

First Assignment

Software Engineering

Robot Vacuum Cleaner DFD

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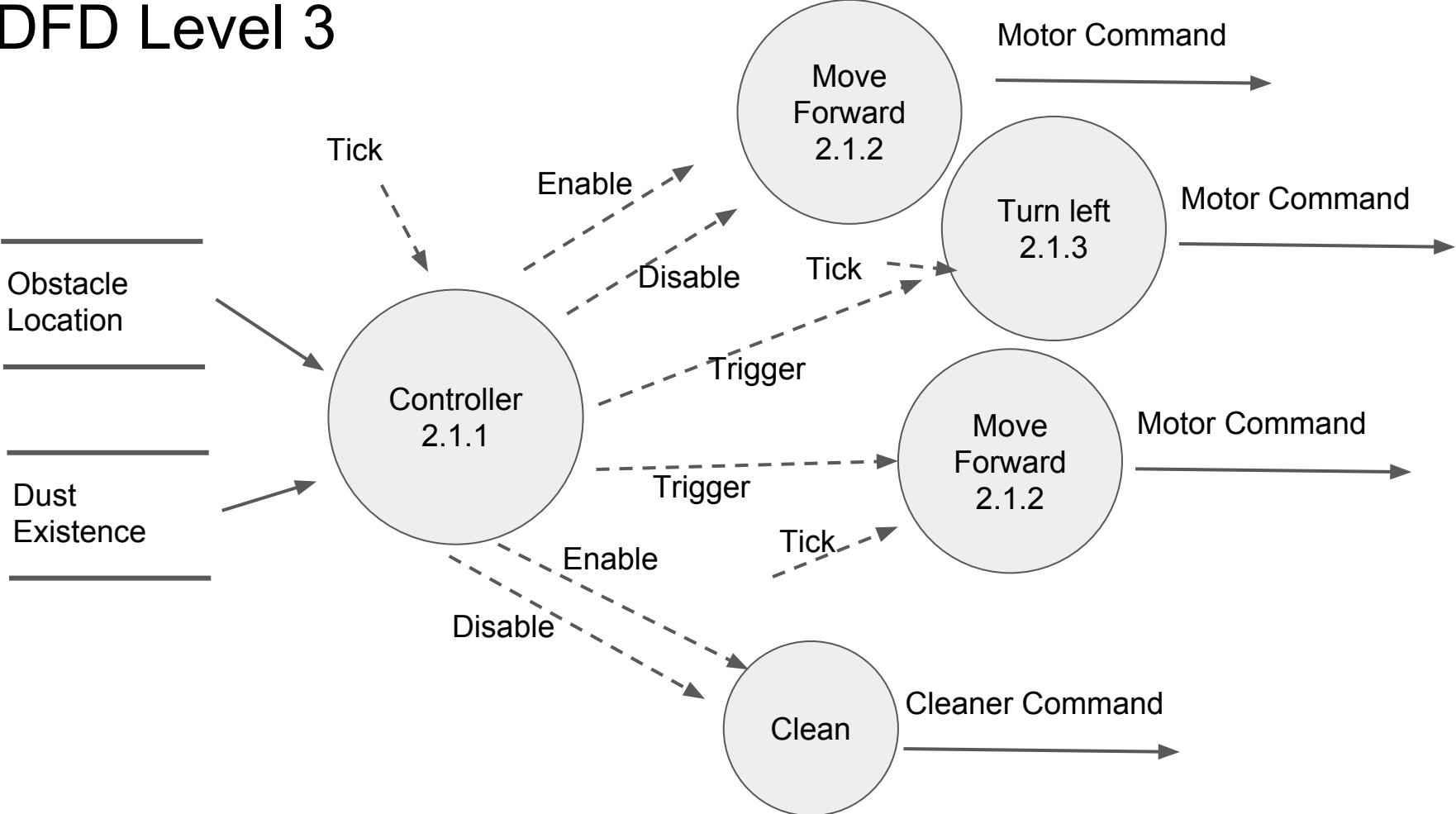
Existing Problem

- Not define stop function in level 3.
- In level 4, if RVC enters stop process, RVC stops infinitely.
- Not define cleaner interface in level 3, 4.

