

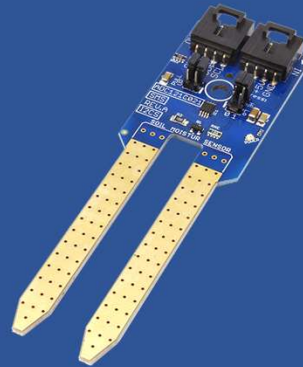
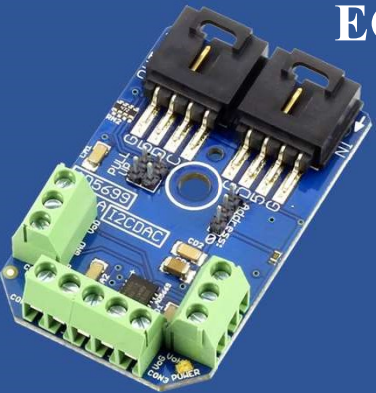
California State University, Northridge

College of Engineering & Computer Science

ECE 240L – Electrical Engineering Fundamentals Laboratory

Final Presentation

By Cristian Robles



Fall 2020

Instructor: Sequare, Daniel-Berhe, Ph.D.

Overview

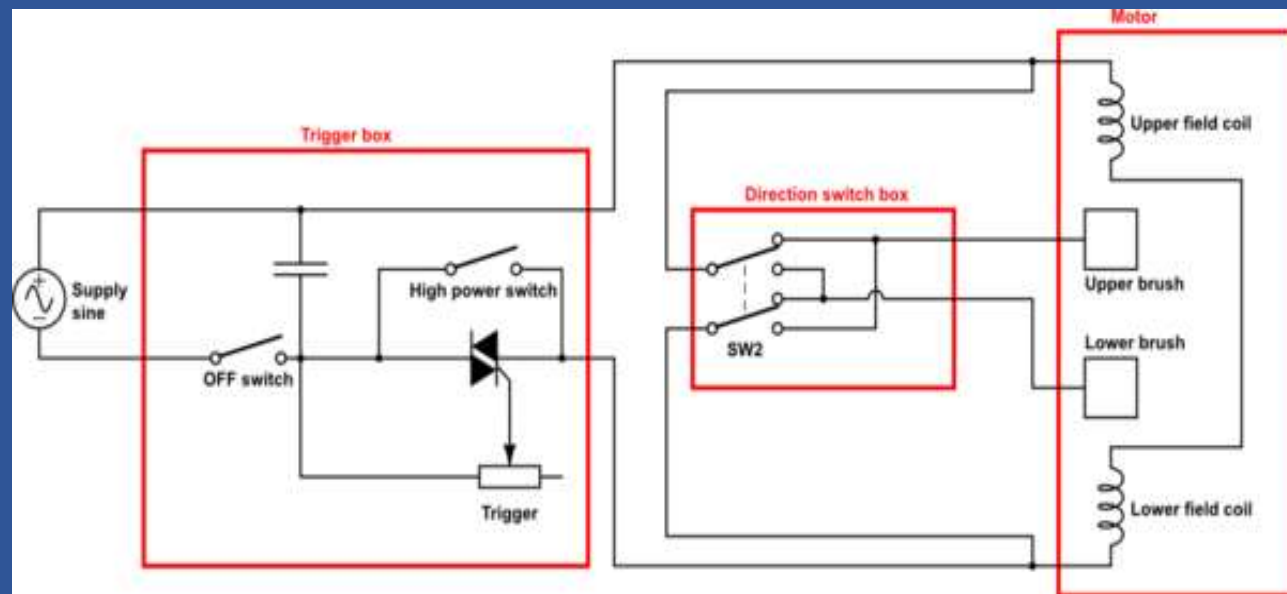
- 1. Power Drill – Resistors, Capacitors, Inductors**
- 2. Soil Moisture Sensor – Resistors, Inductors**
- 3. Motion Sensor Faucet – Resistors, Capacitors, Inductors**

