

# **SAM'04 Design Contest**

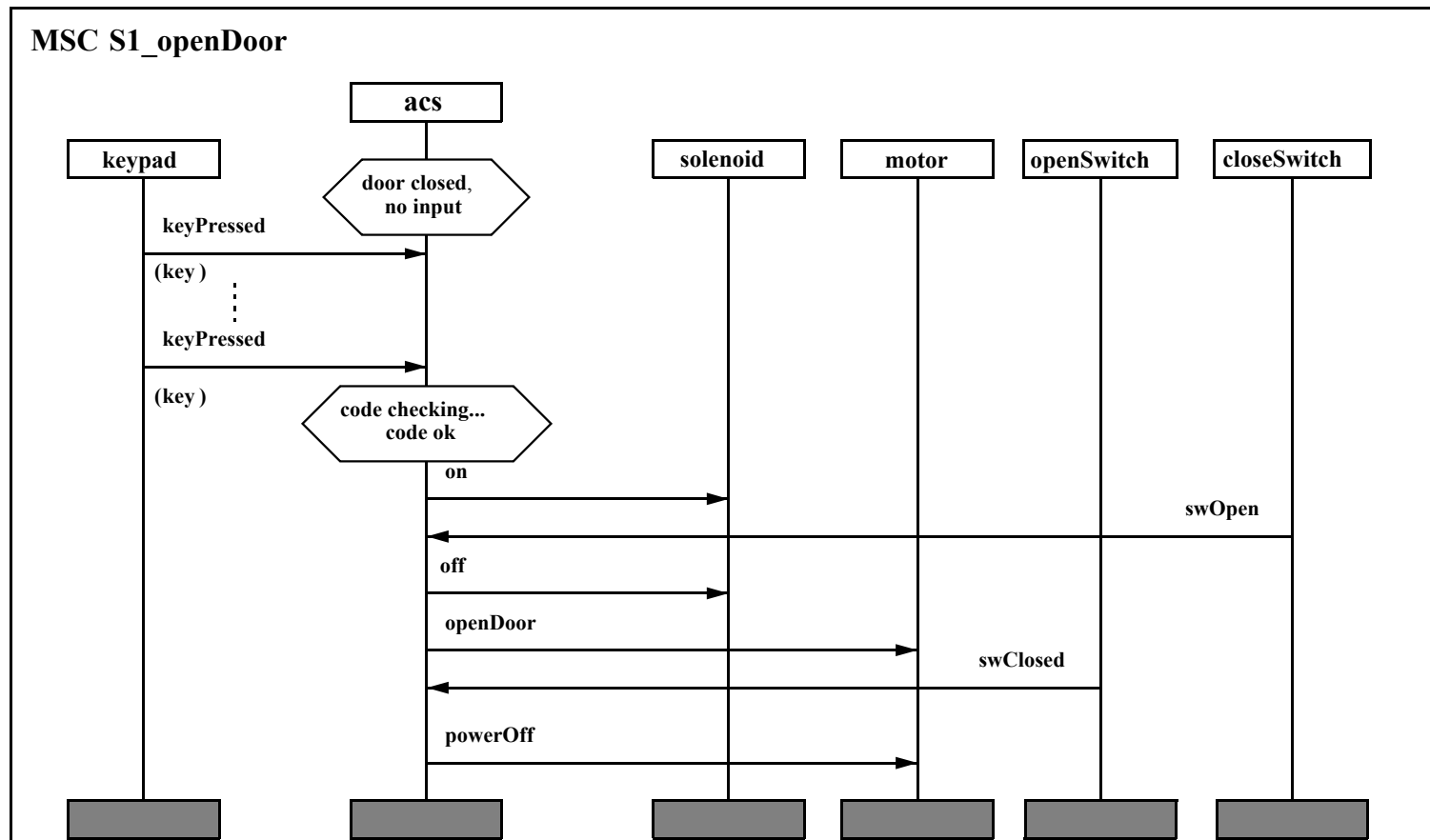
## **Access Control System**

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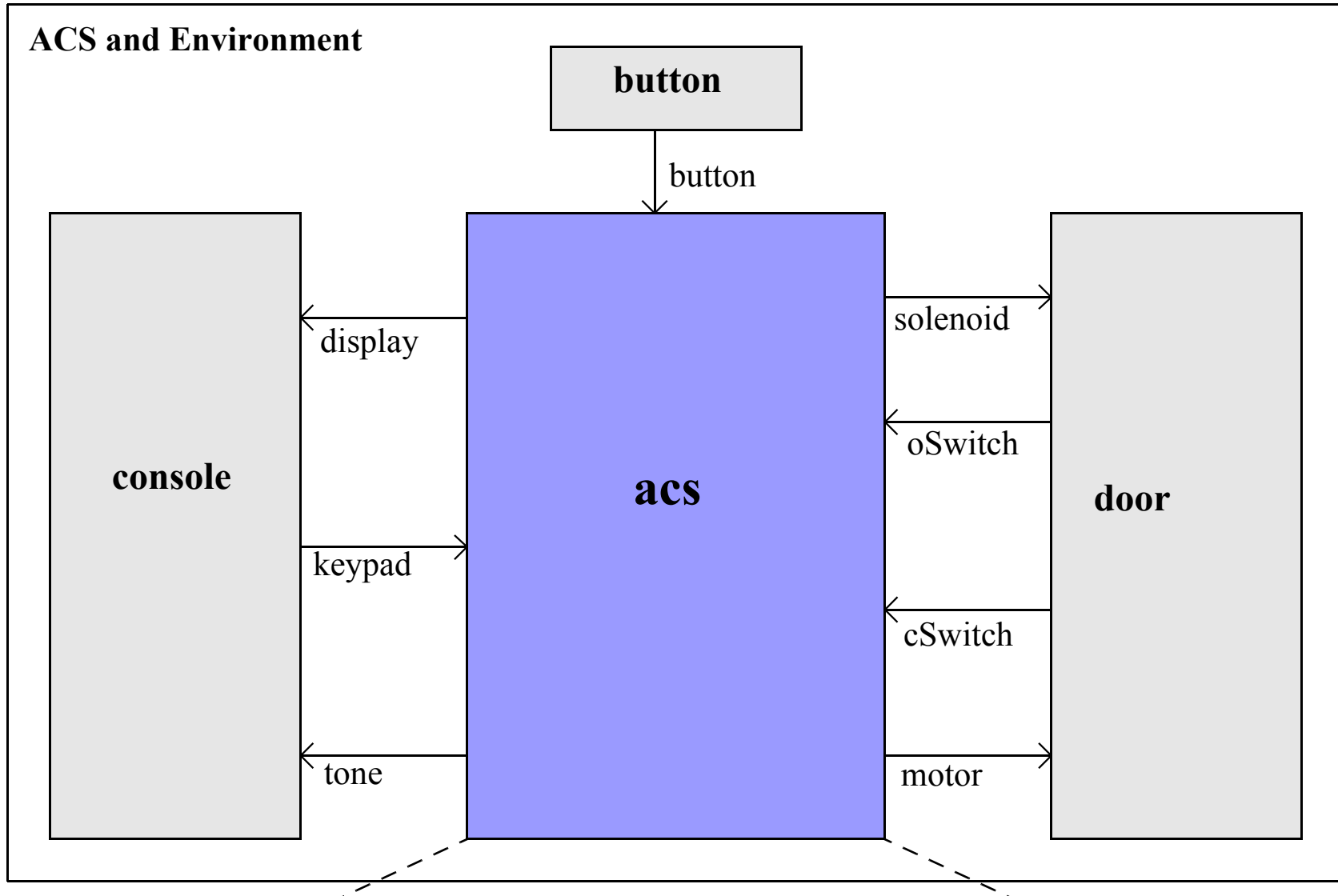
## Requirement Analysis (1)

**Req. 1:** „The door can be manually opened, so the lock controls access and the motor provides power assistance. As the motor is an auxiliary mechanism, the ACS does not rely on it working.“

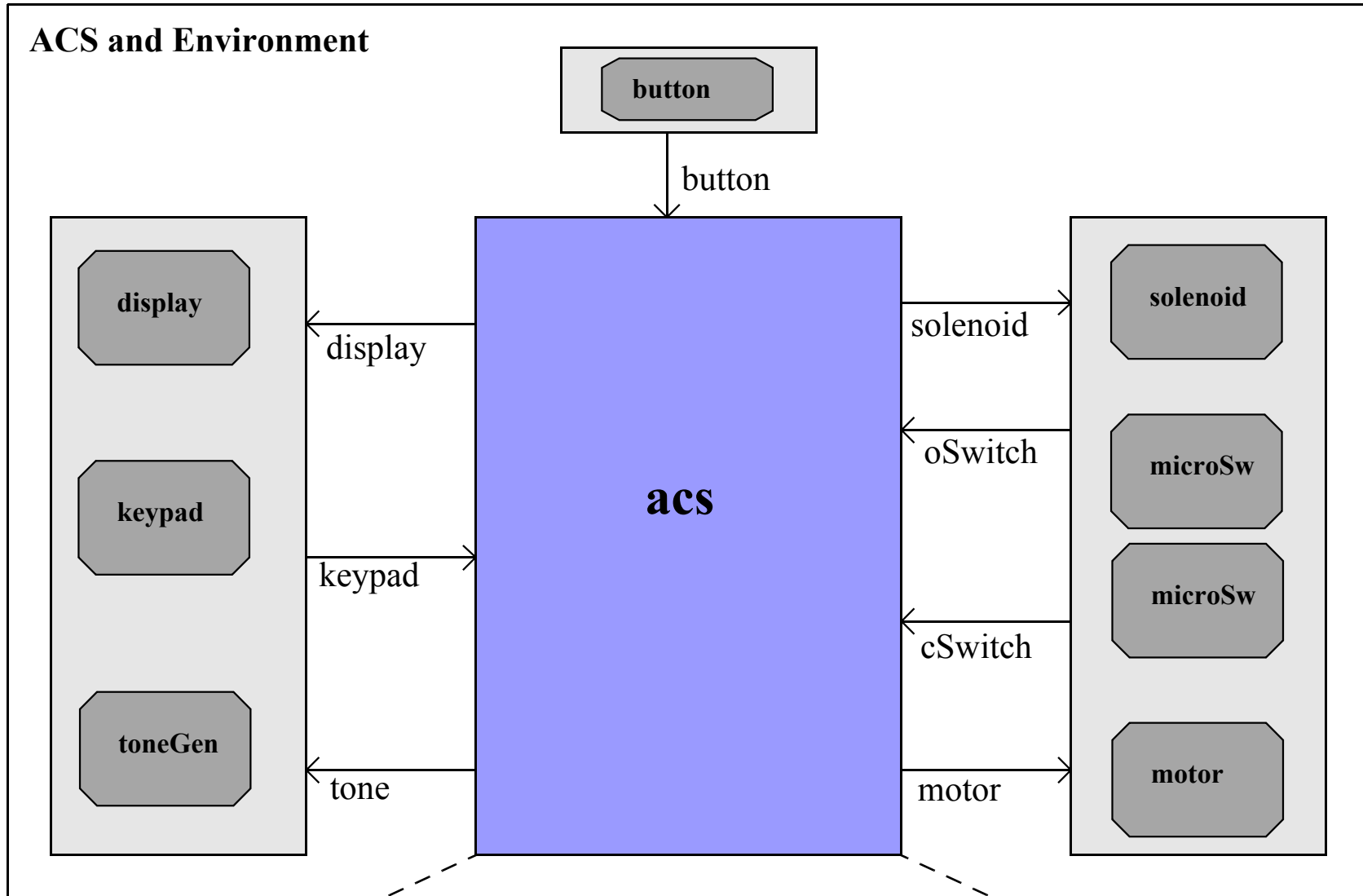
**Req. 2:** „When the door is closed the access code can be entered at the console keypad. The door is allowed to be open (...) from the point the correct code is entered.“



