/\*

Make a vending Machine that give a water bottle when you deposit 15 ruppees

-> condition

1. You just have 2 choice to enter ruppee whether enter 5 ruppee coine or 10 ruppee coin

2. This Machine would also give you exchange if you enter more than 15 ruppee or if

you enter less than 15 ruppee it would be sometime to enter more coin that could effectly

make upto 15 ruppee or it will return you remaining money in the form of exchange

\*/

`timescale 1ns / 1ps

//////////////////////////////////////////////////////////////////////////////////

// Company:

// Engineer:

//

// Create Date: 19:35:52 06/18/2023

// Design Name:

// Module Name: Vending\_Machine

// Project Name:

// Target Devices:

// Tool versions:

// Description:

//

// Dependencies:

//

// Revision:

// Revision 0.01 - File Created

// Additional Comments:

//

//////////////////////////////////////////////////////////////////////////////////

module Vending\_Machine(

input clk,

input reset,

input [1:0] I0,// 01 = 5rs, 10 = 10rs

output reg out,

output reg[1:0]change // 01 = 5rs chaneg and 10 = 10rs change

);

localparam [1:0] s0=2'b00, // defined 3 states

s1=2'b01,

s2=2'b10;

reg [1:0]c\_state,n\_state; // 2 bit current and next state

always @(posedge clk)

begin

if (reset == 1) // If reset is 1 that current and next state would remain at state 0

begin

c\_state = 0;

n\_state = 0;

end

else

begin

c\_state = n\_state;

case(c\_state)

s0: if (I0 == 2'b00) // if you input no ruppee

begin

n\_state = s0; // it would remain at the state 0

out = 0;

change = 2'b00;// No Change would be given

end

else if (I0 == 2'b01) // if you enter 5 ruppee

begin

n\_state = s1; // It would goes to State 1

out = 0; // It would output zero because you did'nt make up to 15 ruppees

change = 2'b00; // No Exchange would be given

end

else if (I0 == 2'b10)

begin

n\_state = s2;

out = 0;

change = 2'b00;

end

s1: if (I0 == 2'b00)

begin

n\_state = s0;

out = 0;

change = 2'b01;

end

else if (I0 == 2'b01)

begin

n\_state = s2;

out = 0;

change = 2'b00;

end

else if (I0 == 2'b10)

begin

n\_state = s0;

out = 1;

change = 2'b00;

end

s2: if (I0 == 2'b00)

begin

n\_state = s0;

out = 0;

change = 2'b10;

end

else if (I0 == 2'b01)

begin

n\_state = s0;

out = 1;

change = 2'b00;

end

else if (I0 == 2'b10)

begin

n\_state = s0;

out = 1;

change = 2'b01;

end

endcase

end

end

endmodule