Lab 1

First stage

Intelligent Medical Systems Department



Logic Design

Lab 1: Introduction to Multimedia Logic

By

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Introduction to Multimedia Logic

Multimedia Logic a logic simulator is a high level simulation of a "digital" circuit, the kind used in a computer. At this level of simulation we ignore the details of the "real world" such as power for circuits, how fast circuits are, ground signals, cost and etc. These details are ignored so that you can deal directly with the logical aspect of the problem at hand. In the "real world", when you're ready to build your circuit you can worry about these details.

You can download Multimedia Logic (MML) for free at

https://www.softronix.com/mmlogic-downloads/.

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When open, the MML interface shows an empty canvas with a menu bar:

Click on the Palette symbol 🖻 to view circuit components:



You can use switches as inputs and LED's as output to simulate a circuit. Include text labels to annotate your circuit.

If you double-click a component, you may change its properties. For example, you may select the colour of an LED:

LED Properties			
Color Color Red Green Yellow	+ I I I I I I I I I I I I I I I I I I I	OK Cancel Help	

Similarly, you can select the type of switch you need:

Switch Properties	×	
Initial State	ОК	
© On	Cancel	
Off	Help	
Туре		
Toggle	PUSH .	
Momentary		

If you double-click on a logic gate, you may choose how many inputs you require. You also have the option to invert the output if necessary:



AND Gate Properties							
Inputs 2 Inputs	•	ОК					
 2 Inputs 3 Inputs 		Cancel					
Ø 4 Inputs		Help					
Invert Output (NA	ND)						

In the properties for an oscillator, you may change the speed of the pulse. Changing the Lovalue to 10,000,000 is very close to 1 pulse per second:



Testing your circuit

Run your simulation by clicking on the green arrow row on the menu bar. This allows you toturn the switches ON and OFF, and see the output of the LED.

Example:



Resizing the Window

When working in MML, sometimes we run out of space on the within the working window of thecanvas:



In order to resize the window, select View in the menu bar, then click on Grid Settings...:

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🗅 🖆 🔚 X 🖻 💼 🕤 📧 😤		Grid Settings
		Snap to Grid
		Snap Selection to Grid
		Paper Color
	\checkmark	Tool Bar
	~	Status Bar
		Goto Page Ctrl+G
		Next Page
		Previous Page
		Zoom >

Grid Settings	×
View Grid	ОК
Grid spacing	Cancel
Width: 6 units	
Height: 6 units	
Canvas size	
Width: 2000 units	
Height: 2000 units	

Then change the Canvas size to desired dimensions, for example 2000 x 2000.

Wireless Connectors

Sometimes we need to reuse the same input in several parts of the circuit. Rather than having a web of connecting lines running across every which way, we can choose to use connectors:



In the above case, we create sending connectors for the inputs A and B. Then we can create two or more receiving connectors to use in different parts of the circuit.

Note, for each input, the name on the sending and receiving connectors must be perfect match!

Multiple pages

You can add pages to your file by clicking the plus sign at the right end of the menu bar.



Receiving connectors can be used across several pages, however, you cannot create two sending connectors with identical names.