Date: 8/30

Agenda:

- state variables

-possible issues: sensor measurements correlating to health, building/programming microprocessor

To-Do updates:

* Read over paper from Uni & old paper
* Get software for nl5 or psim
* Look up for building a power simulation in python or c
* Add everyone to github
* Use room 186 power electronics lab
* Review state variables ECE306

Date: 9/5

Agenda:

* Discuss papers. Paste any clarifying questions etc. here
* Are we expected to begin formulating an idea of what materials we will need or will most everything be provided in the power electronics lab?
  + We have a buck converter in power elec
* Give the elevator pitch for our project:
  + Looking into PIML
  + Integration between Xyce and PyTourch
    - Xyce: mentions being utilized for neural networks, parallelization for data collection, built with c++, negate the approximation issues from LTSpice
    - Pytourch: used in research for ML
    - Thinking about sensors in the background

To-Do updates:

* Look into PyTorch
* Look at Xyce
* Matlab/Julia
* Create a virtual that has same measurements as physical (goal) -> Xyce and another program (export LTSpice in netlist)
* Data collection
* Look into PIML
* Research lifetime indicators

ABG Notes: From Xyce documentation - “Xyce has been designed to use a DAE formulation. Among other advantages, this has the benefit of allowing the device models to be nearly independent of the type analysis to be performed, and allows a lot of encapsulation between the models and the solver layers of the source code. In a SPICE-based code, new device functions are created for each type of analysis, such as transient and AC analysis. With Xyce’s DAE implementation, this is not necessary. The same device load functions can be used for all analysis types, resulting in faster development time for new types of analysis”

4.3.4. Expressions In Xyce, an expression is a mathematical relationship that may be used any place one would use a number (numeric or boolean). To use an expression in a circuit netlist: 1. Locate the value to be replaced (component, model parameter, etc.). 2. Substitute the value with an expression using the {} syntax: {expression} where expression can contain any of the following: • Arithmetic and logical operators. • Arithmetic, trigonometric, or SPICE-type functions. • User-defined functions. • User-defined parameters within scope. • Literal operands.

Date: 9/12

Agenda:

* Tell them something is wrong with board
* We modeled a high pass filter in python and matlab, we tend to prefer python and plan to utilize this in the future

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