

Model-Based Testing in Practice

Specification of the Automated Teller Machine

At the initial state, the ATM waits for a customer to insert its credit card. Once a card has been inserted, the ATM verifies it. If the card cannot be used (unreadable, unknown) it is ejected. If the card is suspended it is kept by the ATM. If the card is valid, the ATM displays the main menu. From there, the customer can consult his/her account (if the card issuer is the ATM's owner), withdraw money, or eject his/her card.

The account consultation displays the balance of the bank account associated to the card, and then returns to the main menu.

To withdraw money, the customer has first to authenticate using a pin code. After 3 unsuccessful attempts, the card is blocked and ejected. Also, if the card is already blocked, it is ejected. Once the user is authenticated, the system asks him for the amount of money he wants to withdraw. If the balance on the associated account is sufficient, the transaction is validated and the card is ejected. Once the card is removed from the card reader, the transaction is validated (i.e. the account is debited) and the bills pop out. The user has 6 seconds to take the bills. After this delay, the ATM takes the bills back.

At each prompt, the user can eject his card by pressing the "Annuler" button.

Once the card is ejected, whatever the reason, the user has 6 seconds to take it back. After that delay, the ATM keeps the card, and returns to the initial state.

Requirements table
Card insertion and verification
A valid card displays the main menu
An unreadable card has to be ejected
An expired card has to be ejected
An unknown card has to be ejected
An suspended card is kept by the ATM
PIN verification
If the card is blocked, it is ejected
A correct pin resets the retry counter
After 3 unsuccessful attempts the card is blocked
Retry counter decreases at each failed attempt
Card ejection
After 6 seconds, if not taken by the user, the card is kept by the ATM
Bills ejection
After 6 seconds, if not taken by the user the bills are kept by the ATM
Amount selection
The user should not be able to withdraw more money than he has
If the amount to withdraw is valid, the card is ejected
If the amount is invalid, the user is asked to select another one
Transaction validation
The user must take his card to get the bills
The transaction is validated once the user has taken back his card