SWT Hand in 2 Microwave oven

Gruppe 23

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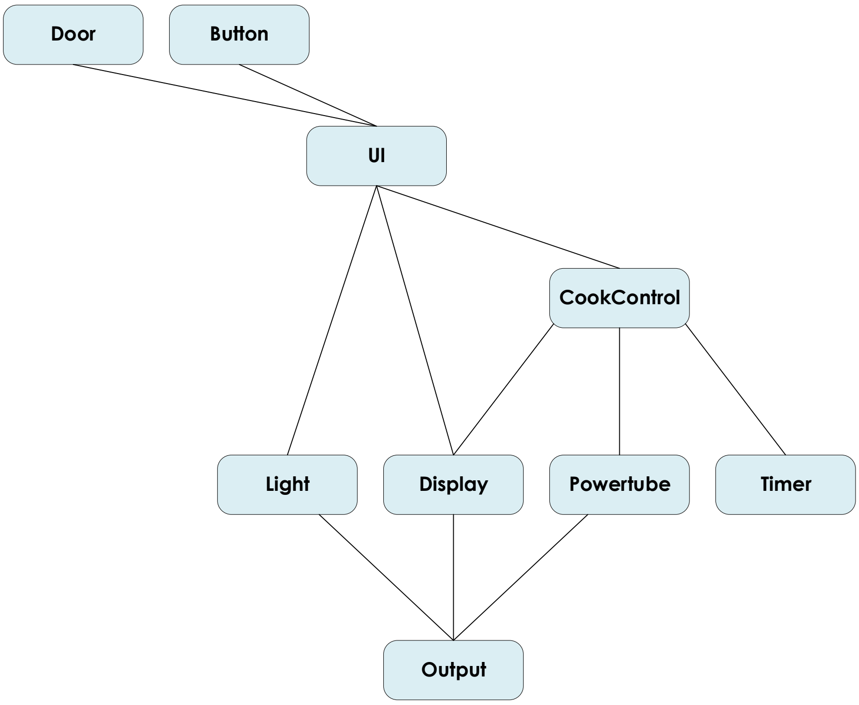
URL til Jenkins: http://ci3.ase.au.dk:8080/job/SWT23_MicrowaveOvenIntegration/

URL til GitHub: https://github.com/Martin-Dalgaard/MicrowaveOven

Dependency Tree diagram

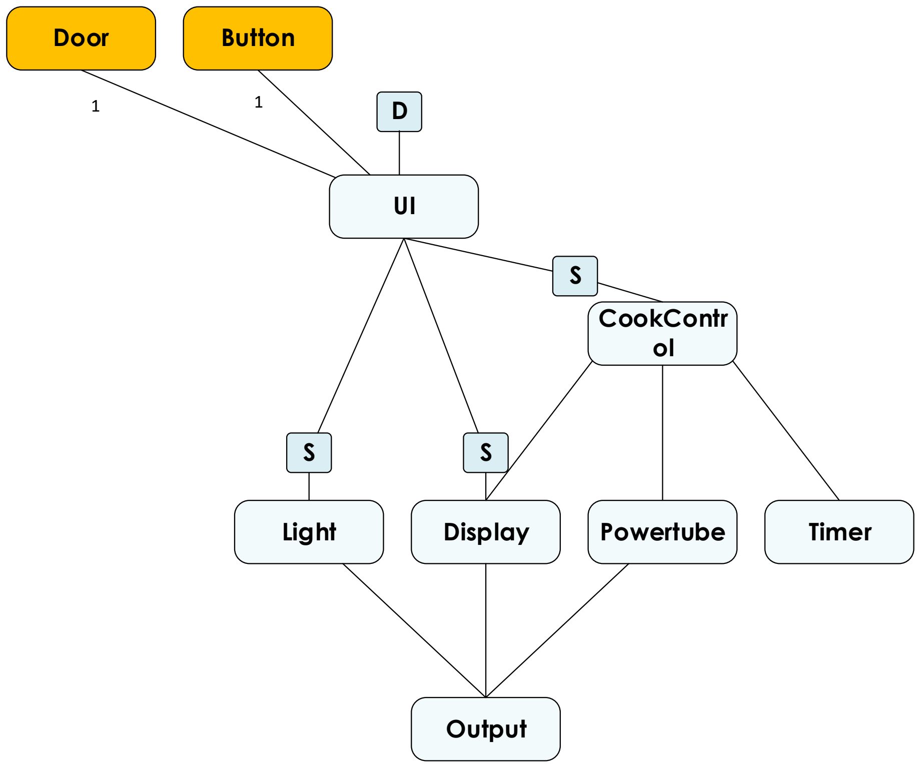


Figur 1 - Dependeny tree diagram for microwave oven systemet

Integration Plan

As seen in the below figures and the description of the integration steps scheme Top-down integration has been chosen for this project.