Power Drill

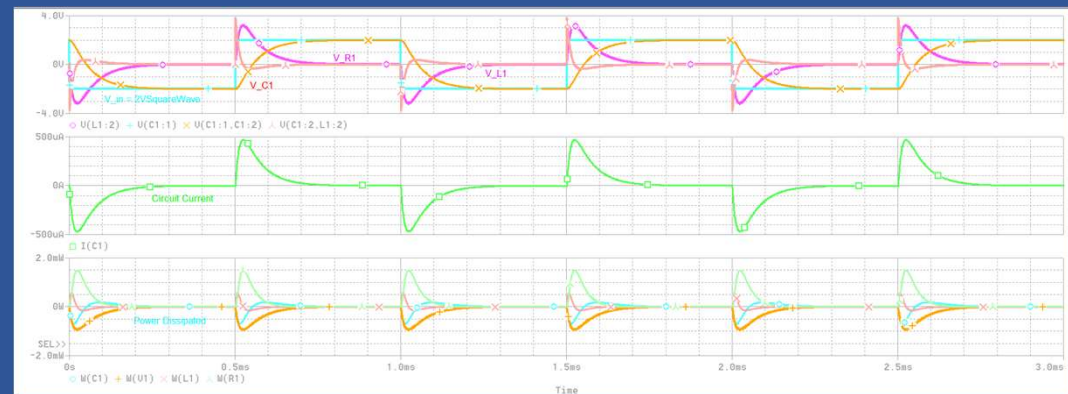
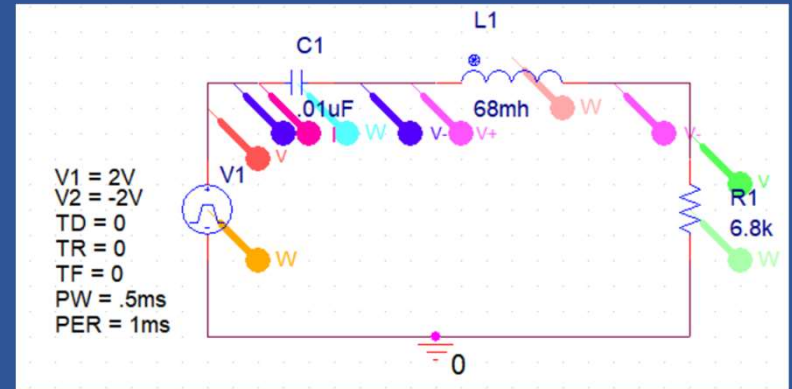
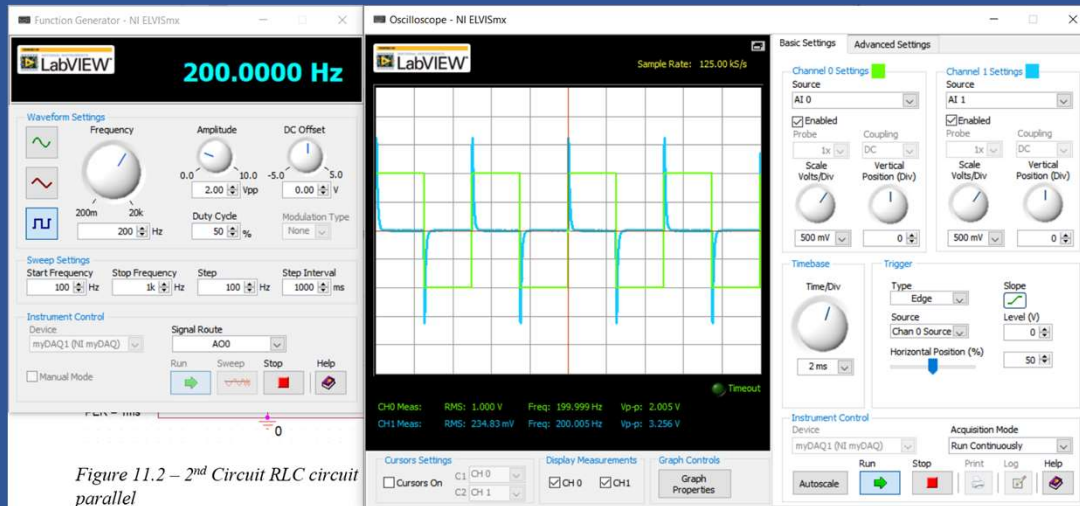


Power Drill Circuit

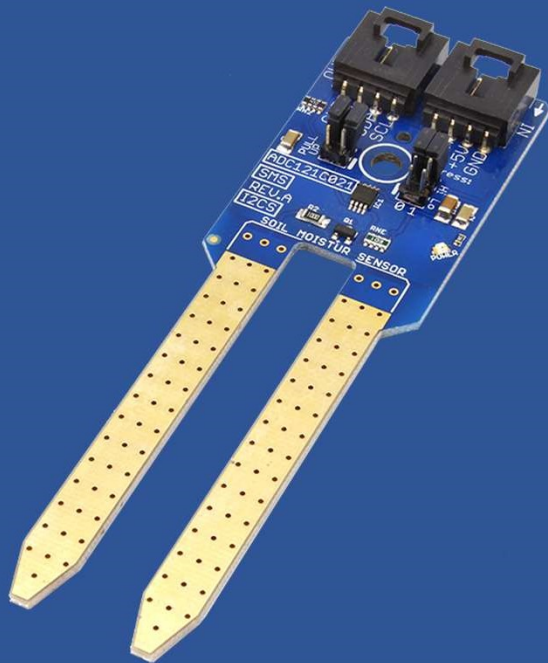
- The power drill is a tool that is used for many things in a construction setting
- It uses inductors and a power source to create a magnetic field that causes the motor in the drill to turn