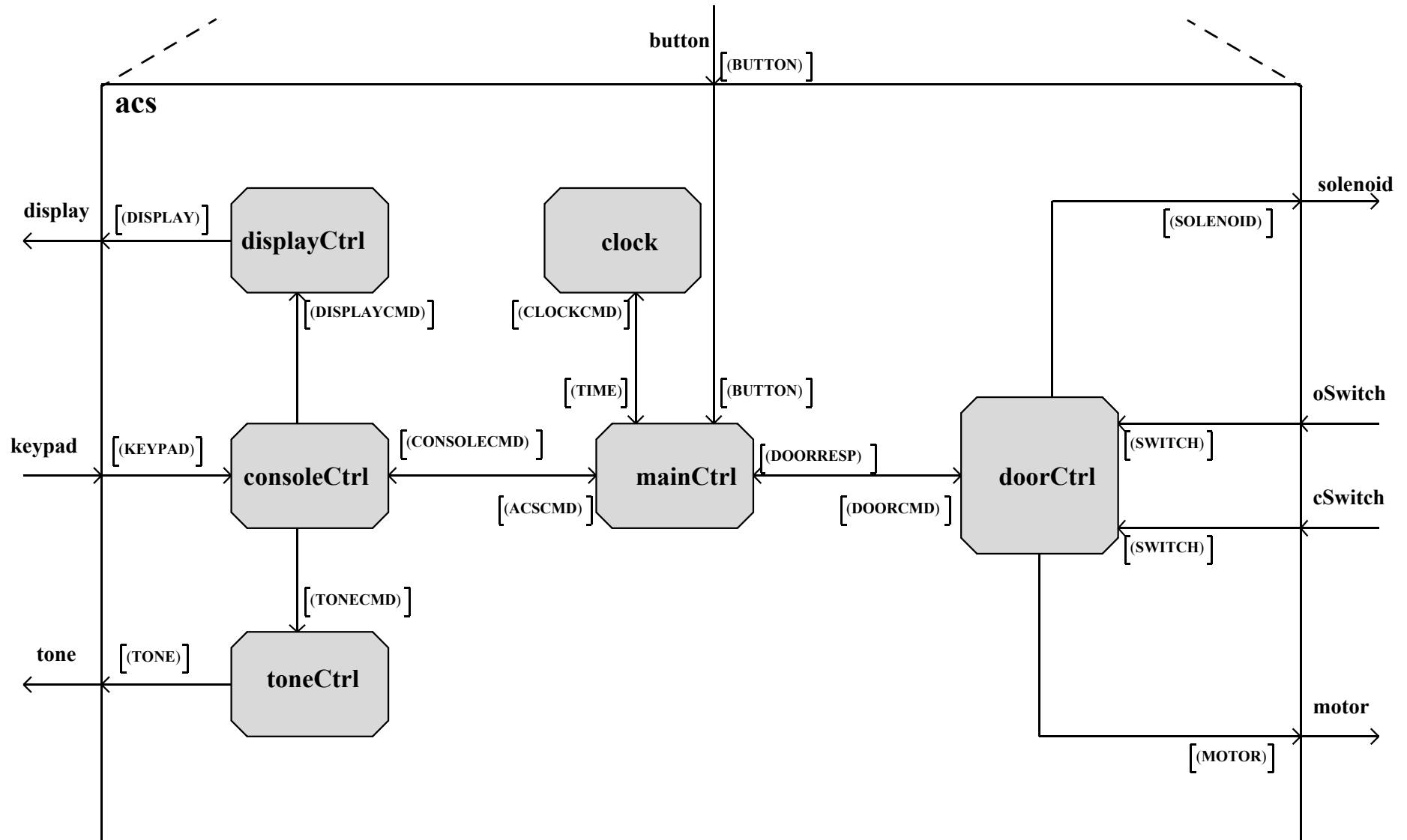
### System Architecture (1)



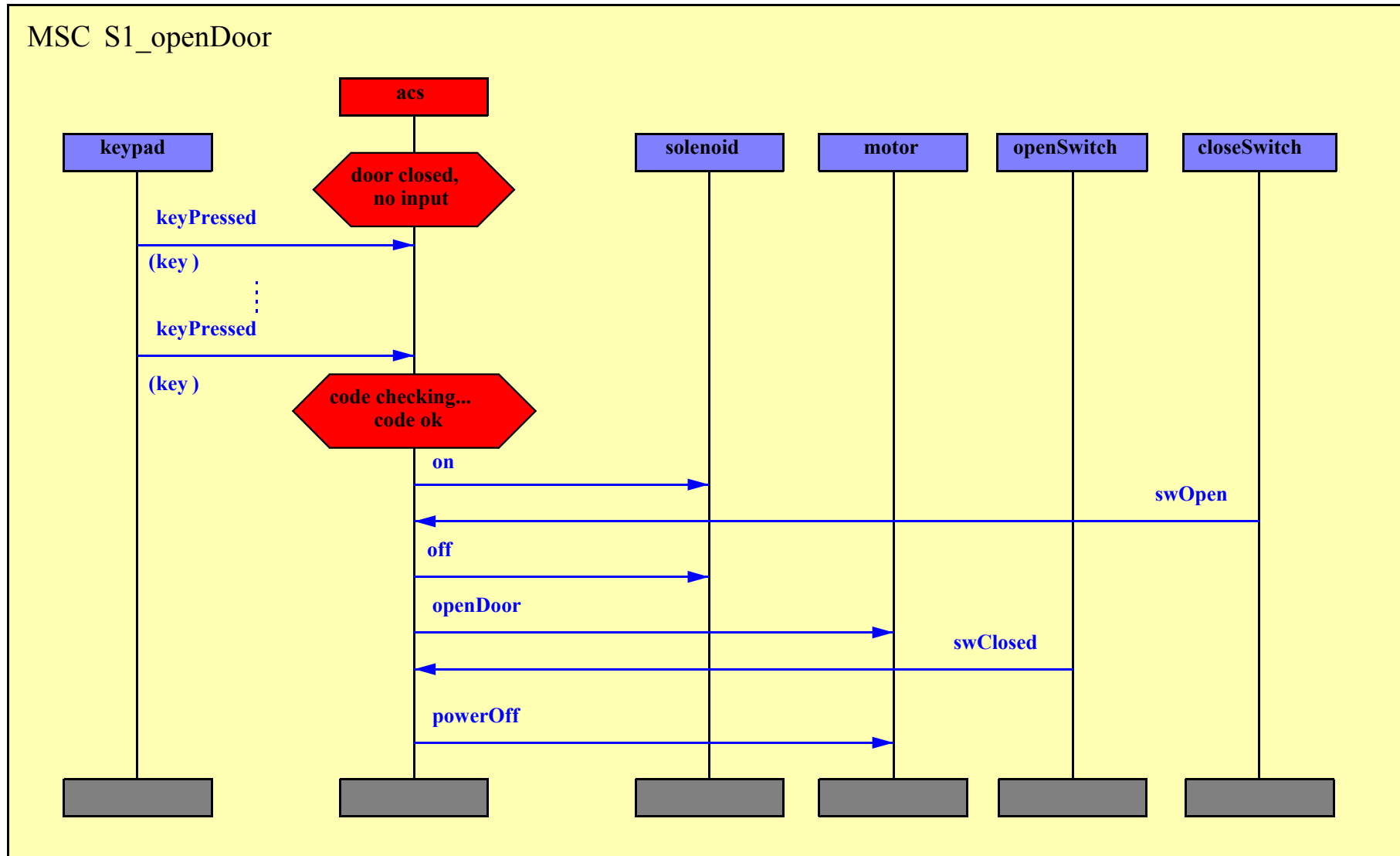
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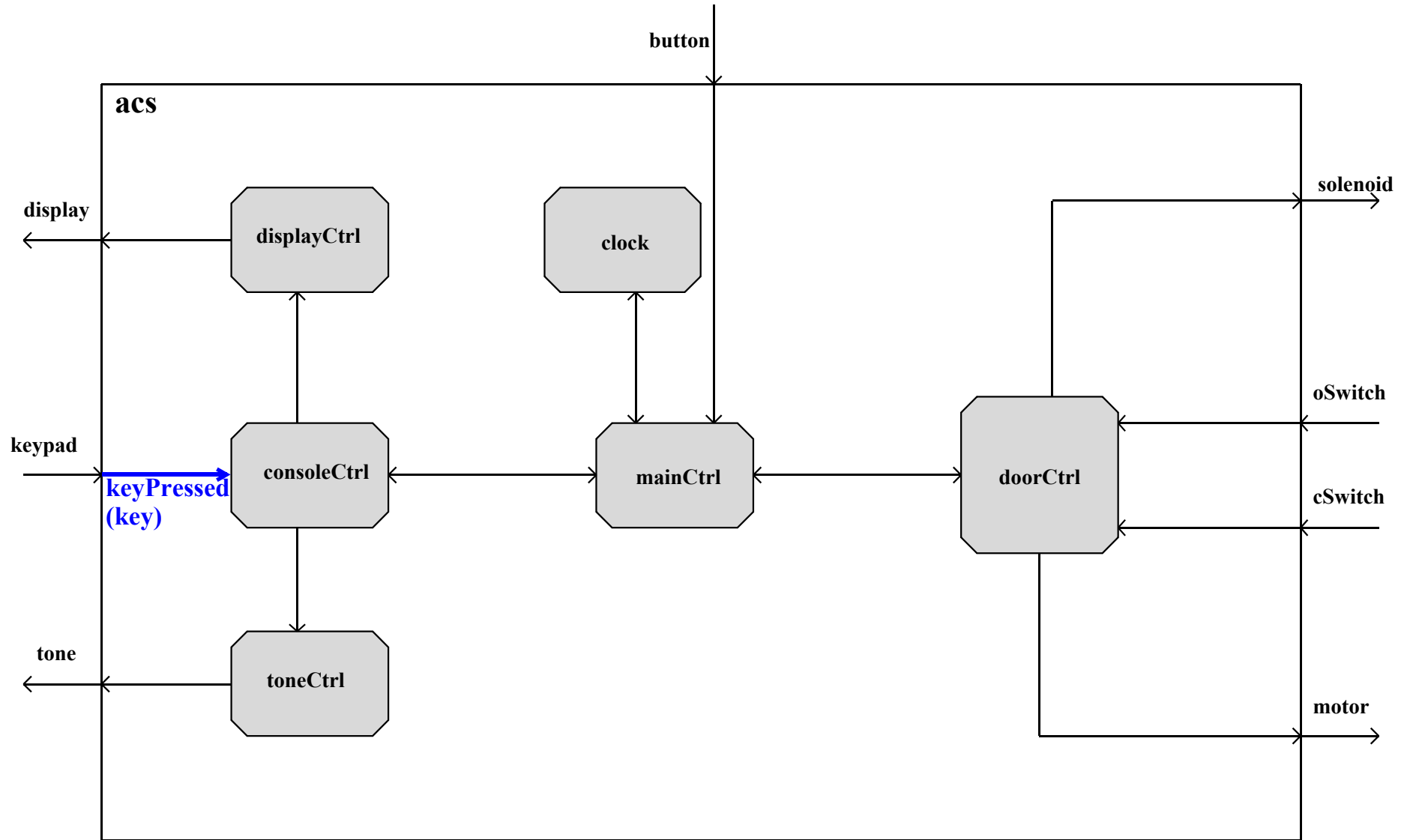
### System Architecture (2)