Step 1

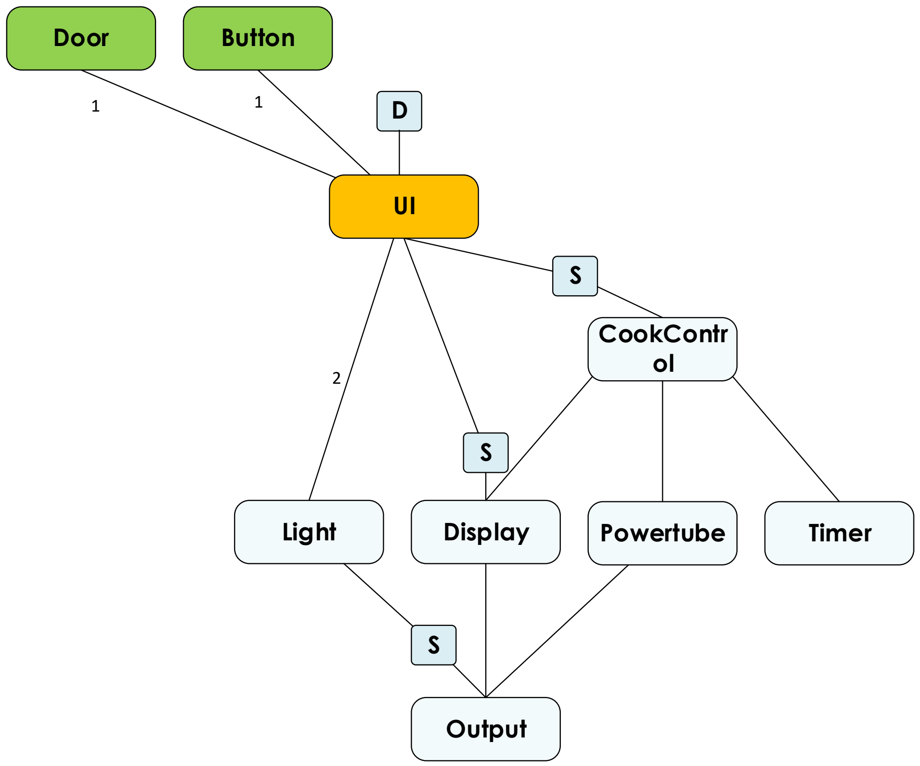


In this first step we test use case step 1-5 by opening and closing the door and then checking if the light goes on and off.

After that we check if pressing the button will result in something being displayed.

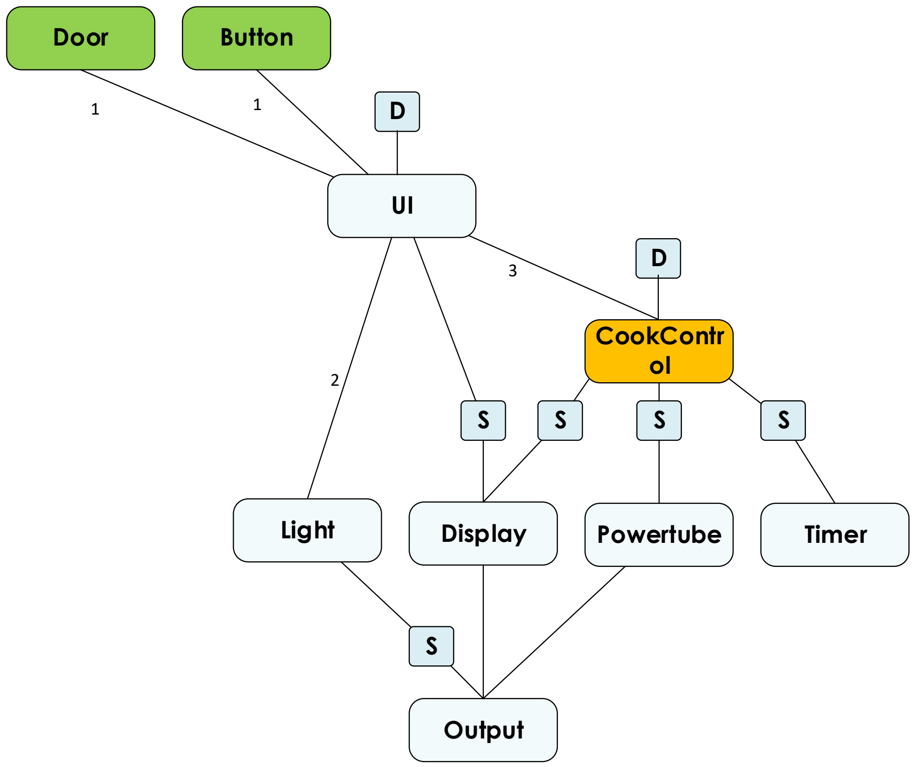
And finally, we check extension 1-4.
Extension 1 & 2 resulting in the display being cleared.
Extension 3 & 4 resulting in cook controller receiving the call stop.

