HOMEWORK 2

Saurabh Chavan: 911836716 [chavan@pdx.edu]
Vikrant Mehendale: 930928936 [vikran2@pdx.edu]

The following details are implemented in the Homework 2.

- Using the “cg” covergroup the functional coverage is implemented.
- Around 11 directed test scenarios are also written.

The coverpoints are made for the following ports and conditions in the cg covergroup.

Random values of the following variables are checked in the coverpoint bins

- cover_point_coin **coins**
- cover_point_button **button**
- cover_point_product **product**
- cover_point_status **status**
- cover_point_enter_key **enter_key**
- cover_point_soft_rst **soft_rst**
- cover_point_valid_s **valid_s**
- cover_point_count_s **count_s**
- cover_point_items_s **items_s**
- cover_point_cost_s **cost_s**

State transitions are checked for the following coverpoints

- STATE_TRANSITIONS DUT.state
  for consecutive state transitions for which the design is made. The states will transition from IDLE to BUTTON to PRODUCT state is captured in this bin.
- STATE_TRANSITIONS_SINGLE DUT.state
  For the intended single consecutive transitions the design must go through is captured in this bin.
  IDLE to BUTTON
  BUTTON to PRODUCT
  PRODUCT to IDLE
  BUTTON to IDLE

The coverage obtained in the design is **90.27%**

Directed test scenarios are as follows:

Test Case :1 : SUPPLIER : When Valid_s is 1 then supplier should abble to restock the items

Test Case 2: CONSUMER : BUTTON 3 is SELECTED : COIN 5 cent is inserted

Test Case 3: CONSUMER : BUTTON 2 is SELECTED : COIN 5 cent is inserted for 10 cent product value

Test Case 4: CONSUMER : BUTTON 1 and 3 is SELECTED : COIN 5 cent is inserted

Test Case 5: CONSUMER : BUTTON 6 is SELECTED : COIN 25 and 5 cents ahe inserted and use previous balance

Test Case 6: CONSUMER : Pressed button 1 then enter 10 cents but then he wants to change his choice hensce he press soft reset and press button 3

Test Case 7: CONSUMER : BUTTON 2 is Pressed but enter_key is not Pressed also insufficient Balance and he change his selection and press enter_key

Test Case 8: CONSUMER : BUTTON 5 is Pressed : COIN 25 cents is inserted

Test Case 9 : CONSUMER : BUTTON 4 is pressed for 16 times : COIN 25 cent is inserted for 20 Cent product Value

Test Case 10 : Hard Reset and Soft Reset pressed at same time

Test Case 11: CONSUMER : BUTTON 5 is SELECTED : COIN 10 cent is inserted continously for 10 cent product value but Supplier did not provide so it will not give any product