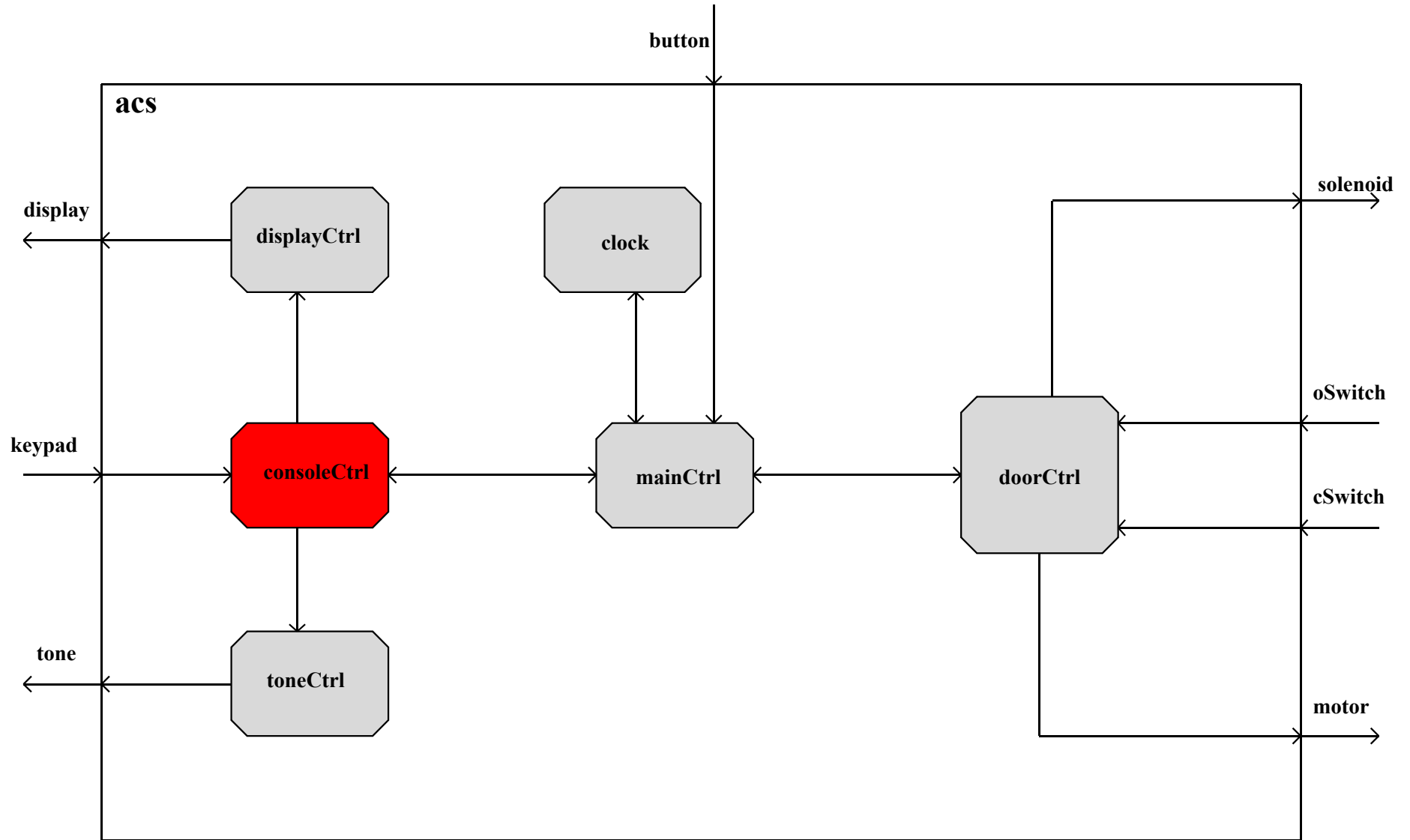
### System Behaviour (1)



