Design Name : A Simple Vending Machine (state machine)

Objective :
   Learn how to implement a state machine given with its state-flow diagram.

Assignment :
   A simple vending machine works as follows;
   1. Machine is normally in Idle state, showing READY indicator.
   2. When user inserts a coin through a COIN input, it activates an output (MONEY) and machine goes to state-A
   3. When CANCEL pressed, machine returns to Idle, activating MONEY_RETURN output.
   4. If user presses the PRODUCT button in state-A, machine goes to state-B, activating MOTOR output.
   5. At state-B, when DONE input comes (when the item is disposed), the machine returns to Idle state, waiting for another COIN.

   The following state-flow diagram is given. State-machine has 3 states, 4 inputs and 4 outputs. In the diagram, X/Y means "when X input goes high, raise Y output and go to the next state shown by the arrow".
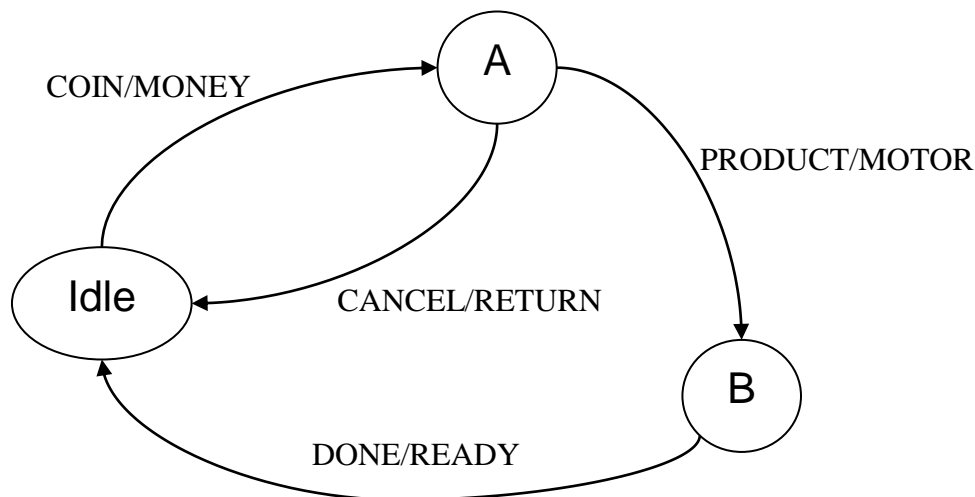
   Design the state machine in VHDL using the template. Use buttons for inputs and LEDs for outputs.

Follow Up Work :
   Design the vending machine without using the state-machine template.

Homework :
   Add another product to the vending machine (and state diagram too).