CEG3136 Lab 2 Report

Group 9:

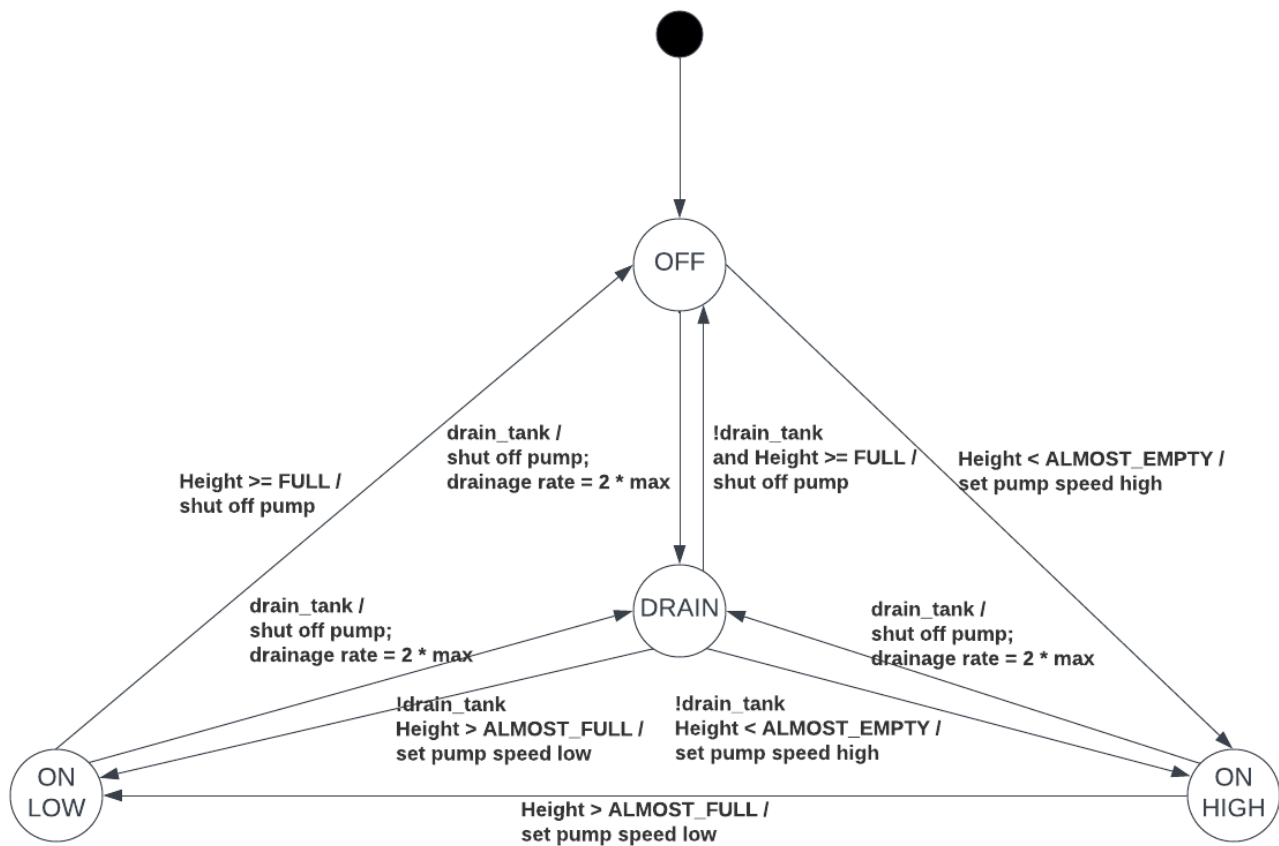- Monique Diemert
- Hongyi Lin

Task 1

Task 2

OFF

drain_tank /
shut off pump;
drainage rate = 2 * max

!drain_tank
and Height >= FULL /
shut off pump

Height < ALMOST_EMPTY /
set pump speed high

Height >= FULL /
shut off pump

DRAIN

drain_tank /
shut off pump;
drainage rate = 2 * max

drain_tank /
shut off pump;
drainage rate = 2 * max

!drain_tank
Height > ALMOST_FULL /
set pump speed low

!drain_tank
Height < ALMOST_EMPTY /
set pump speed high

ON
LOW

ON
HIGH

Height > ALMOST_FULL /
set pump speed low
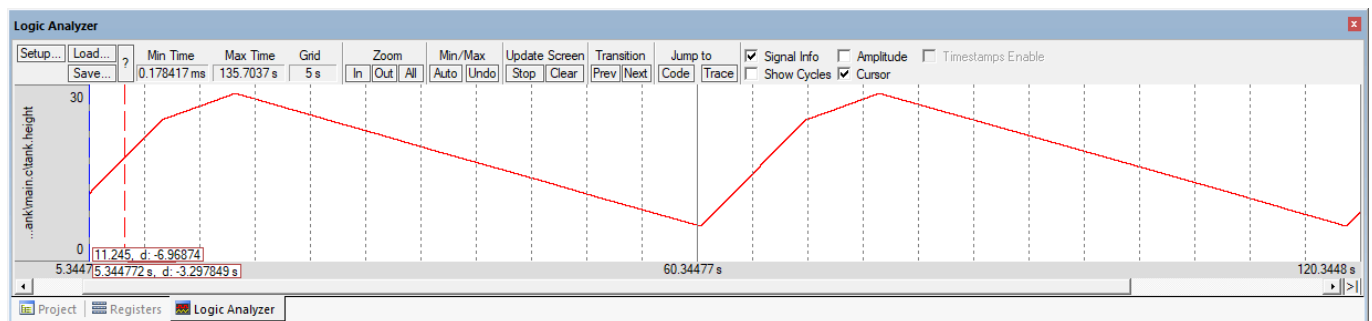
Our code changes to implement the task 2 requirements:

1. Create a global variable `int drain_tank;` to store the user input. `0` means not drain mode, and `1` means drain mode.
2. Add `DRAIN` to `enum pump_States`.
3. Add a parameter to the function `pump_update_state` and `tank_update_height` to indicate whether drain mode is enabled.
4. Implement the drain mode operations and the state transitions in the two functions above.

As shown in the line chart in this section, when the machine entering the drain mode, the tank height drops quickly than before until it reaches 0. When the machine exits the drain mode, it operates as normal.