Software Requirement Specification

COP290

AC Circuit Solver

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1 Introduction

1.1 Overview

Designing a AC Circuit drawer and solver. This assignment is divided into two parts

Part 1 AC circuit will be drawn in a SVG image file
Part 2 Program an AC circuit simulator, which reports current flowing through components and voltage across it.

N. B. The inout has to be given in spicelist format.

1.2 Tools Used

•Parser

•Regex Header File

•Eigen Header File

1.3 Software Requirements

•Eigen Header Required (Sudo apt-get install libeigen3-dev) run in terminal to install it .

•Regex Header (no installation required inbuilt library in CPP)

1.4 Functionality

1. Encode your circuit in spicelist net format. Go through the pSPICE to get to know theaccurate format for error-free result. The extension of the input file is ".cir".

2. The parser will check for errors and report if there are any errors.

3. SVG file is generated when you type

"g++ -std=c++11 main.h solve.h main.cpp solve.cpp draw.h draw.cpp"

in terminal (UNIX Environment) in the directory of folder. As per instructions, you have to make changes in "top.cir" file without altering its directory, for getting circuit as per your requirements. Open "top.svg" to view your circuit.

4. To use the circuit solver, type

"g++ -std=c++11 main.h solve.h main.cpp solve.cpp draw.h draw.cpp"

in terminal (UNIX Environment) in the directory of folder. A new file named "results.txt" is generated in the present directory. Voila! Go check it and find your answers. Thats technology, you know.

1.5 References

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3. Solving multi-frequency circuits. http://www.allaboutcircuits.com/textbook/alternating-current/chpt-7/circuit-effects

4. https://www.swarthmore.edu/NatSci/echeeve1/Ref/mna/MNA3.html

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