Step 2



In this step we test if the light goes on and off by opening the door and checking if output receives a logline with the correct message.

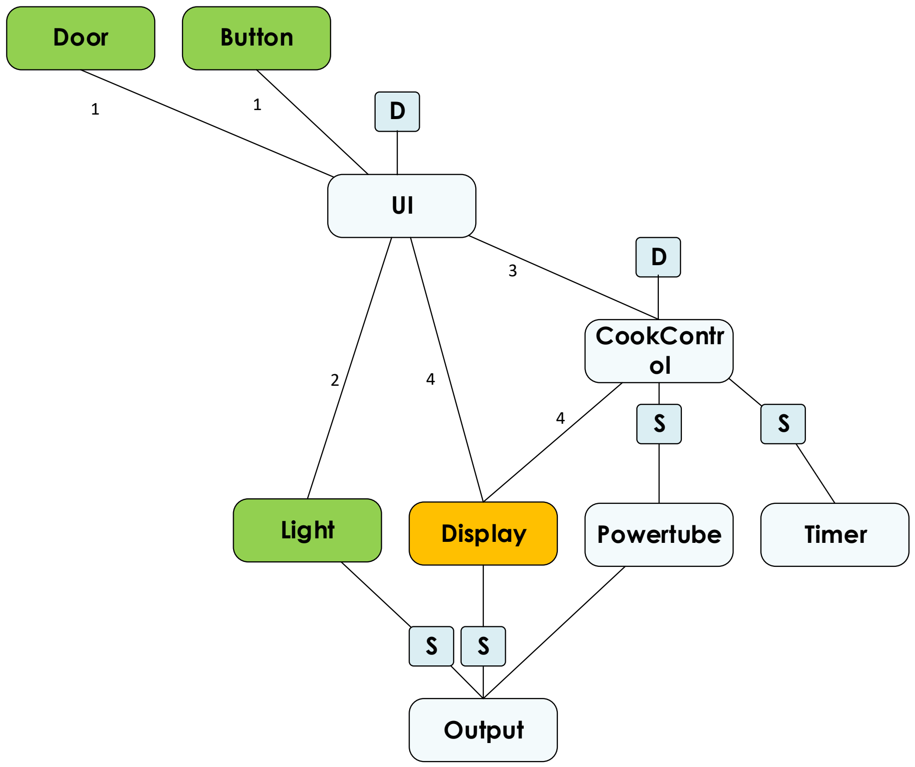
Step 3



In this step we test the connection between UI and CookController by pressing start which results in the timer getting a start message with the default time of 60.

