Poznan University of Technology
Faculty of Computing and Telecommunications
Institute of Multimedia Telecommunications

COMPUTER AIDED DESIGN

LABORATORY

Instruction for the laboratory exercise

LabView objects in Multisim

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1. The aim of the exercise

- use the LabView applications in Multisim,

2. Use of LabView objects

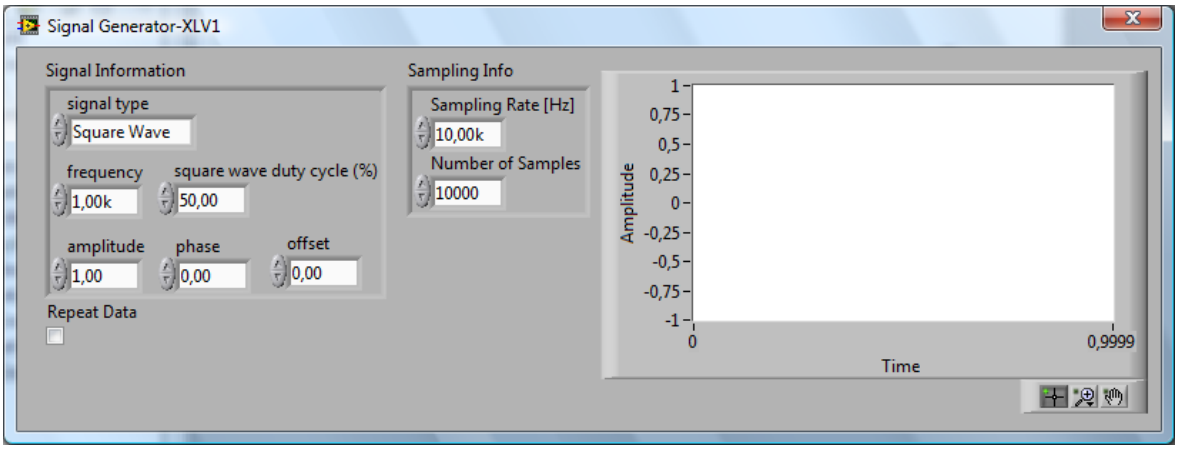

Fig.1.Setting the parameters of the *Signal Generator* object.

a) Using LabView *Signal Generator* and *Signal Analyzer* objects

- design an active filter, band pass for audio frequencies (20Hz-20kHz), freely select type of the filter (you can design filter circuit using the *Application Wizards* - if exist in your Multisim version),
- place objects *Signal Generator* and *Signal Analyzer* (Fig.1 and Fig. 2).
- test the filter with 1kHz signal - sinusoidal, rectangular, triangular,
- observe the signal at the output (*time domain signal* and *auto power spectrum*).

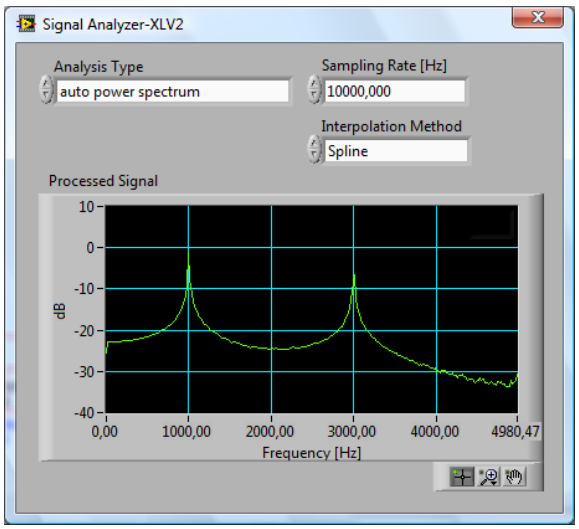

Fig.2. *Signal Analyzer* parameters

b) Inserting objects created in LabView

File name	Localization	Program
Elevator_Display.llb	.. \Program Files\National Instruments\Circuit Design Suite 10.0\lvinstruments	Multisim

- sample file *Elevator_Display.llb* was created in LabView (version 8.2),
- insert the supplied file in the corresponding directories (see table above),
- in the *LabView Instrument* tab you should see the *Elevator Display* object,

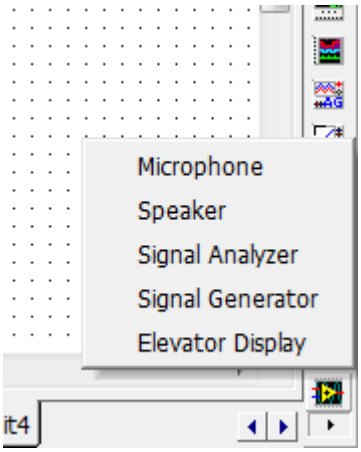

Fig.3. List of LabView objects available in Multisim.

- insert *Elevator Display* object and connect simple elevator control circuit (Fig.4),
- run and simulate elevator control system,
- the value of used resistors - 10k.

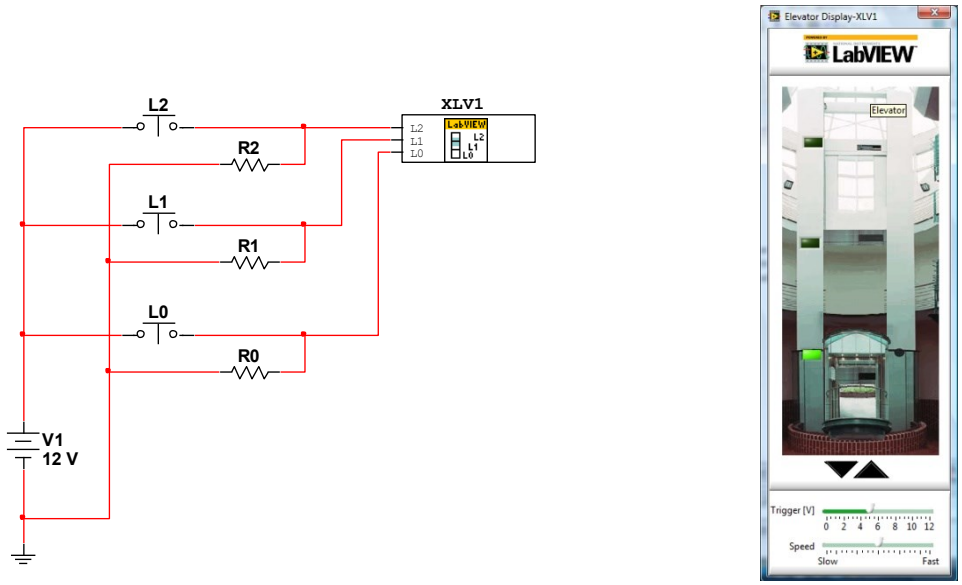

Fig.4. Simple elevator control system.

3. Tasks for students to do homework (obligatory)

- Create simple circuit with *Microphone* and *Speaker* objects in *Multisim*. Record and replay your voice.
- Create circuit with *Microphone, Speaker* objects and simple filter (you can use Low Pass or High Pass or Band Pass filter for audio frequency). Test this circuit with your voice or other recorded sounds.

4. Additional tasks

- Design the elevator control system (based on Fig.4) using simple digital circuits and LED display, the position of the elevator should be displayed on the 7-segment display.

5. Report

It should contain:

- all schemes of simulated circuits,
- simulation results,
- answers to the questions contained in the manual,
- conclusions.