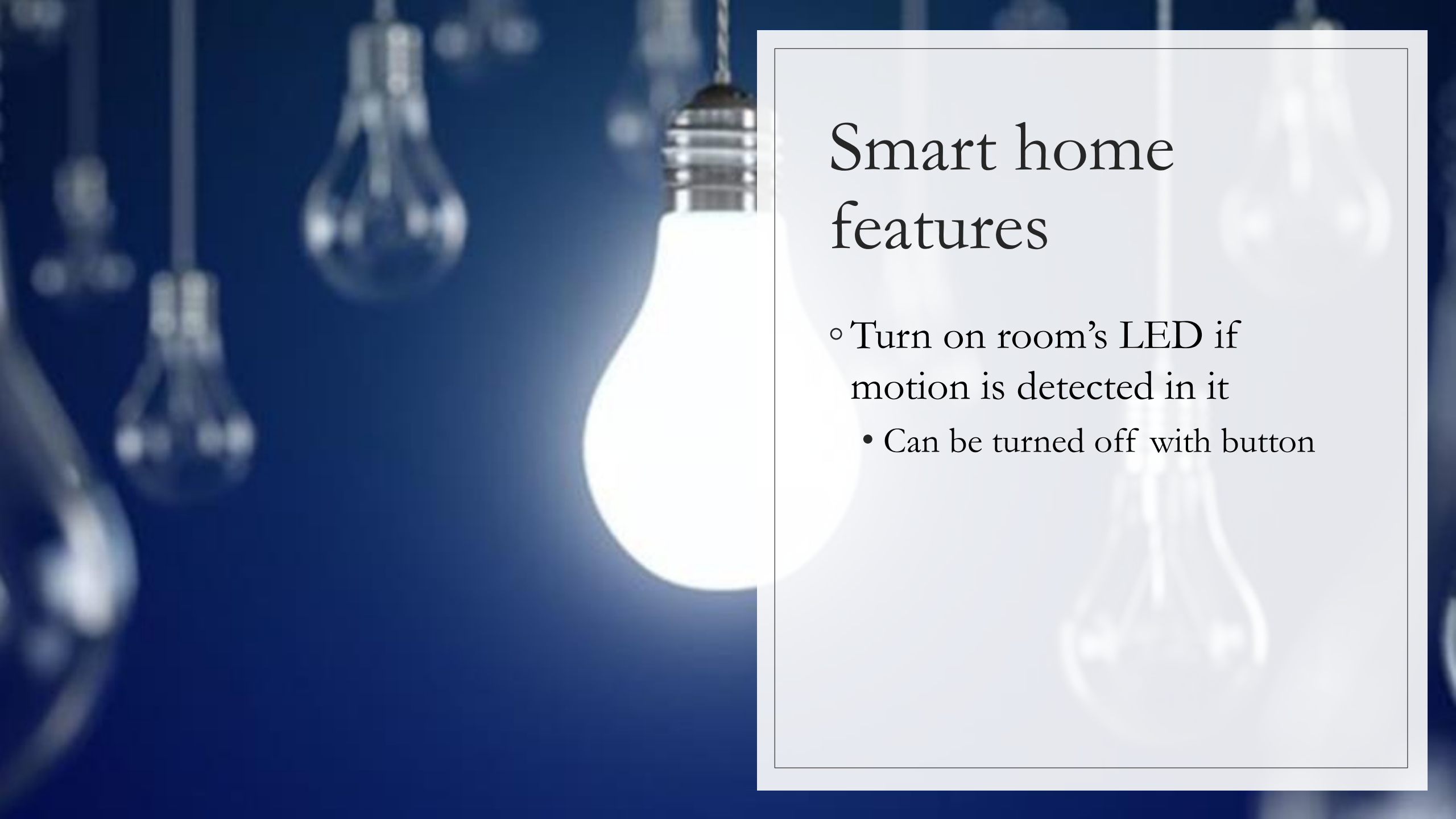
- Can control internal features from outside

