



Detailed behaviour of the system

- When the machine boots, it displays a welcome message (choose it) for a couple of seconds, and initialises the number of products that can be delivered – N_{\max} items for each type. After this initialisation stage, a message "Ready." is displayed on the display D.
- A user can (1) select the product to make by using B_{up} and B_{down} and (2) start making process by pressing B_{make} . The sugar level can be tuned by using the $\text{Pot}_{\text{sugar}}$. When pressing B_{up} and B_{down} a message reporting the name of currently selected product type is displayed on D. The message is kept for 5 seconds (if no other buttons are pressed), then the message "Ready." is displayed back.
- If/when the making process starts, a proper message "making a XXX..." is displayed (XXX = "coffee", "tea", "chocolate"). The making process of a product is simulated by means of the motor M, rotating from 0 (beginning of the process) to 180 (end of the process, product ready). The making process takes T_{making} seconds to complete. When the process has completed, a message "The XXX is ready." is displayed.
- A product is available for selection only if the current number of available items is greater than zero. If no product is available, then the machine enters in a "assistance" modality – displaying a message "Assistance Required" on the display D. Then, the normal behaviour of the machine can be resumed only by means of the Coffee Machine Manager application – doing a refill in this case.
- When the product is ready, the product must be removed by the user. The product is considered removed as soon as the distance of the user as measured by the sonar S