### System Behaviour (2)

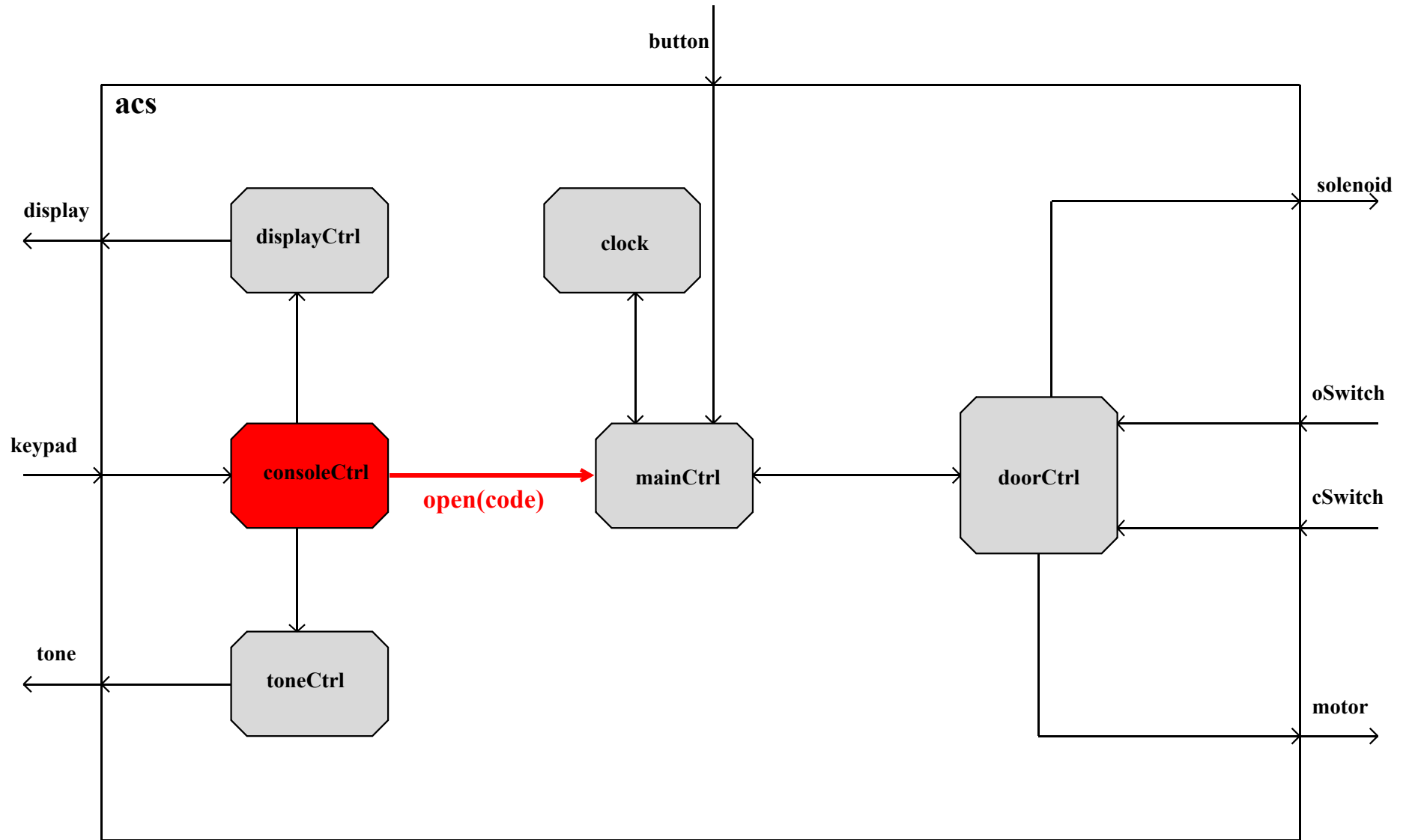


### System Behaviour (2)

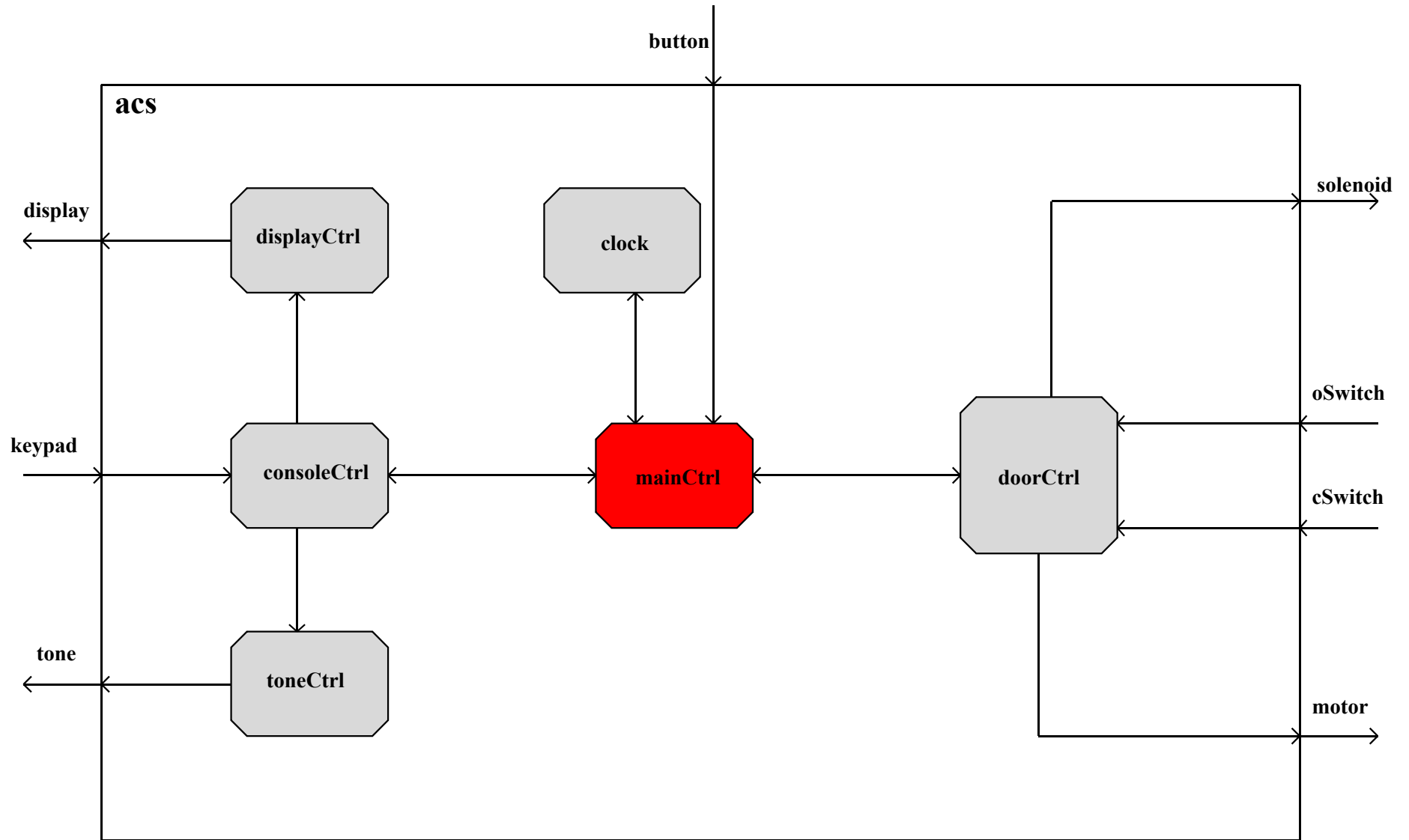




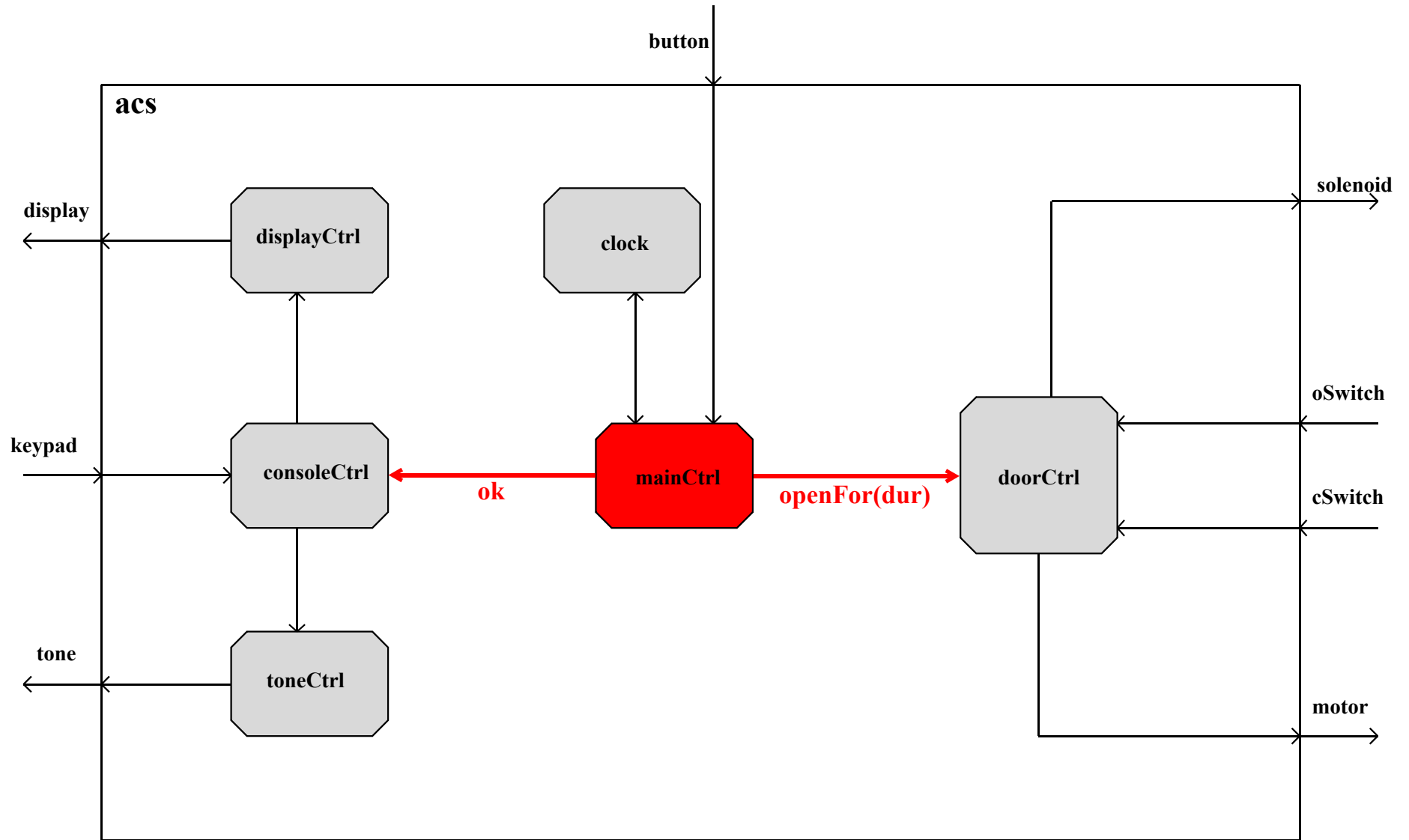
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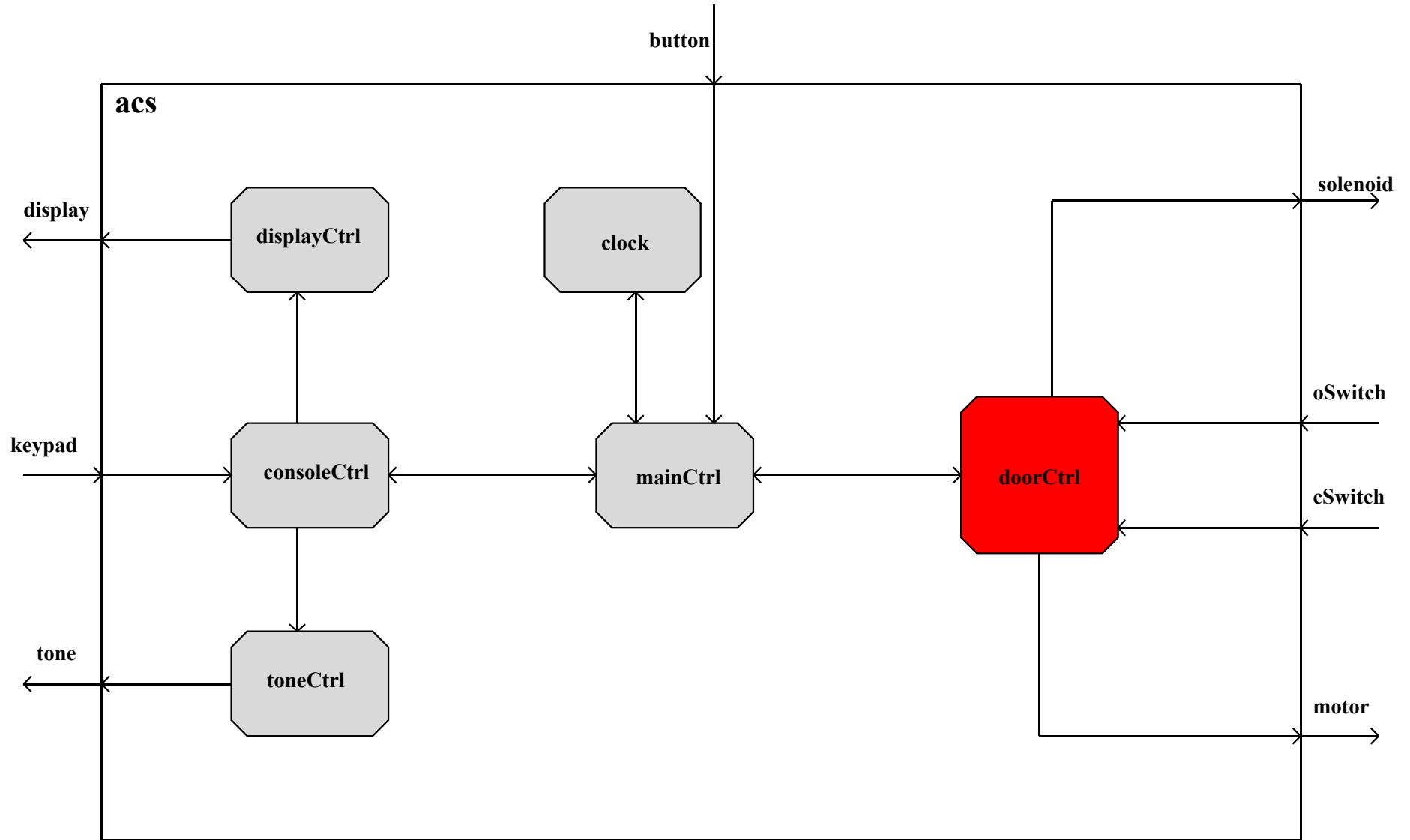
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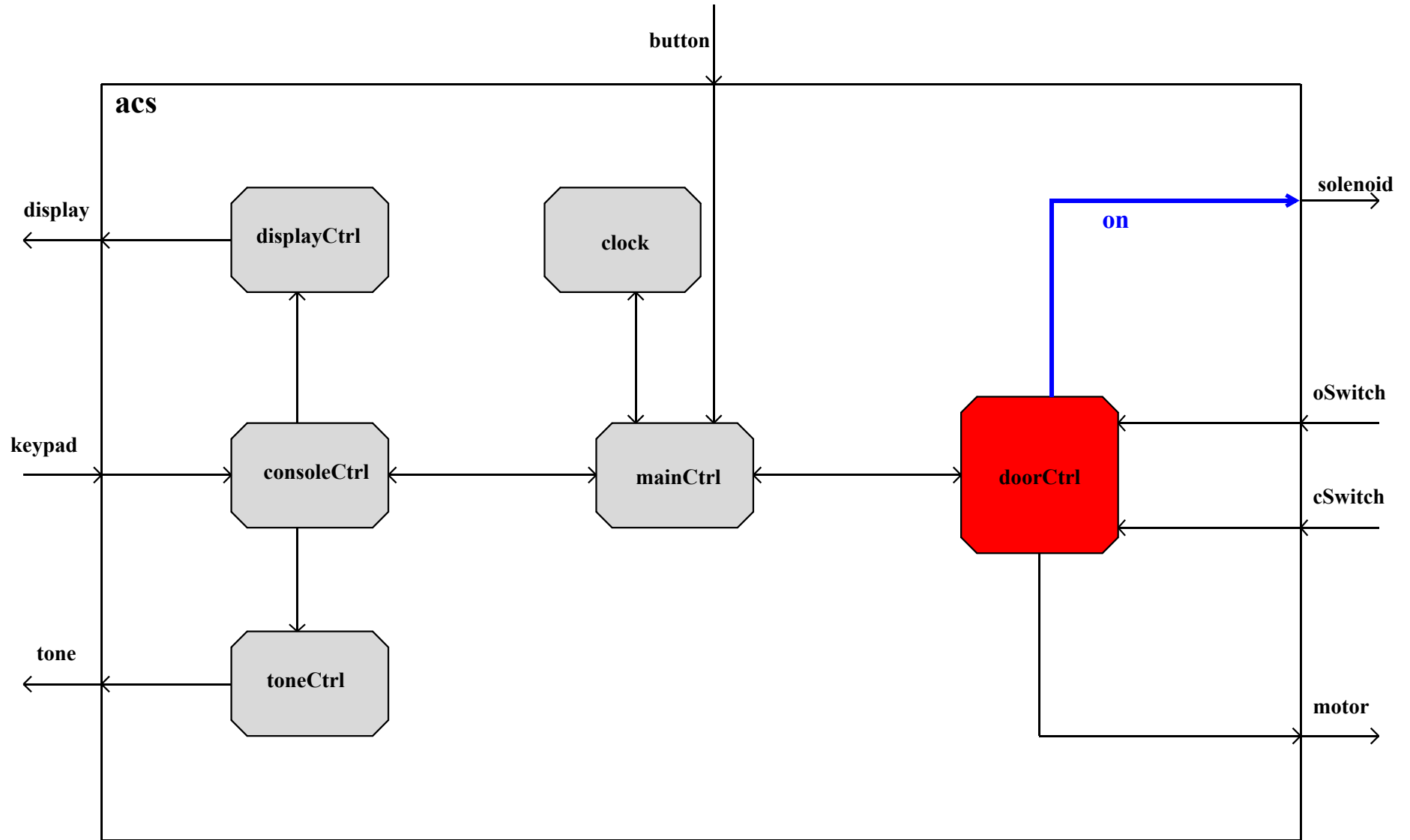
