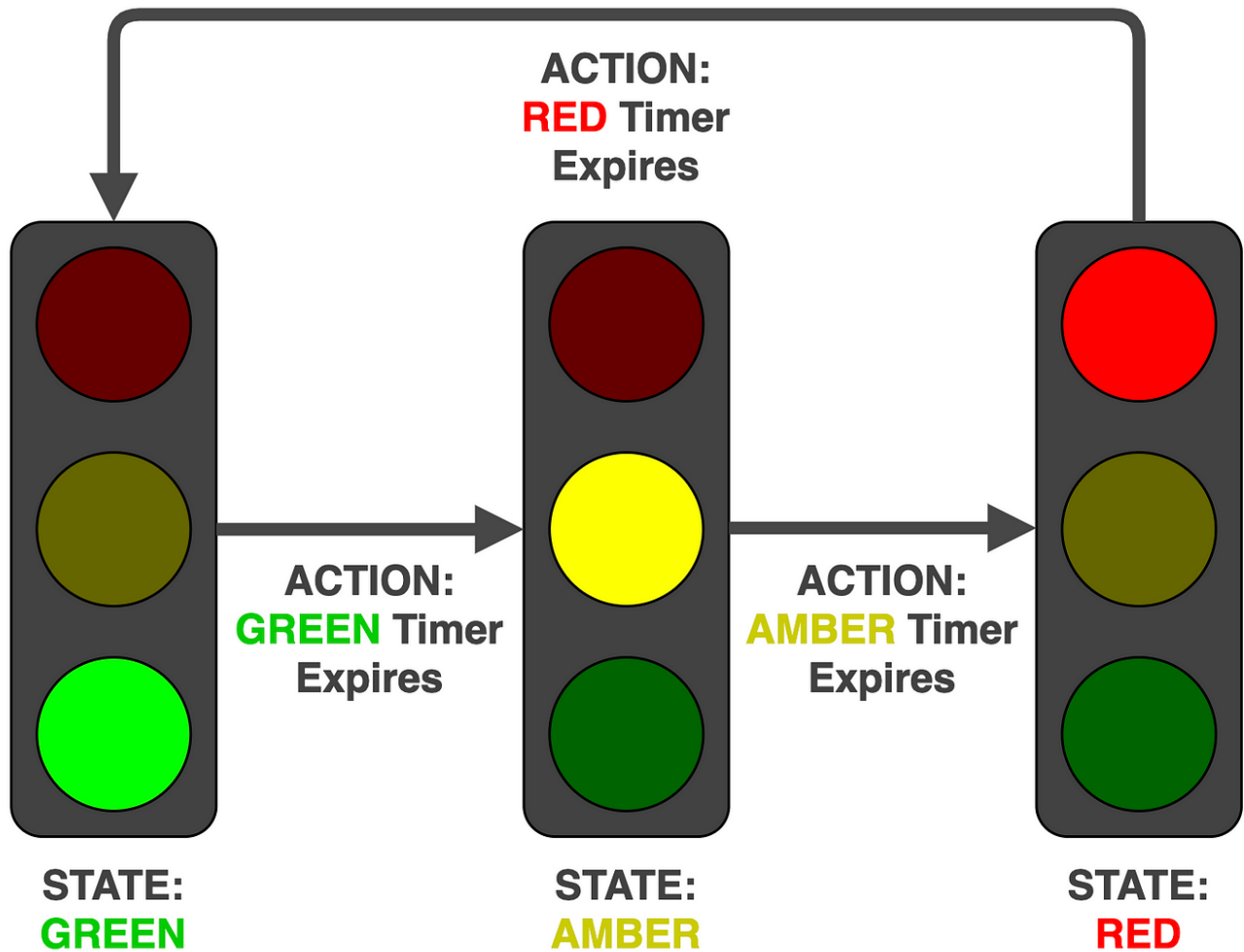


Lab 14: Improve the Traffic Light FSM

The goal of this lab is to improve a traffic light module with a FSM, adding an additional state.

The implemented FSM operates a traffic light with three states, with the behaviour shown in this image.



We want to modify the module, to include the typical functionalities of a German Traffic Light. That means that the light should get Amber before going back to Green.

Exercise 1. Modify the code to add another state

Go to `~/labs/lab12/` and open `src/traffic_light.vhd` with a text editor.

```
kate src/traffic_light.vhd
```

Modify the code to add an additional state between RED and GREEN.

Once, you are done run the testbench in GUI mode, and check the waveform for the expected behaviour.

```
./run_sim.sh -g
```

Exercise 2. Registered Outputs

Modify further the code to synchronise the outputs to the clock. Run again the simulation, to verify the changes.