

ELEC-H-516 — Programmable Logic Controllers

EX3 — GRAFCET

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Exercise 1

The process is described as follows: product A is first weighted until the balance reaches the point a, and then is placed in the reservoir. The same procedure is repeated for product B. After the product B is placed in the reservoir, 2 solid blocks of the product D are placed in the reservoir. When all three products are in the reservoir the valve C has been opened to provide liquid to the reservoir. The amount of the liquid is controlled by the time the valve is opened (or until given level is reached). Once the liquid is in the mixer will steer everything for 30s. The reservoir is emptied and the system is ready to start a new sequence.

Build the SFC that controls the process described above and provide the necessary simulation environment.

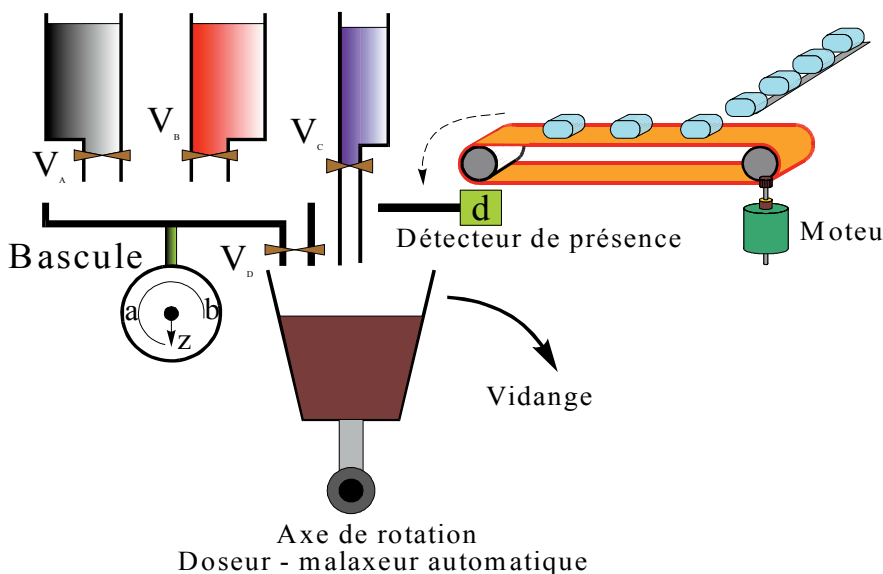


Figure 1

Exercise 2

Imagine a wagon in the position A_1 where he needs to pick-up some useful load. When the wagon gets the load, he can go to the position B_1 to discharge the load. This process is controlled with the bouton d_{A1} . Immediately after the loading is complete, the wagon moves towards the position B_1 , to disembark the load. If the disembark position is free, wagon should move forward to the positions C , to actually discharge the load. Once the load is off, the wagon moves back to the position A_1 . Note that if for some reason the position C is occupied (not free), the wagon should wait in B_1 .

The disembarking position C is common for few wagons that can pick-up the load at different positions and discharge it at the same position C . For this exercise consider the case of two wagons (the second one being marked with A_2).

Build the SFC that controls the process described above and provide the necessary simulation environment.

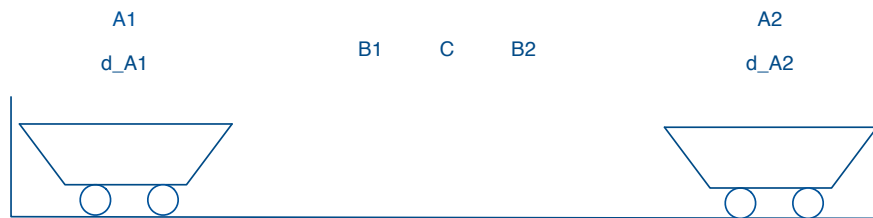


Figure 2