Smart home features

When resident arrives home

- Living room's LED is turned on after opening the door and entering the house

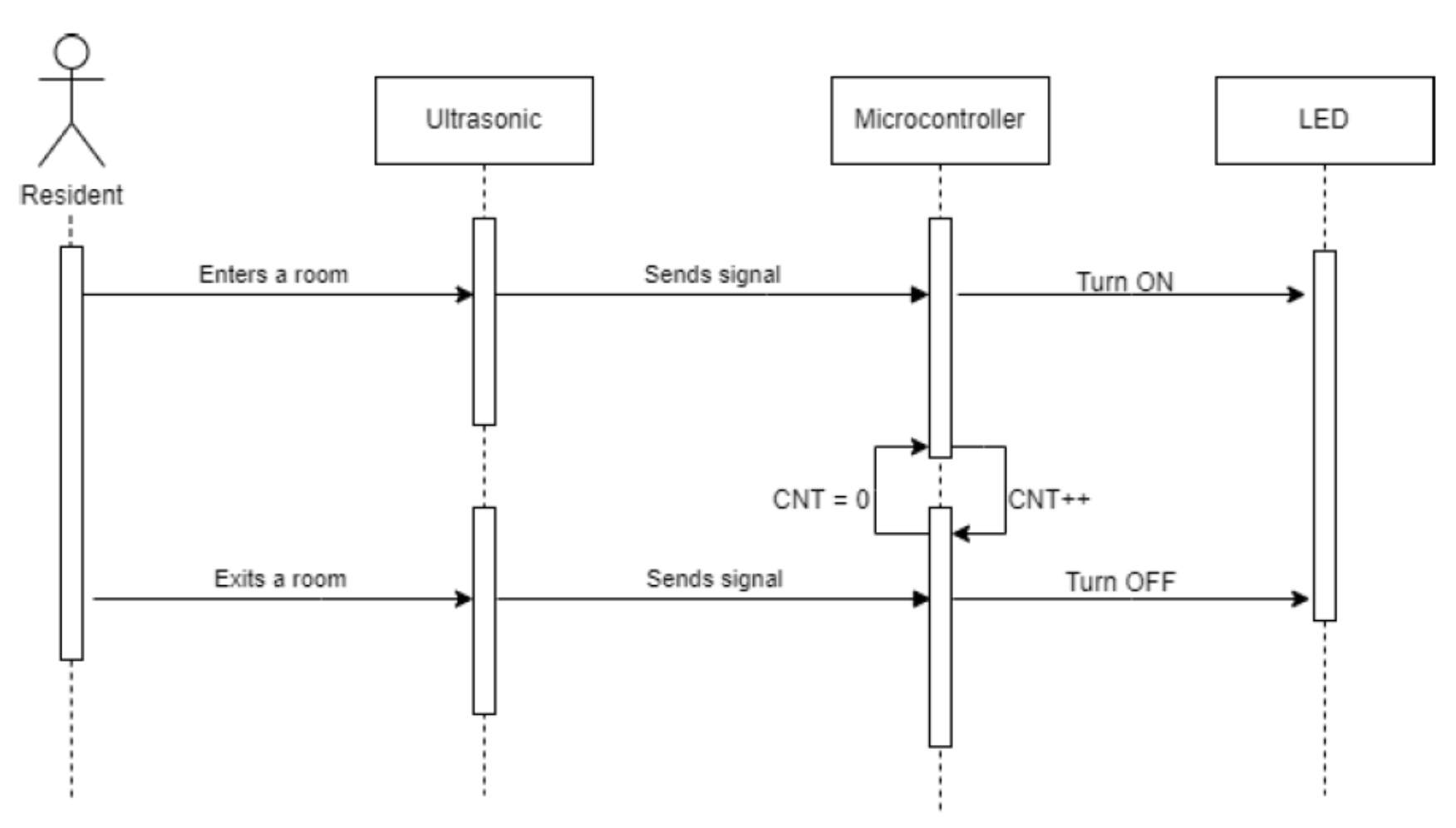




Smart home features

- Turn on room's LED if motion is detected in it
  - Can be turned off with button

