DATA FOR LAND ROVER FIGO FSM

Problem Statement:

You are an engineer working for ISRO. They want you to design an FSM that will test their newest land-rover Figo on their campus. ISRO wirelessly transmits the travel plans to Figo, and then Figo moves according to that information.

To design your FSM, you first select the following locations around the ISRO campus and assign each location with a state in 3-bit binary representation Room0[000], Room1[001], Room2[010], Room3[011], Room4[100 Room5[101], Room6[110], and the Room7[111].

To simplify your test, you inform ISRO to send Figo's FSM a binary sequence for travel plans (e.g., '1-0-0-0-1' to cause Figo to move five times). In other words, Figo receives either '0' or '1' for each move and travels to the next destination as specified below. Figo starts off at Room0. Design an FSM output of which should give Figo's current location.

Control Logic:

Room0[000]	If 0,stay at Room0[000]	If 0,stay at Room1[001]
Room1[001]	If 0,stay at Room0[000]	If 0,stay at Room2[010]
Room2[010]	If 0,stay at Room2[010]	If 0,stay at Room3[011]
Room3[011]	If 0,stay at Room2[010]	If 0,stay at Room4[100]
Room4[100]	If 0,stay at Room4[100]	If 0,stay at Room6[110]
Room5[101]	If 0,stay at Room6[110]	If 0,stay at Room7[111]
Room6[110]	If 0,stay at Room5[101]	If 0,stay at Room4[100]
Room7[111]	If 0,stay at Room7[111]	If 0,stay at Room0[000]

Inputs in Testbench:

Input sequence: 1 1 0 1 0

State Transition:

1: Room 0	→	Room 1
1: Room 1	→	Room 2
0: Room 2	→	Room 2
1: Room 2	→	Room 3
0: Room 3	→	Room 2
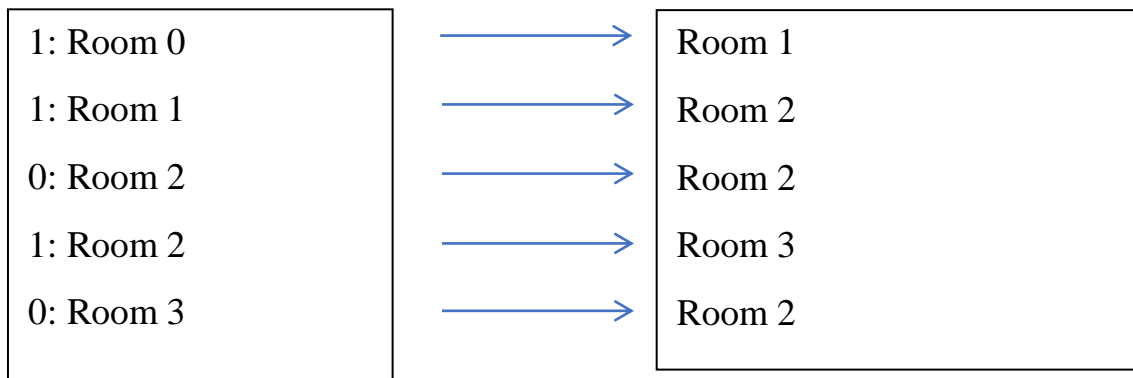
Output Waveform from ModelSim-Altera: