Modeling of a simple coffee machine

The coffee machine has:

- two drink choice buttons: B_coffee and B_tea
- an operable button to recover the coins: B_rec
- a coin receiver that accepts 20 cent coins only

Behaviour:

- When two coins are inserted, the user has 10 seconds to make a choice otherwise the coins are ejected.
- When a single coin is introduced, the user has 5 seconds to insert the other coin otherwise his coin is ejected.
- When the user chooses coffee or tea, the button action is inoperative while the drink is being prepared.
- The coffee preparation by the machine takes 6 seconds.
- The tea preparation by the machine takes 4 seconds.

We consider a "coffee machine" system composed of the controller and the machine. The controller interfaces between the machine and the user.

Modeling:

1. The behavior of the machine. This is to simulate the time between the order to make the drink and the return of the ready signal.
2. The behavior of the controller without the display function.
3. The behavior of the same system by adding a display.