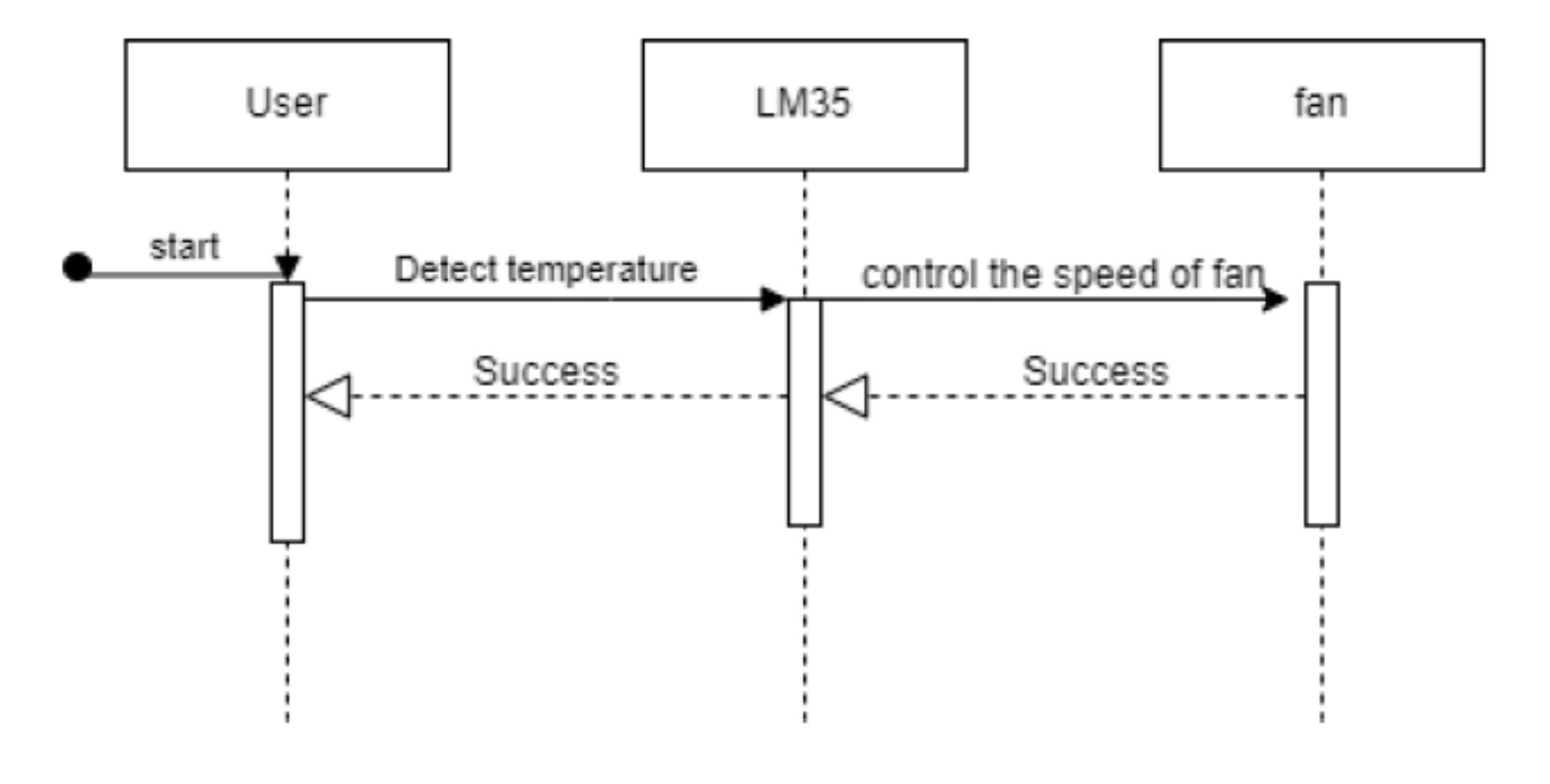
Lights ON/OFF



Smart home features

- Monitor the temperature and control fan and AC based on it

Control fan


User
LM35
fan
start
Detect temperature
control the speed of fan
Success
