

Final Project Proposal group38

Design Topic

- ✓ Design and implement a slot game.

Input/Output Table

Input	I/O pin	Variable name	Function
DIP switch 1	W16	rod_0	Close number 1 random
DIP switch 2	W17	rod_1	Close number 2 random
DIP switch 3	W15	rod_2	Close number 3 random
DIP switch 4	V15	rod_3	Close number 4 random
DIP switch 5	V16	power	Open all numbers random
Push button 1	T18	volume_up	Music volume up
Push button 2	U17	volume_dw	Music volume down
Output	I/O pin		Function
7-segment digit 0		segs [7:0]	Show number 1
7-segment digit 1		ssd_ctl [3:0]	Show number 2
7-segment digit 2			Show number 3
7-segment digit 3			Show number 4
LED light 1	L1	leds [0]	Win number 1
LED light 2	P1	leds [1]	Win number 2
LED light 3	N3	leds [2]	Win number 3
LED light 4	P3	leds [3]	Win number 4
LED light 5-16		leds [4:15]	Win four numbers
Speaker	A14	audio_mclk	Slot machine's music
	A16	audio_lrck	
	B15	audio_sck	
	B16	audio_sdin	

Functions of the slot game

1 The slot has the basic functions: (I/O description)

- 1.1 Four number generator modules generate four random numbers. Four 7-segment displays show the numbers generated by the modules.
- 1.2 A number generator module 'k' open, If DIP switch 'k' off and DIP switch 5 on. Number 'k' is 1, 2, 3, 4.
- 1.3 A number generator module 'k' close, If DIP switch 'k' on or DIP switch 5 off. Number 'k' is 1, 2, 3, 4.

- 1.4 A speaker module control when to play the music and what music should play. Push buttons 1-2 control the volume.

2 The detailed function of the slot.

- 2.1 The number generator module generates a new number every 0.5 second. It keeps three random numbers in the module at the same time, and output the second number.
- 2.2 If there is any number generator module opened. The speaker plays the coin-sound music from left channel.
- 2.3 If a number generator module is closed and its last output number is 7. The speaker plays tune "Re" for 0.5 second from right channel and lights up correspond LED.
- 2.4 If all number generator modules are closed and their last output numbers are 7. The speaker plays the celebrate music from left channel until music goes end.
- 2.5 Variable "state_" help check weather the number generator module is open.
- 2.6 Block Diagram:

