Design of Vending Machine using FPGA

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Abstract: *The vending machine is an automated device that dispenses a variety of products to customers when cash or a credit card is placed, including food, beverages, newspapers, tickets, and more. Contrary to traditional purchase methods, vending machines are more convenient and available. Today, the market for vending machines generates enormous annual revenues for developed countries like the United States, Japan, China, and some other Asian nations, including India. The goal of the paper is to create a vending machine that can dispense three different items at varying costs with the added functionality of "return change" when a coin of a higher denomination is input and "return money" when a request is cancelled. Coins of the values of five and ten are accepted by the machine. The design of vending machines uses the finite state machine (FSM) methodology. The design is accomplished by using behavioural modelling to create the Verilog code for the FSM-based machine and the Xilinx ISE tool to simulate the test-bench for three items.*

Keywords: Finite State Machine (FSM), Field Programmable Gate Array (FPGA), Moore, Mealy

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