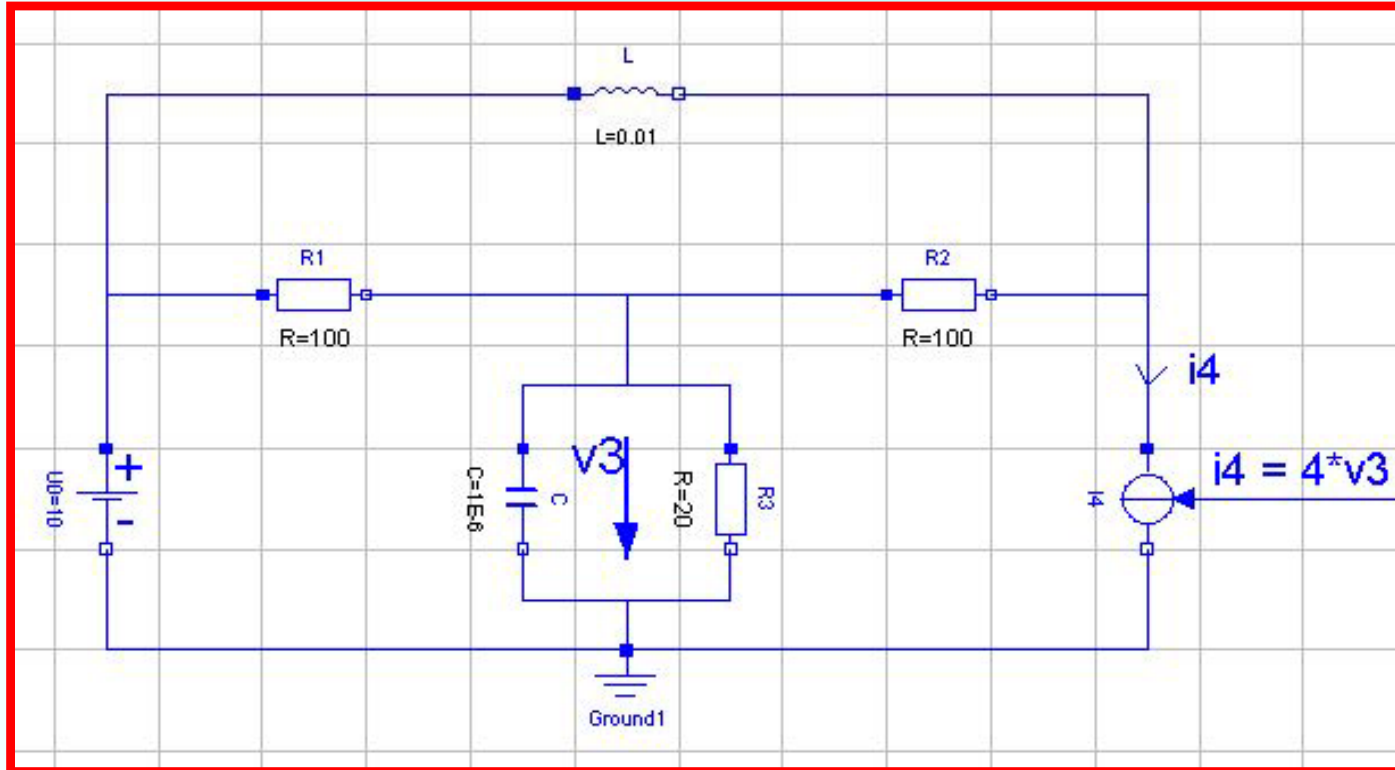# 5ᵗʰ Homework

- In this homework, we shall exercise the modeling of a simple electrical circuit using bond graphs.

- We shall also model the same electrical circuit using a circuit diagram (a wrapped bond graph).

- We shall finally determine the overhead associated with the wrapping technique.

Electrical Circuit

- Given the following circuit:

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Electrical Circuit II

- The circuit is to be modeled using bond graphs without wrapping.

- Use a sensor (detector) element together with a modulated source element to implement the non-linear current source in the circuit.

- Simulate the circuit during *50 μsec*, and plot *v_3* as a function of time.

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Electrical Circuit III

- The circuit is to be modeled using bond graphs with wrapping, i.e., using the bond graph electrical library.

- Simulate the circuit during *50 μsec*, and plot *v₃* as a function of time.

- Compare the number of initial and final equations as well as the simulation time with those obtained in the unwrapped bond-graph solution.

Start Presentation