Computer Applications in Control
Project 1
Due Date: 96.12.25 - 23:00

Shiraz University

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1. Write a program that records a voice using your computer microphone (record your voice when you read this sentence loudly: "**I am a student of the computer applications in control course in shiraz university. We learn LabVIEW during this semester and this is our first project in this course.**") and then save that as a main signal.
    a) Plot the signal on the graph chart or waveform chart.
    b) Save signal as a 2d array on an excel file.

2. Write a program that loads the recorded file. For each of following parts save the result as excel files and export your plots as bmp files.
    a) Find the maximum and minimum frequencies of the signal.
    b) Find the maximum and minimum domain of the signal.
    c) Find average, RMS, power, and energy of the signal.
    d) In a new .vi, compute FFT of the signal.
    e) In a new .vi, convert the continuous (main signal) signal to discrete signal with 500 ms sampling time.
    f) In a new .vi, amplify the signal domain.
    g) In a new .vi, cut the domain of the signal.
    h) In a new .vi, generate a random signal and add it to the main signal.
    i) In a new .vi, filter the signal using high-pass, low-pass and band-pass filters.
    j) In a new .vi, modulate the signal with a sinusoidal signal.

3. Write two paragraphs about the program procedure of the block diagram. (P1.png)

* You need to use new and different blocks, so for each new block, you must to completely describe it in a word file.

*All of .vi must be in one project.

* The name of all .vi must be similar to their own section.