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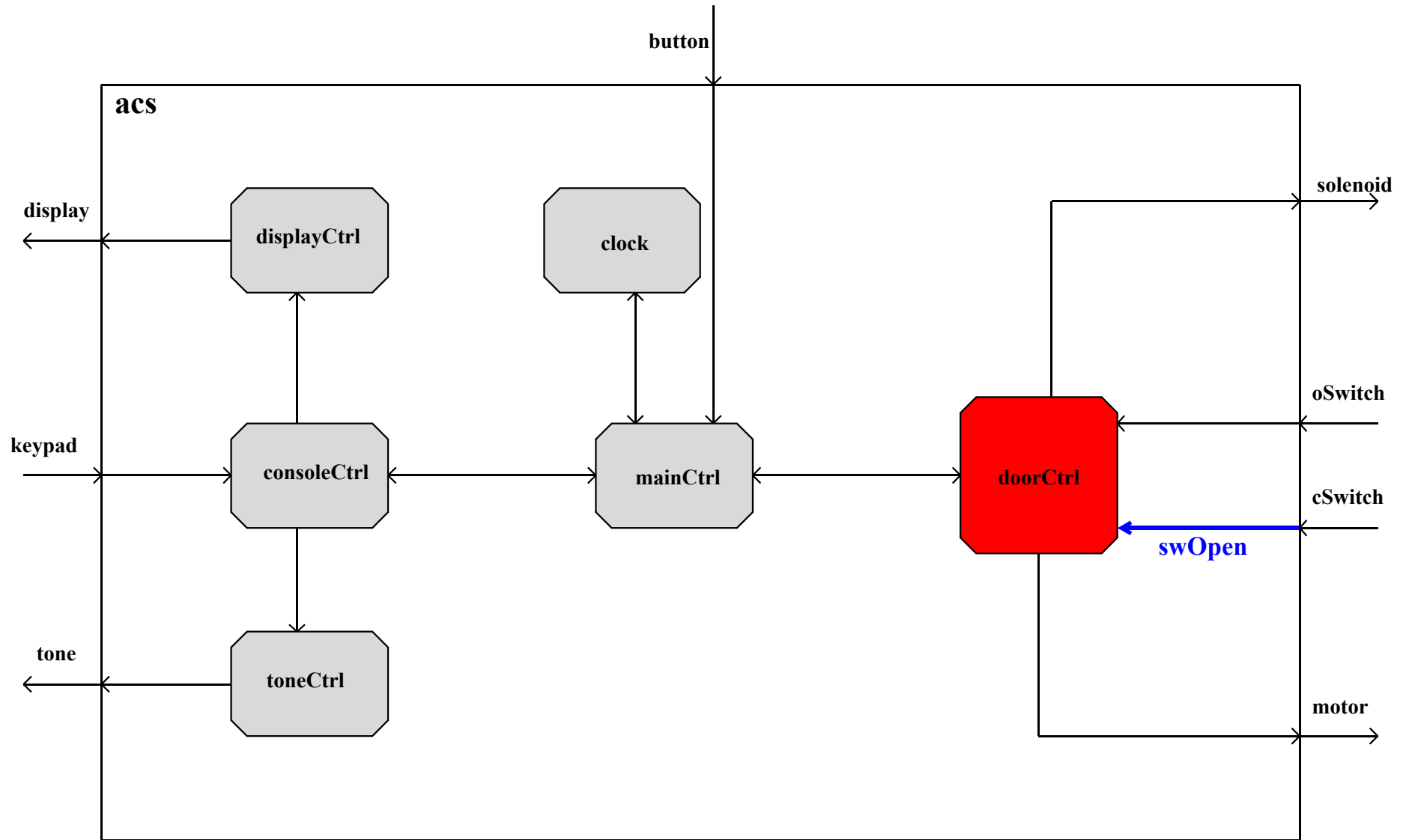
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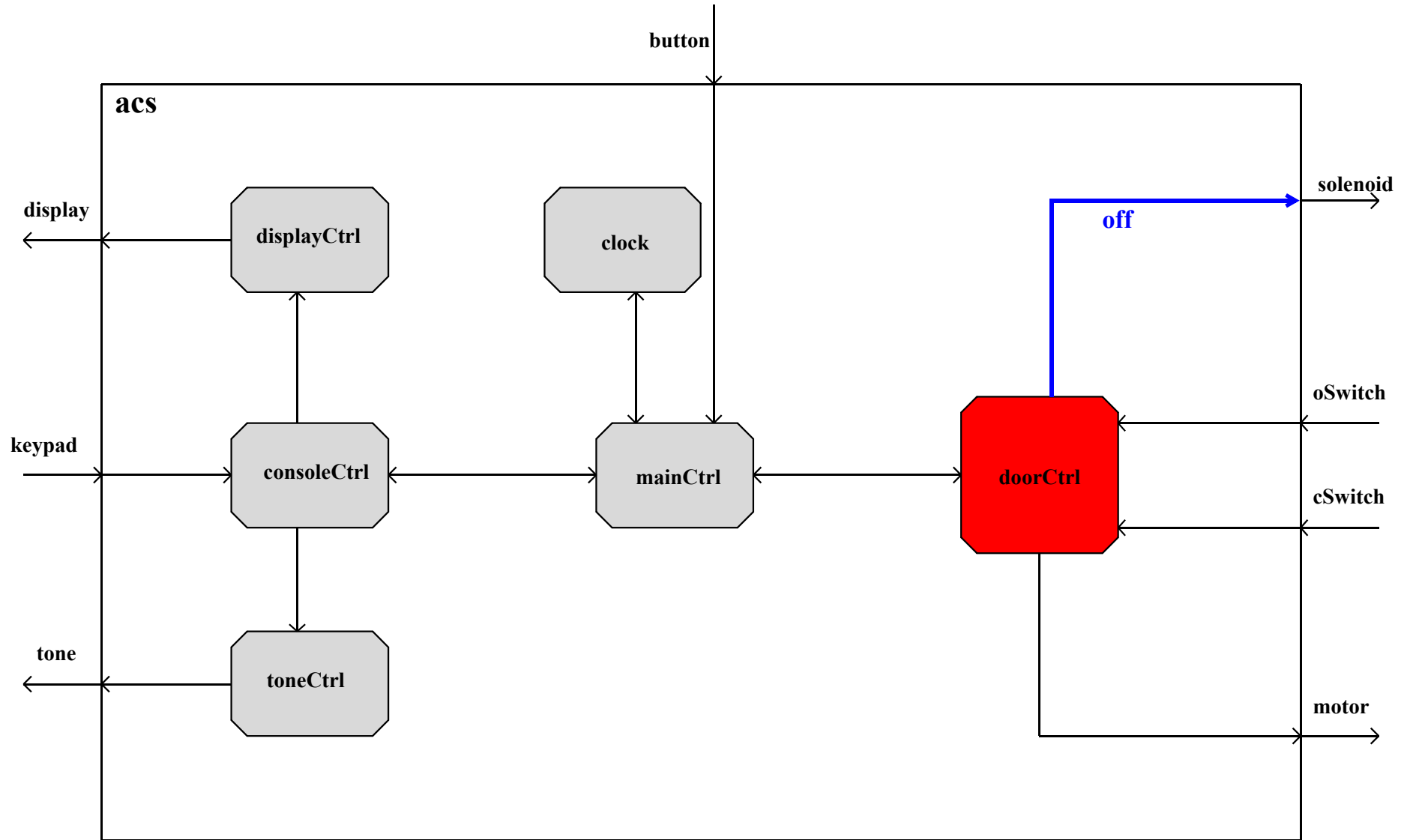
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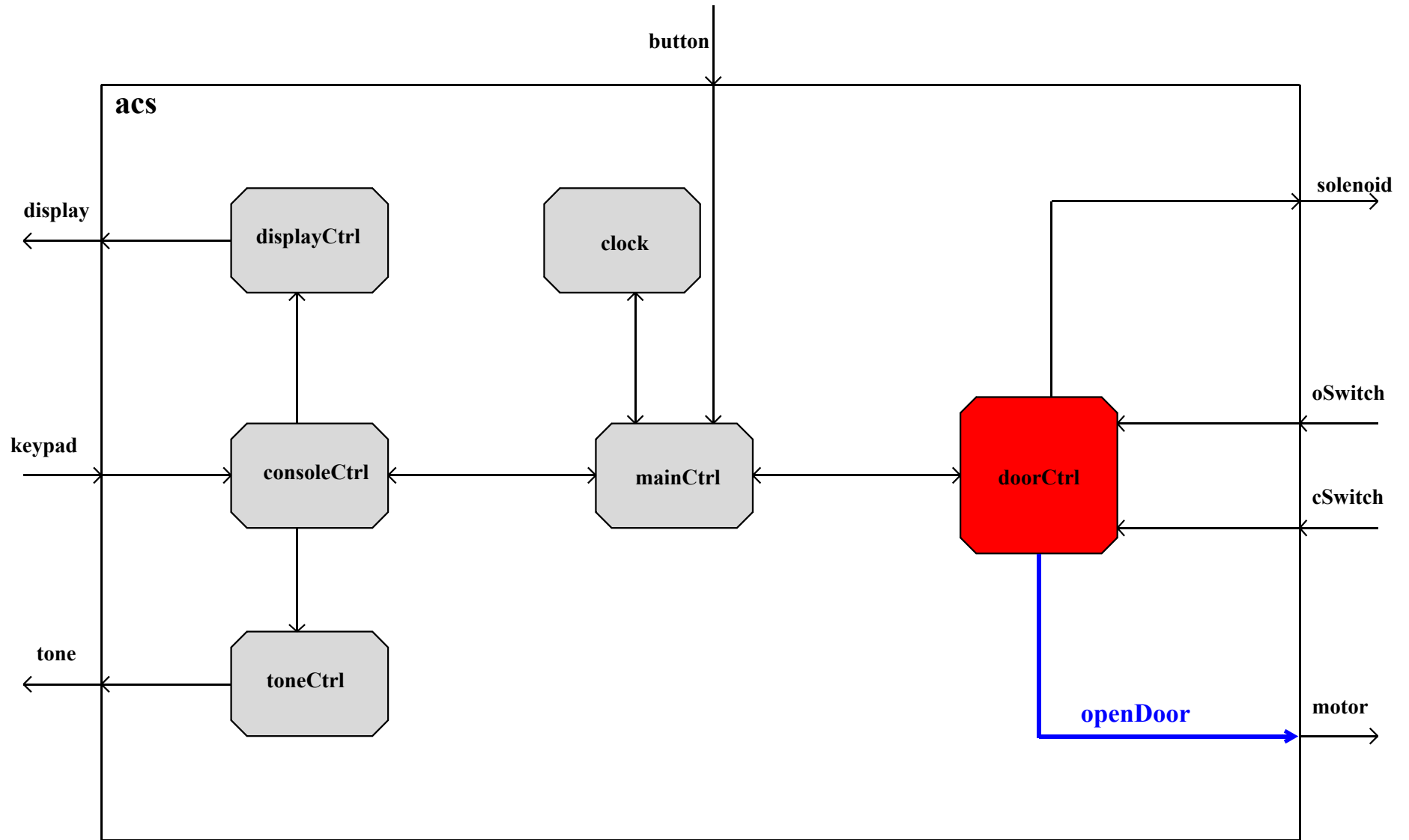
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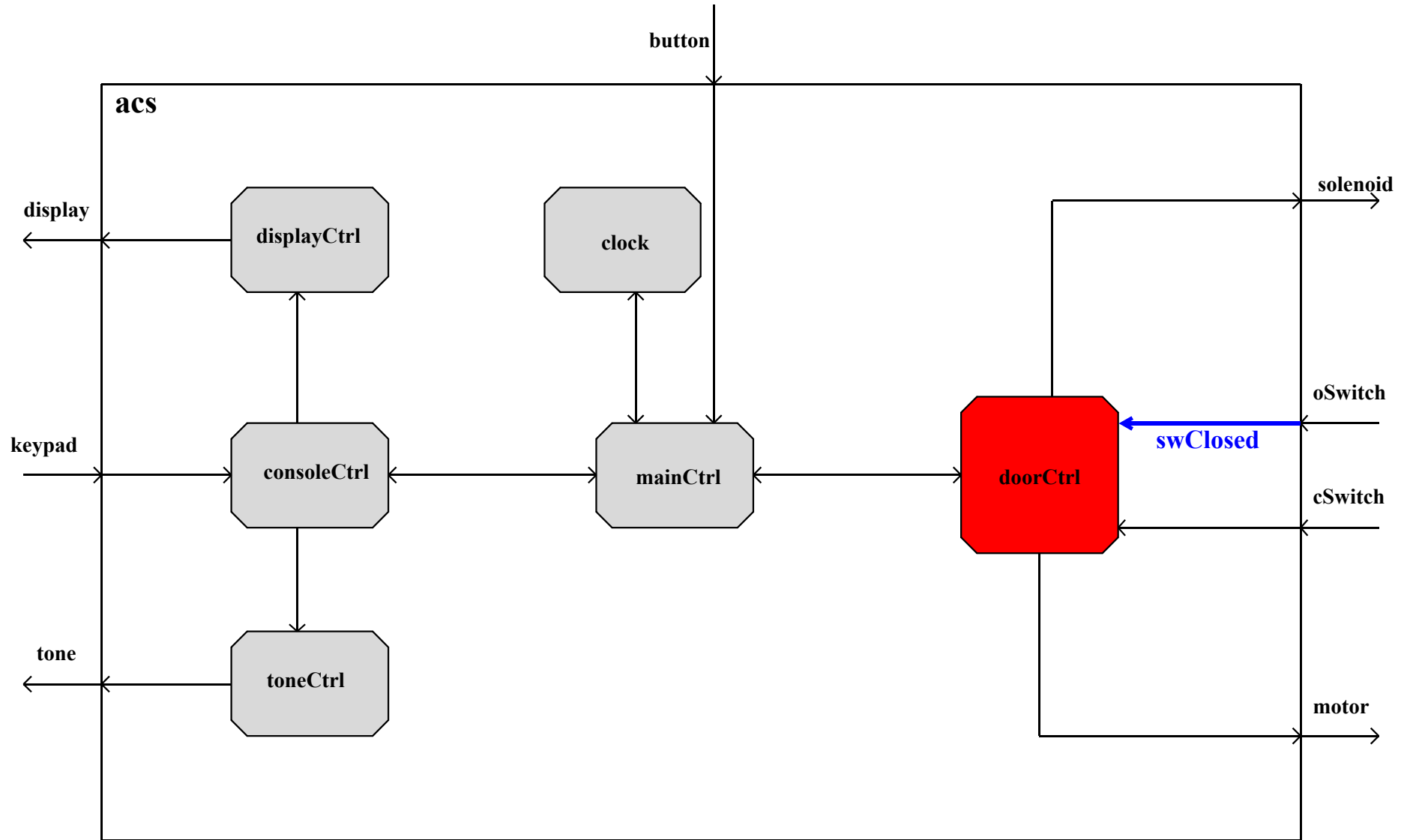