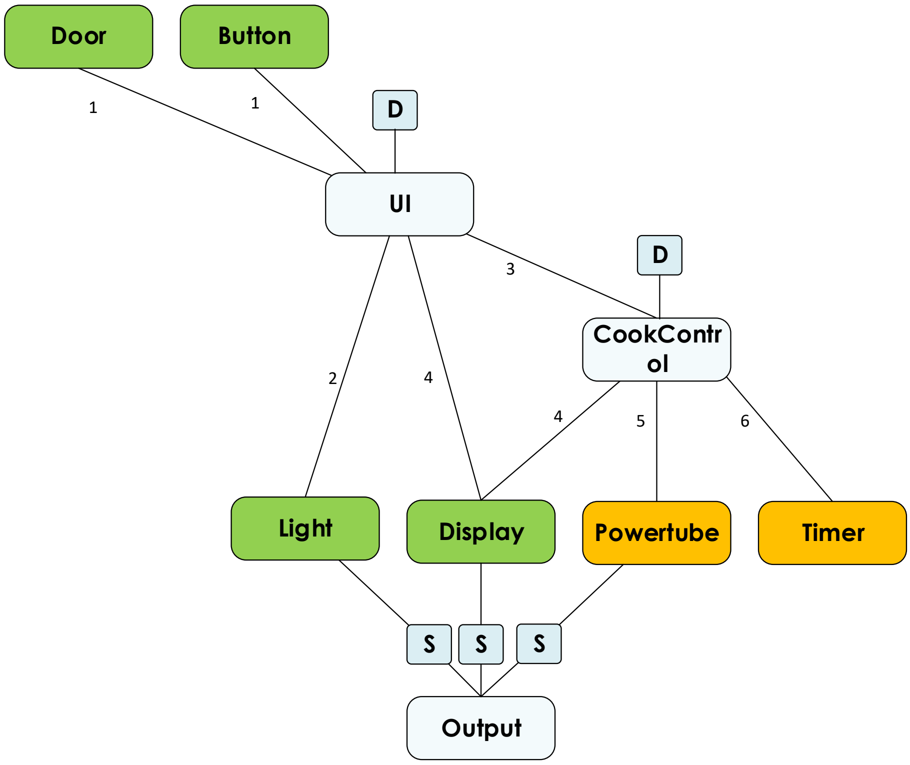
Afterwards we test the connection between CookController and UI by doing the same, but this time trigger a timer elapsed event and then check if the light outputs light off.

Step 4



In this step we test both connection to display. First by pressing the power button to see if display outputs power. And then by pressing start followed by a timer tick event which should make the display output time left.

Step 5 & 6



In step 5 we test the connection to powertube. This is done by pressing start and then checking if powertube outputs that it is on. Afterwards we do the same, but this time trigger a timer elapsed event which should result in powertube outputting a message saying it is off.

In step 6 we test the connection to timer. This is our full integration test. Firstly we run the application by pressing start, then we wait for 59 seconds, clear all output messages, wait 2 seconds more and check to see if output received the correct ending statement. Which is that powertube is off, light is off and display has being cleared.

In this final step, we test extension 3 & 4 again.

Extension 3: by starting the microwave, and then instead of waiting 1 min, we wait 2 seconds, press cancel and check if everything finished correctly.

Extension 4: by starting the microwave, and then instead of waiting 1 min, we wait 2 seconds, open the door and check if everything finished correctly **except** light being turned off, which should not happen cause door is open.

STEP	Door	Button	UI	Cook Control	Light	Display	Power Tube	Timer	Output
1	X	X	D	S	S	S			S
2	X	X	D	S	X	S			S
3	X	X	X	D	X	S	S	S	S
4	X	X	X	D	X	X	S	S	S
5	X	X	X	D	X	X	X	S	S
6	X	X	D	D	X	X	X	X	S

D: This module is included, and the one driven

X: This module is included

S: This modules is stubbed or mocked

Explanation of choices for the integration strategy

Surely Big Bang Integration is not the way to go around testing The Microwave Oven System which leaves the possibility to use Collaboration Integration, Sandwich Integration, Bottom-up, or Top-down.

Since the Collaboration model seems like a small Big Bang this was discarded from the beginning. The Sandwich model seems like a good choice with no real disadvantages, but although it combines the best of Top-down and Bottom-up this also wasn't chosen since it firstly takes a lot of planning, secondly the Dependency Tree is not very deep, and thirdly the group hasn't tried neither Top-down or Bottom-up before.

Button-up seems like a well-considered option, it reflects an engineering mindset and hardly needs any stubs.

In the end the Top-down approach was chosen for different reasons. We did already see an example of Bottom-up in the solution provided for Roulette Game and - also in the code for the testing of The Microwave Oven System the stubs are already written.

Explanation of any errors appearing during the integration tests, and how they were found

In the last integration step, we tested extension 3 & 4, here we noticed that even though we cancelled the microwave oven after only 2 seconds, the oven still finished successfully.

This made us examine the timer class, where we noticed that the timer tick was set to 1000ms but in the timer tick function "1000" was also subtracted from time remaining, this is a slip up, as time remaining is in seconds and not microsecond. We corrected this by only subtracting 1 from time remaining every timer tick.