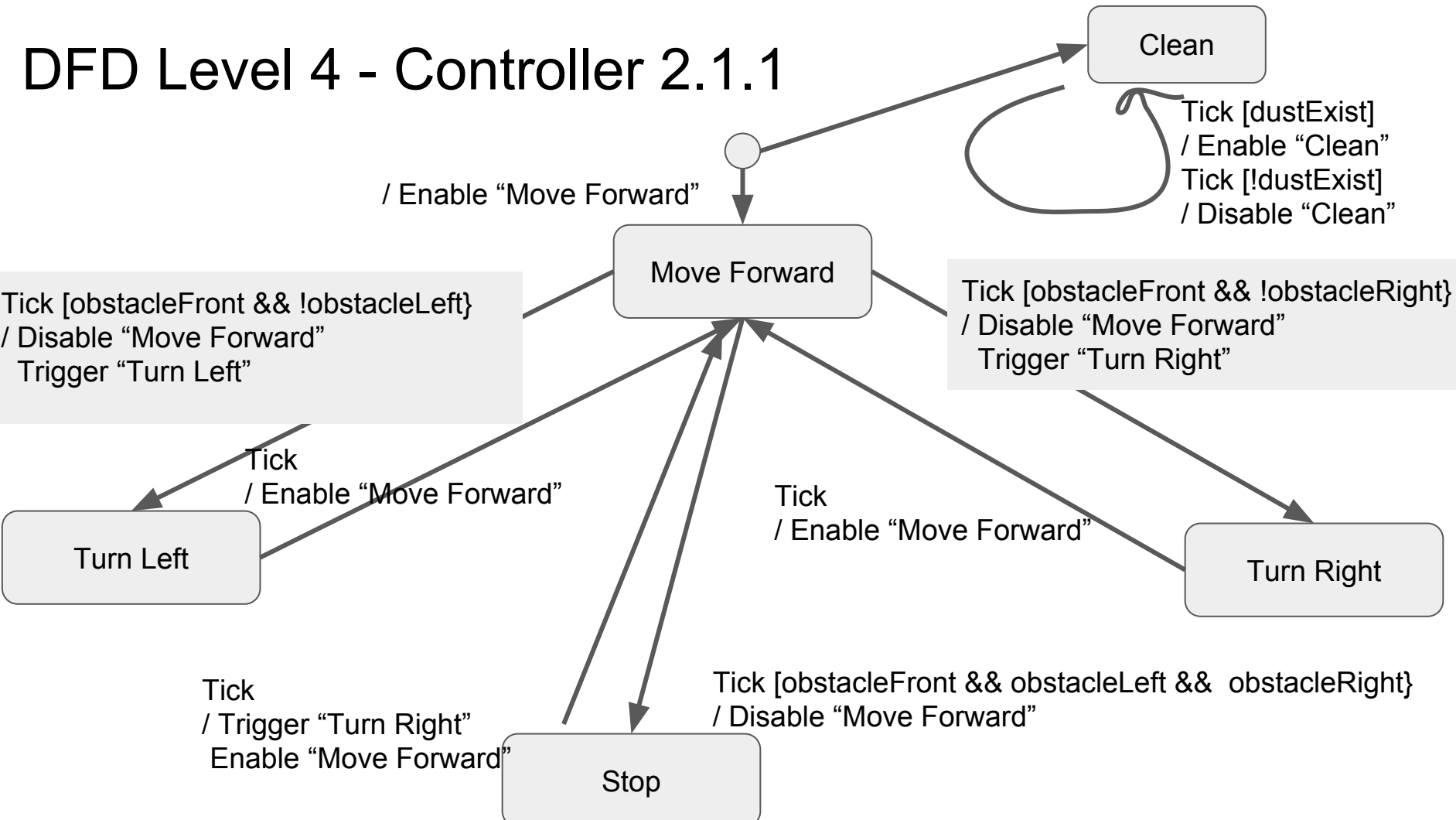
Solution

- Define stop process in controller. (level 3)
- Make RVC move again when it exit stop condition(there's no obstacle in any way)
- Define cleaner interface in controller. (level 3)
- Make process about clean interface. (level 4)

DFD Level 3



DFD Level 4 - Controller 2.1.1



Detail(Controller 2.1.1)

- Stop Process

A : If stop condition(there's any obstacle at front, left, right) is true then disable "Move Forward".

B : Trigger "Turn Right", and enable "Move Forward".

If RVC get out of from stop condition by "Turn Right" trigger, RVC just move forward. But it doesn't get out of from stop condition, controller call again A, B process. This case, RVC doesn't move forward because tick is occurred in very short time. Repeat A and B process lots of time(it makes RVC turn around clockwise), until RVC get of from stop condition.

Detail(Controller 2.1.1)

- Clean Process

In lecture note, cleaning process depends on moving process. But I think cleaning isn't depend on moving. It depends on only dust existence. So repeat dust existence check until RVC is off.