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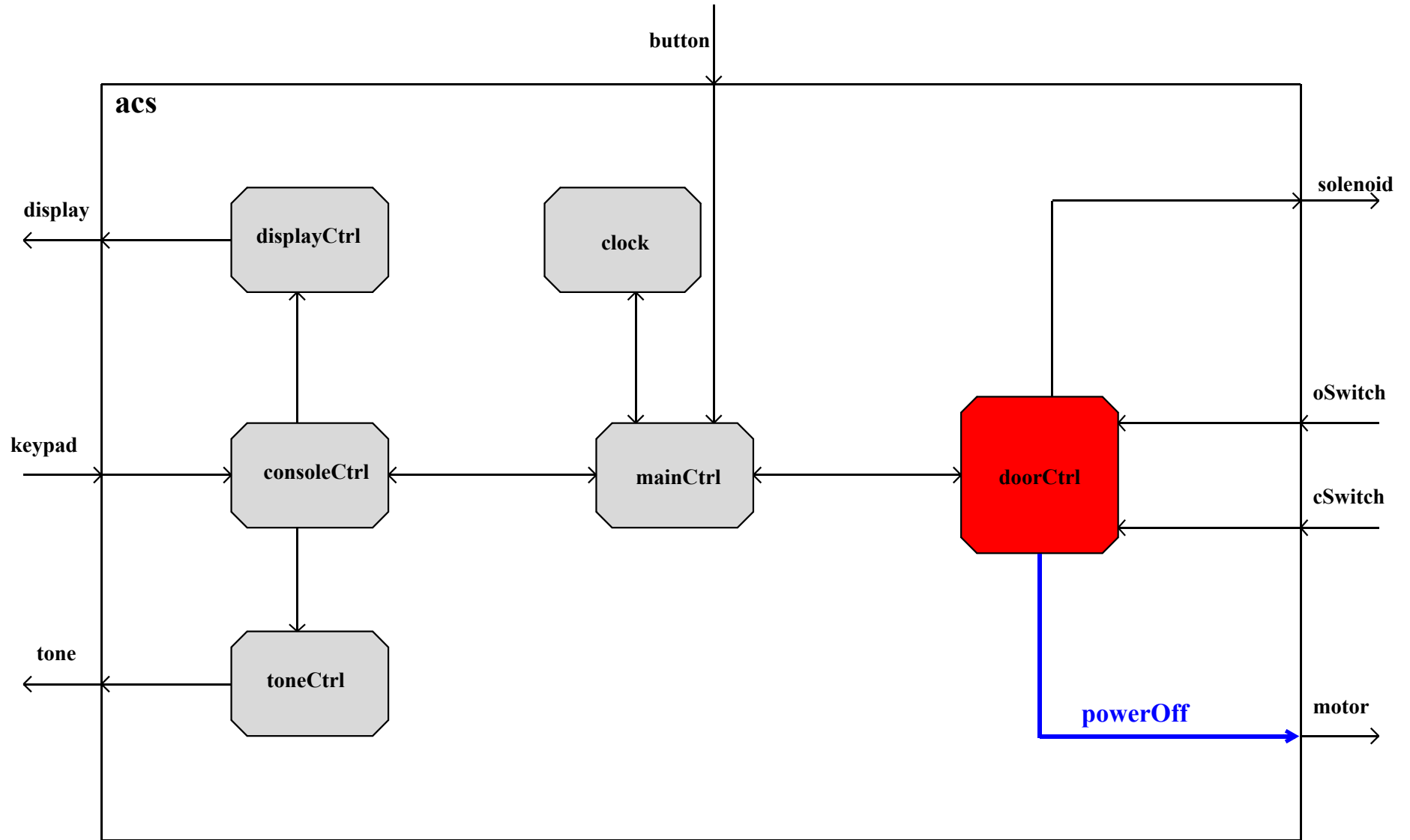




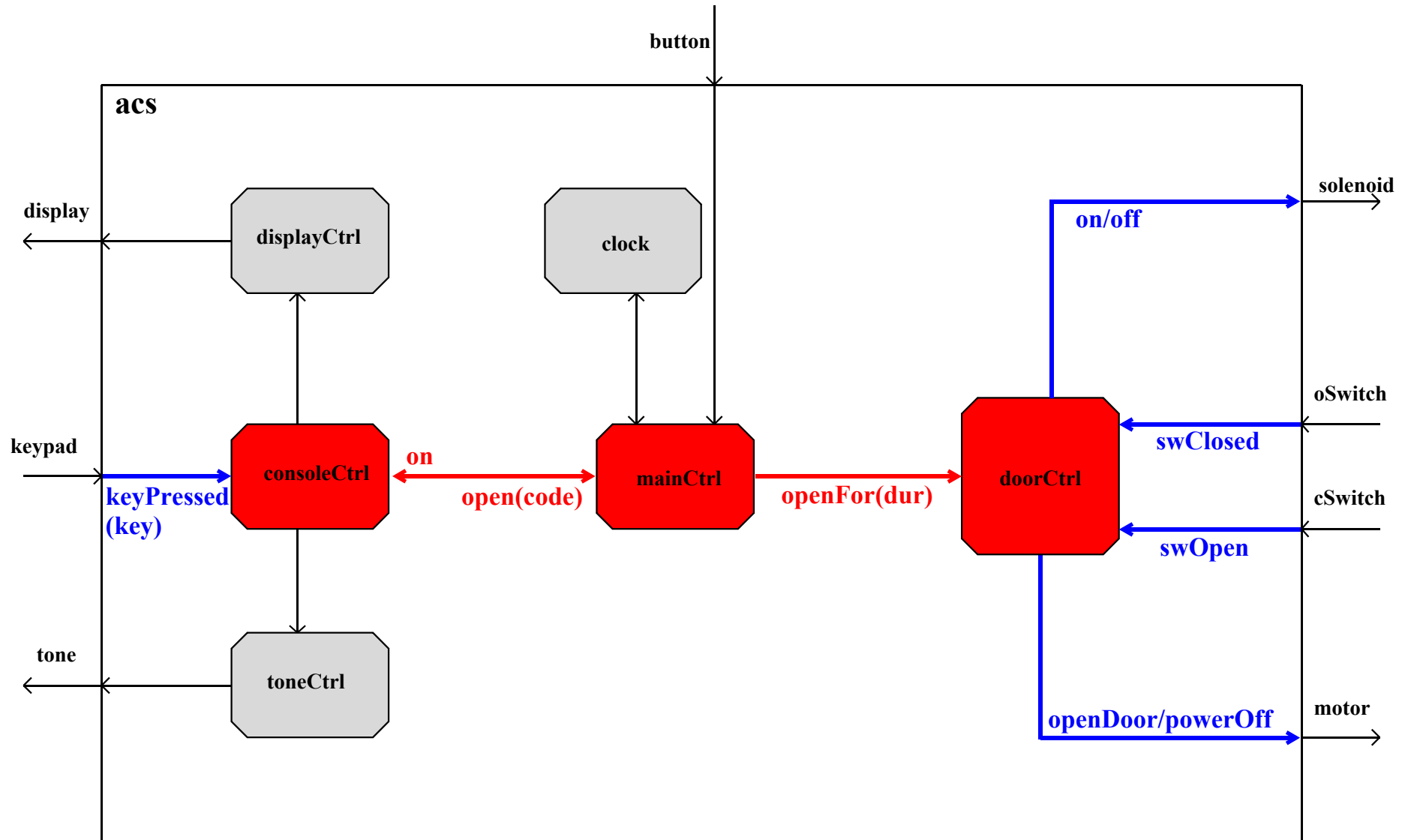
### System Behaviour (2)



