

EE380 Spring 2018

System Software

Windows Quiz Bowl Application

For this project you may use either the 8051 or ARM7 processor purchased for use in EE354 and EE454. Your Project should allow for up-to 8 “players” and 1 moderator. Each player should be given a “buzzer” that will be used to signal the application that a user has buzzed in. The moderator should have a “controller” with the following functionality:

1. Start and Restart a Round.
2. Stop or End a Round
3. Signal the correct answer was given or not given

The Microcontroller should:

1. Poll the moderators control for a start of round. (block/ignore player input)
2. Poll the user inputs after a round is started(allow moderator Stop Round)
 - a. If timer is being used stop timer in GUI.
3. Poll moderators control for correct/incorrect answer.
4. If correct send user number to Windows Application for scoring (VIA serial port)
5. Else Restart round (Blocking incorrect user/users)
 - a. If timer is being used restart timer in GUI.

The C# Application Should:

1. Allow Moderator to select number of players
2. Create appropriate number of Score boxes for Players (AT RUN TIME)
3. Allow Moderator to set time limit for round.
 - a. If time limit (send end of round to micro. Via serial port)
 - b. Visual indicator of time remaining.
4. Allow Moderator to set number of points for each answer.
5. Auto Score at end of each round.

Submit: Hardware schematic, hard copy of C# Program, Notebook, calculations, and documentation. Your documentation should include a verification sheet signed and dated by Mark Randall, Jeff Cron, or Dick Blandford.

RC, RL, RLC Filter Design

For this project you will be creating a GUI that a user can select between different types of filters.

RC low/High Pass

RL low/High pass

RLC BandPass and BandStop

For the RC and RL portion of the project the user must input at least 3 pieces of information, such as, R-value, C-value and lowpass or R-value, L-value, and highpass. The simulation should then plot the bode plot (Magnitude and Phase) of the filter that is designed with these parameters. The users should also be able to enter the cut-off frequency and the program should be able to calculate the last parameter either RLC.

The RLC portion should have the same functionality but allow for an additional variable.

Lastly the program should show a sample circuit, including labels for Component size, and output voltage.

Submit: Hardware schematic, hard copy of C# Program, Notebook, calculations, and documentation.

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