PES UNIVERSITY, Bangalore

Established under Karnataka Act No. 16 of 2013)

Department of Computer Science & Engineering

UE24CS251A: DIGITAL DESIGN AND COMPUTER ORGANIZATION

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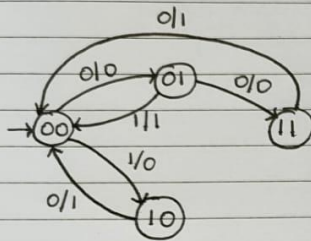**SRN: PES1UG24CS476**

Problem statement:

FSM-based Vending Machine with Python Simulation

Solution:

FSM :

$0 \Rightarrow ₹5$ coin was inserted
$1 \Rightarrow ₹10$ coin was inserted

State Table:

Input	Present State		Next State		Output
i	S_1	S_0	S_1	S_0	θ
0	0	0	0	1	0
0	0	1	1	1	0
0	1	0	0	0	1
0	1	1	0	0	1
1	0	0	1	0	0
1	0	1	0	0	1
1	1	0	X	X	X
1	1	1	X	X	X

S_1 :

i \ $S_1 S_0$	00	01	11	10
0	0	1	0	0
1	1	0	X	X

$S_1 = i \overline{S_1} S_0 + i \overline{S_0}$

S_0 :

i \ $S_1 S_0$	00	01	11	10
0	1	1	0	0
1	0	0	X	X

$S_0 = \overline{i}\,\overline{S_1}$

θ :

i \ $S_1 S_0$	00	01	11	10
0	0	0	1	1
1	0	1	X	X

$\theta = S_1 + i S_0$

1.Code &

2. Screen shot of output

Attached below given page with waveform diagram.

3. Individual Contribution of team members

Sumedh Girish :- Python and Verilog Code

Sujal T.H :- Documentation

Sushanth S Rao :- State Table and State diagram, Documentation.