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### Reuse (1): Concepts

- **Design Pattern:**

generic solution for recurring problems

- **Design Component:**

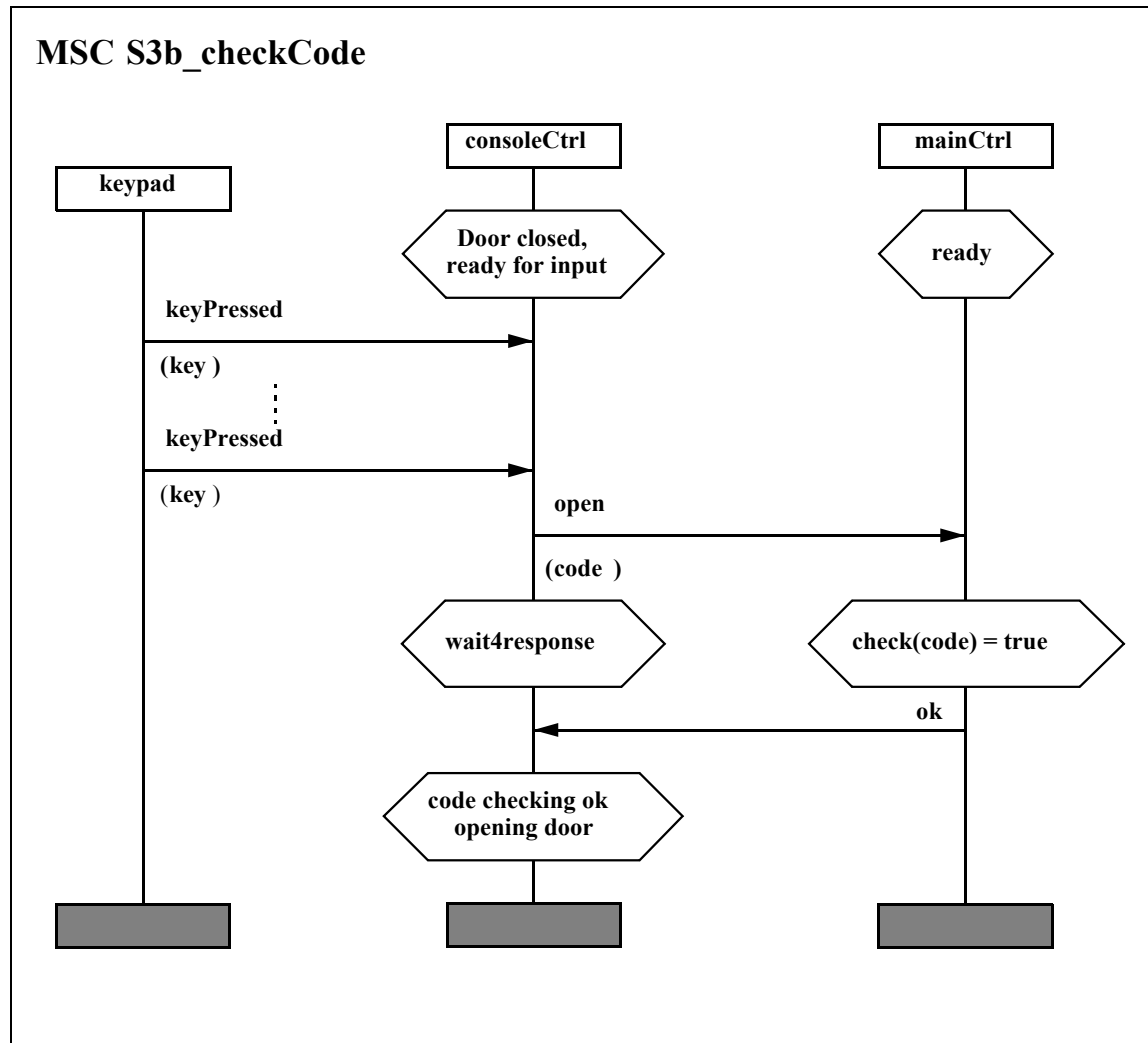
ready-to-use component which encapsulates a well-defined functionality

- **Framework:**

skeleton of a system that has to be adapted

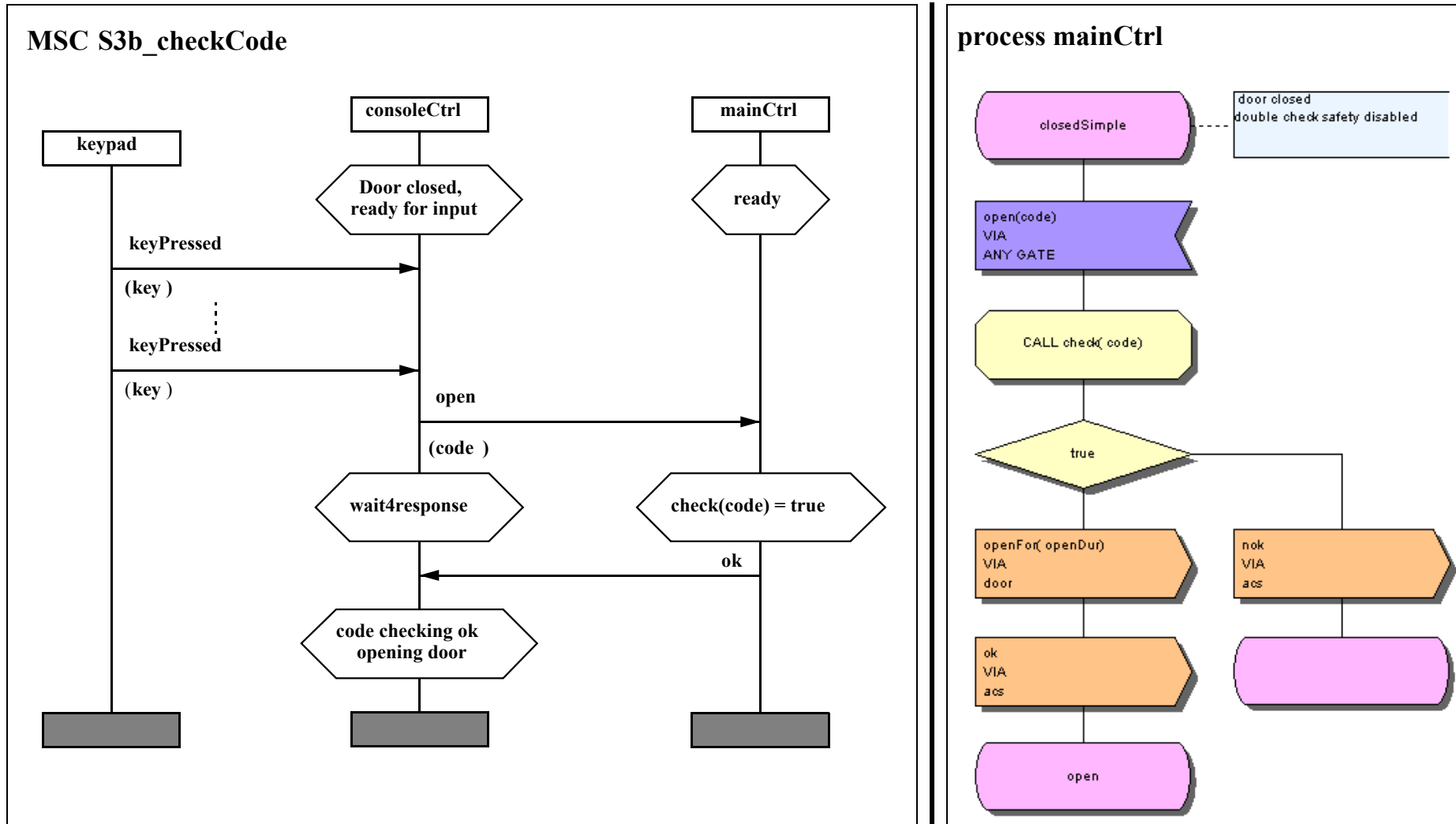
## Reuse (2): SDL-Design Pattern *SynchronousInquiry*

Req. 2: „(...) The door is allowed to be open (...) from the point the correct code is entered.“