Success

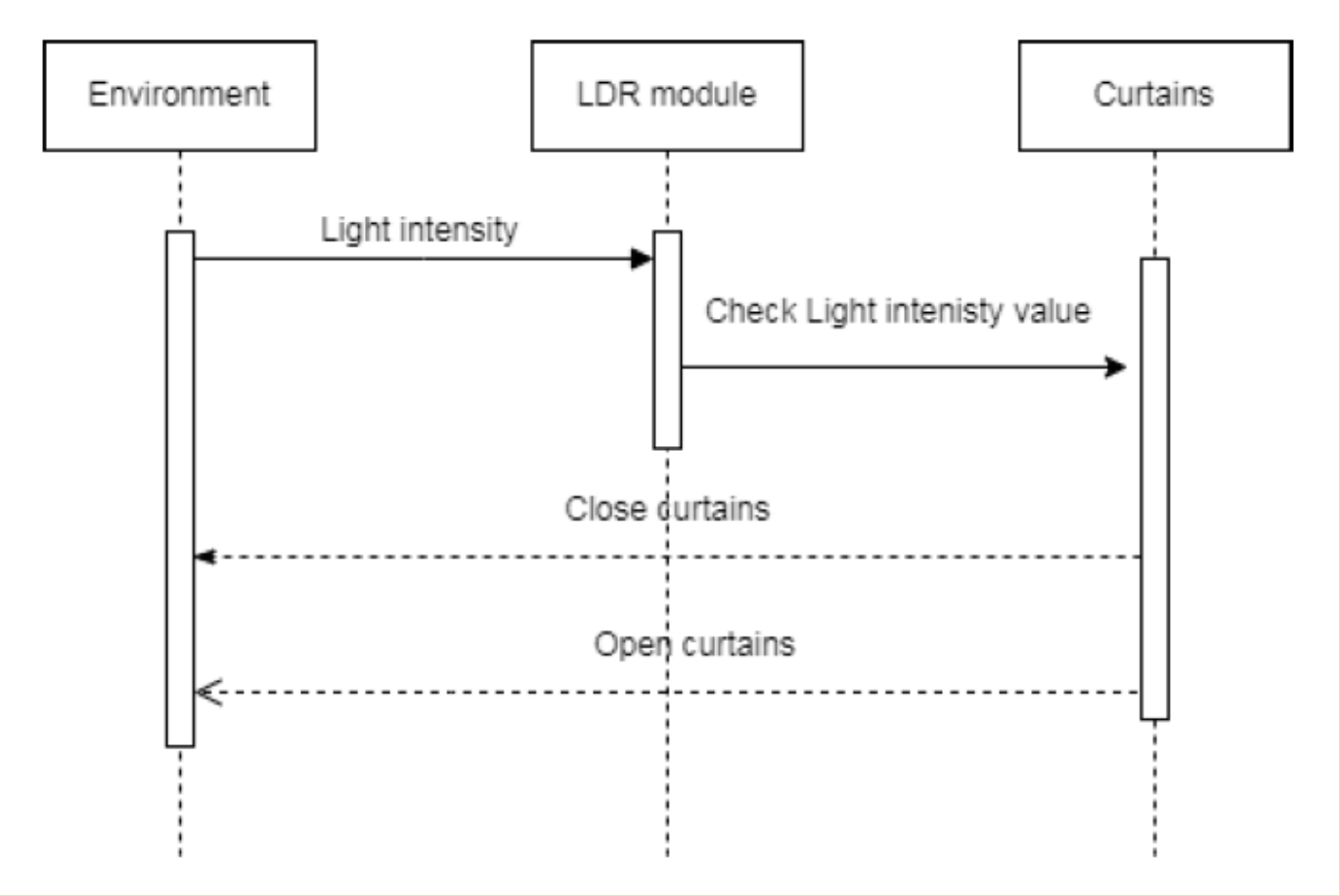
Smart home features

- Display the current date and time

Smart home features

- Monitor light intensity and control the curtains based on it.

Curtain Control



Thank you