

Design of Elevator using ASM Chart

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Abstract

Algorithmic State Machine (ASM) Chart is a special type of chart which is used to specify the design of a digital circuit. It is quite easier to understand the process of designing of a digital circuit. Elevator consisting of four floors is designed using ASM Chart by utilizing multiplexers and D-Flip-flops.

• Implemented Circuit

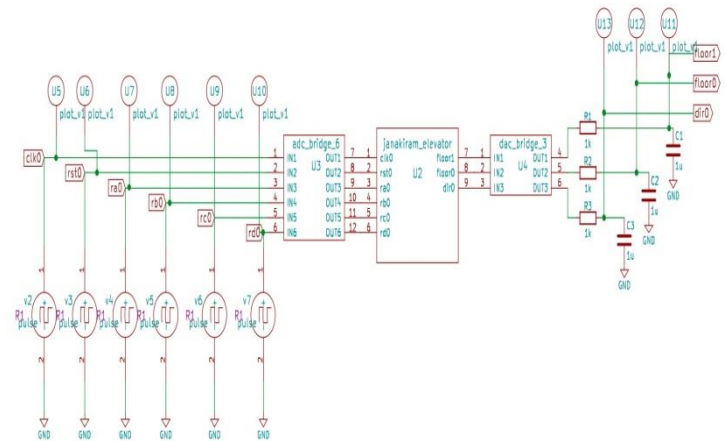


Figure 1: Implemented circuit diagram.

1 Implemented Circuit Details

As shown in the figure we have implemented Elevator using ASM Chart with Multiplexers & D-Flipflops along with adc_bridge & dac_bridge as shown in the figure.

ADC_BRIDGE is used to convert Analog signals generated from voltage pulses to Digital signals i.e. 1's & 0's respectively.

Similarly, DAC_BRIDGE is used to convert Digital signals generated from elevator to Analog signals by utilizing Resistors & Capacitors respectively.

Number of pins for ADC_BRIDGE & DAC_BRIDGE is based on generated schematic of Verilog Code. The following waveforms illustrate the working of the implemented Mixed Signal Design.

2 Implemented Circuit Waveforms

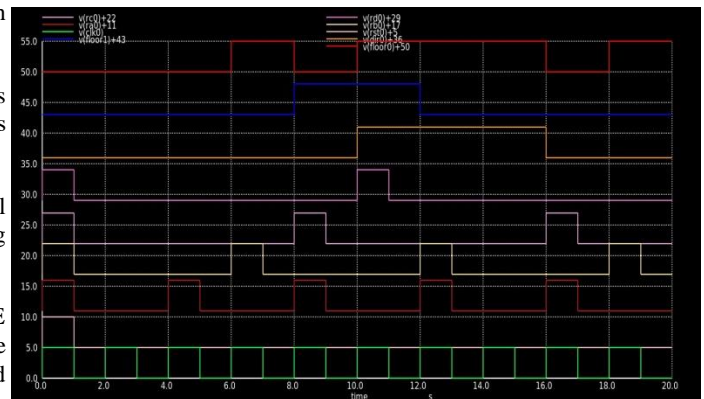


Figure 2: Implemented waveform.

References

1. Morris Mano, "Digital Design with an introduction to Verilog HDL".