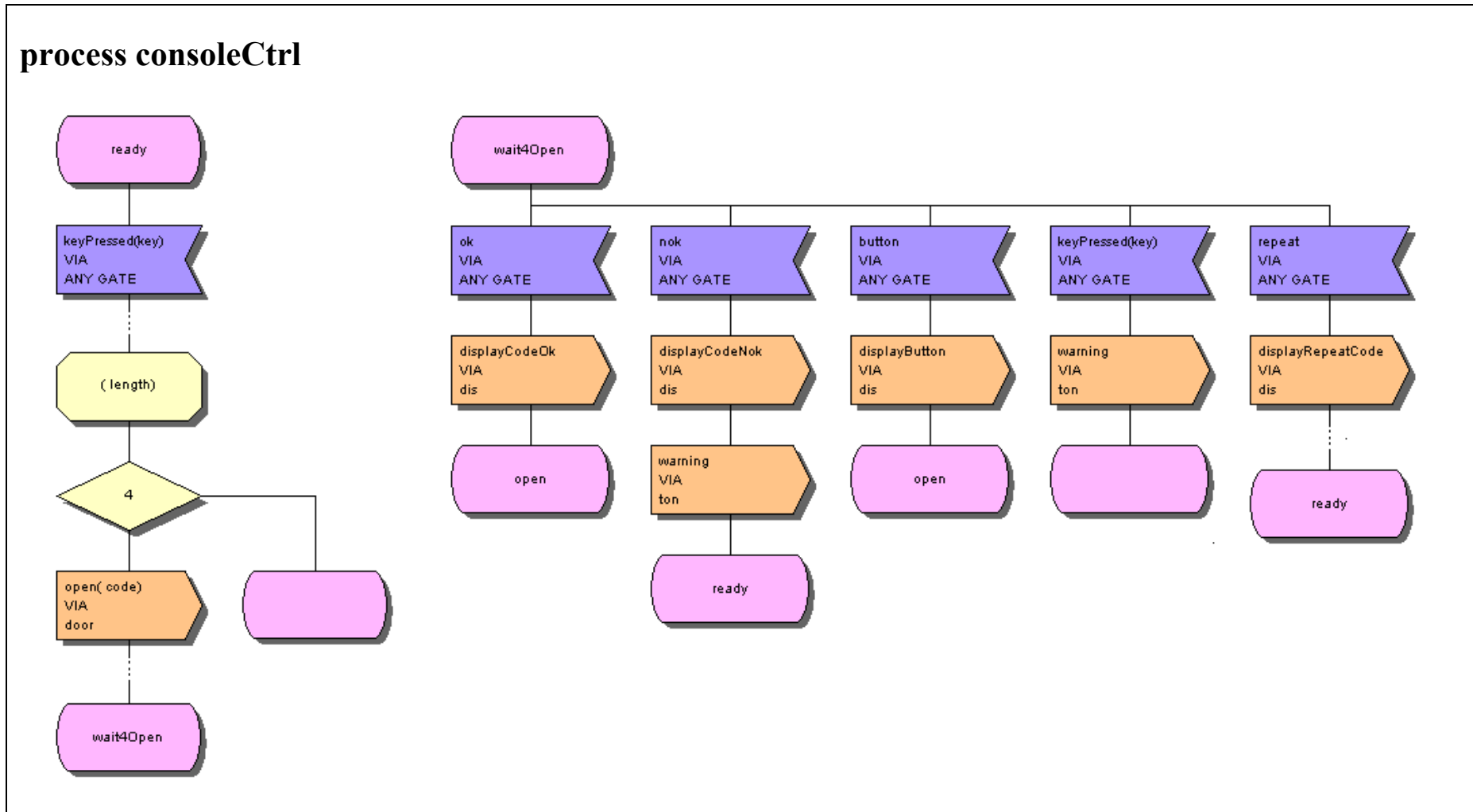


## Reuse (2): SDL-Design Pattern *SynchronousInquiry*

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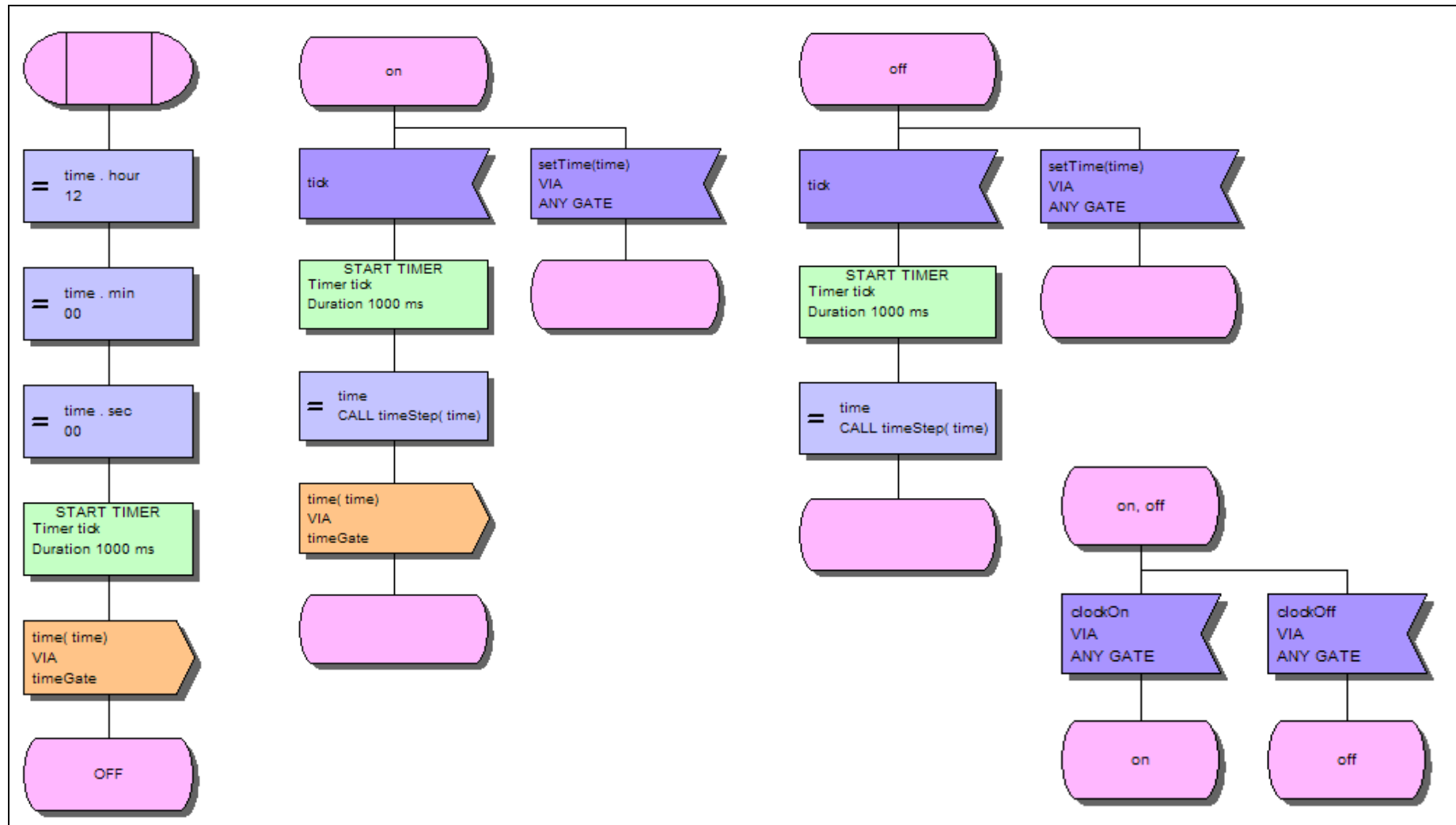


### Reuse (3): SDL-Design Pattern *SynchronousInquiry*



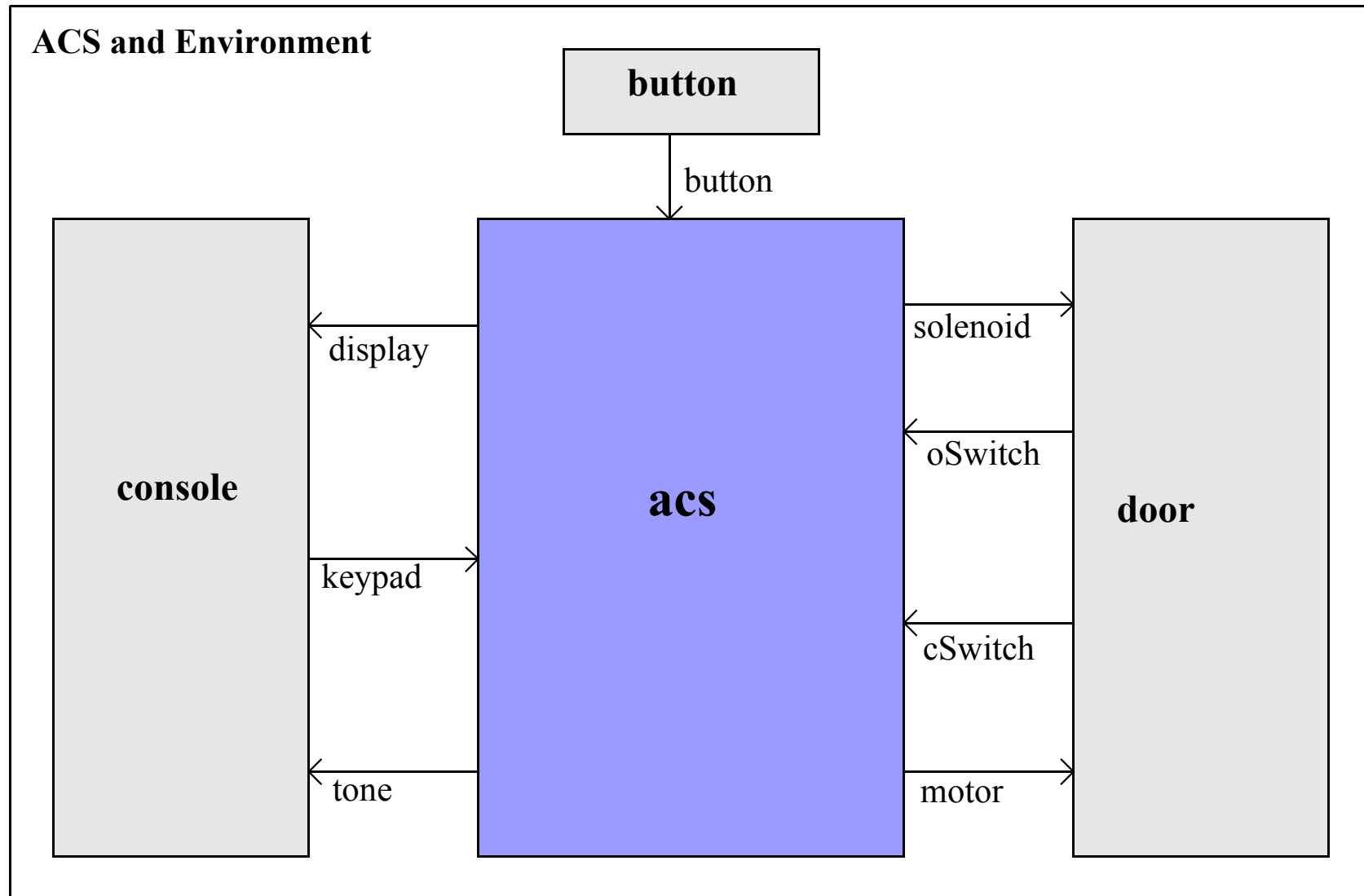
### Reuse (4): Design-Component *Clock*

Req 8: „The console display shows (...) the time, which is always visible ...“

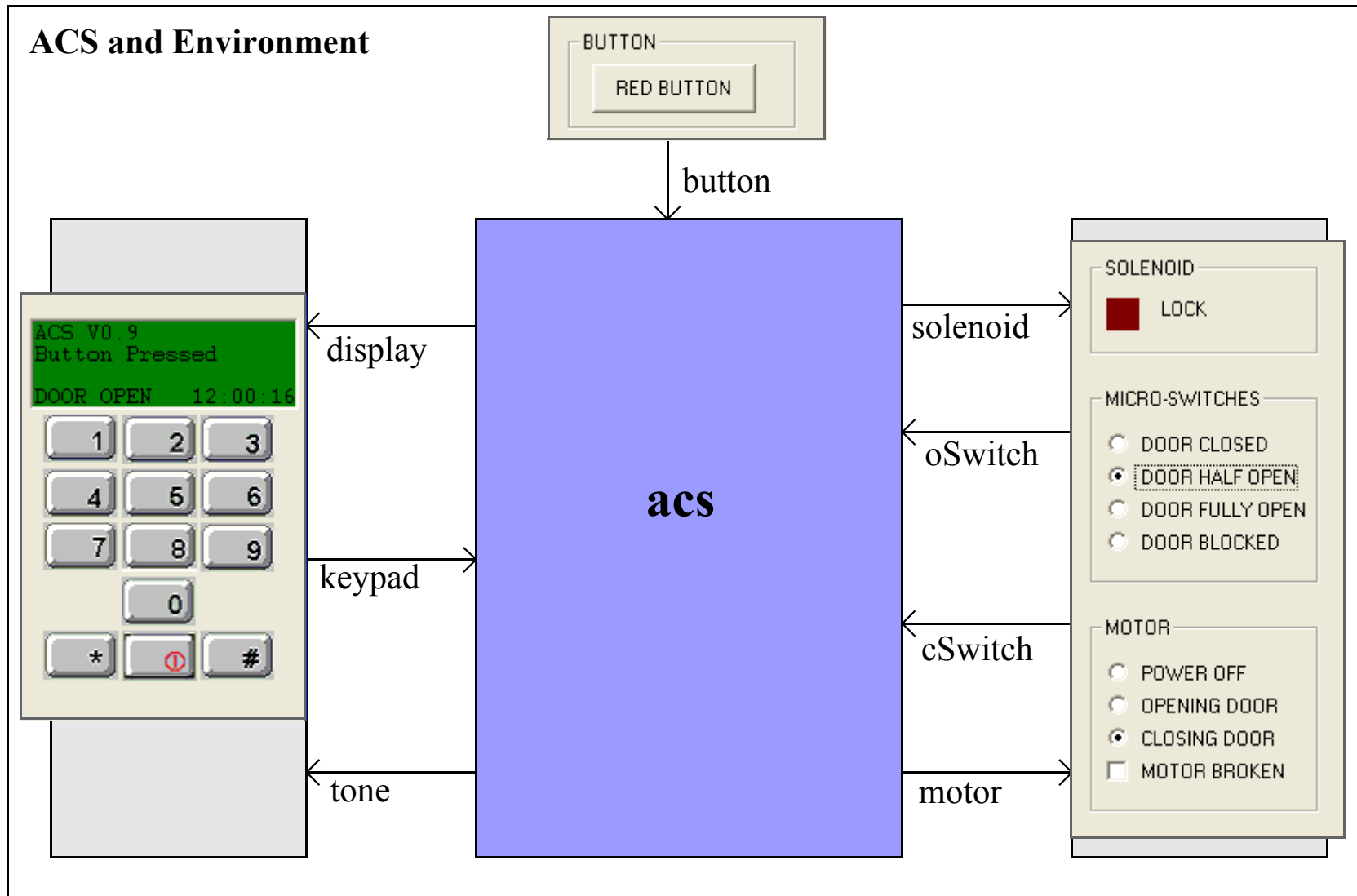




## Demo of the System and the GUI (1)



### Demo of the System and the GUI (2)



### Summary

- systematical development
- ALL requirements met (including the optional ones)
- designed using SDL+ and SAFIRE
- reuse (SDL-Design Pattern and Design Components)
- GUI
- Testsuite
- about 1600 LoC (GUI additional 700 LoC)

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**THANK YOU FOR YOUR ATTENTION.**