Applications of RLC Circuits

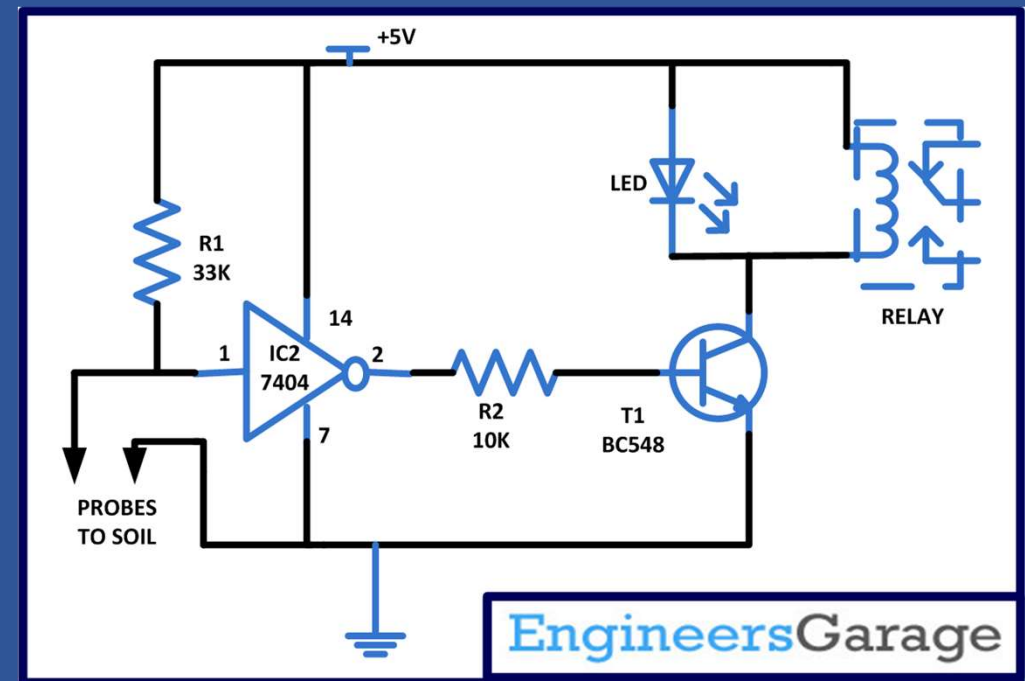


Soil Moisture Sensor

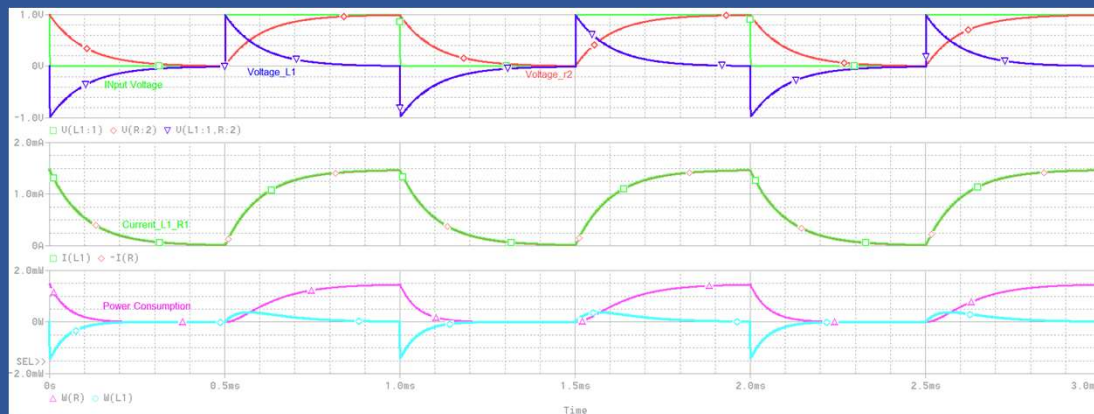
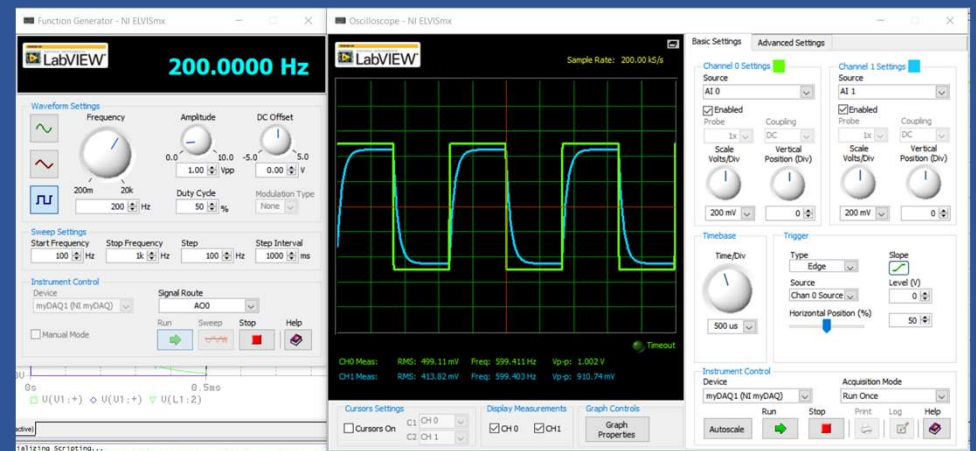
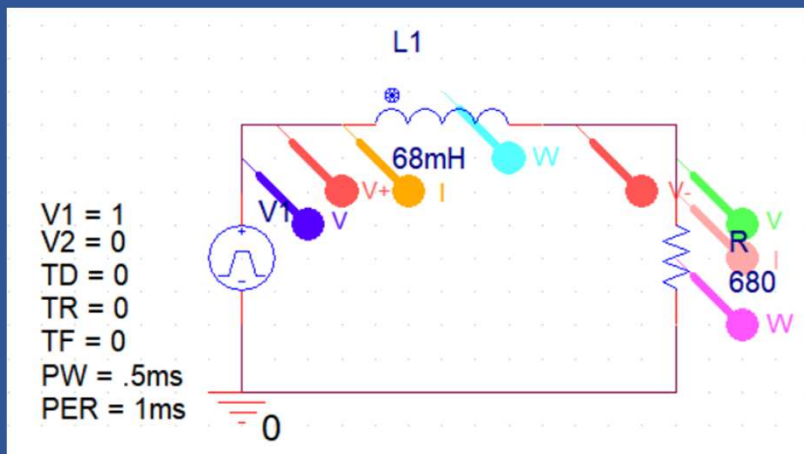


Soil Moisture Sensor Circuit

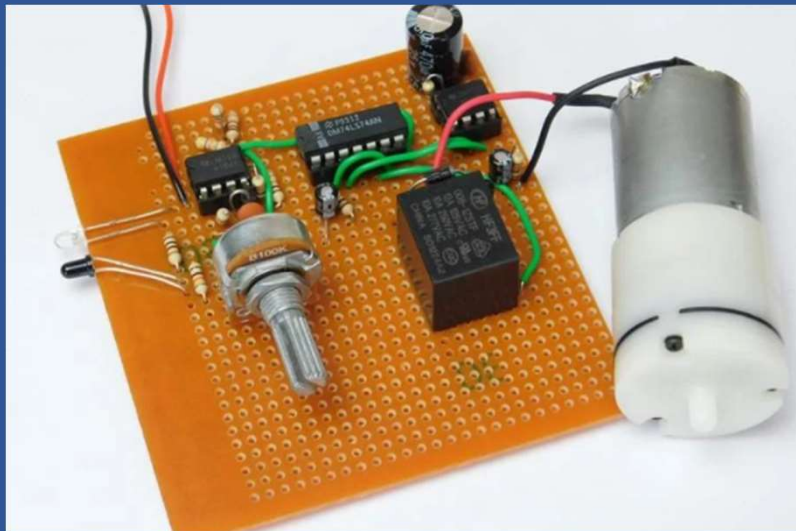
- A soil moisture sensor uses a small charge on the electrodes to measure electrical resistance. As water is used by plants the moisture decreases water is taken from the sensor and resistance increases
- In order to achieve this a soil moisture sensor uses a combination of resistors and inductors making it an RL circuit



Applications of RL Circuits

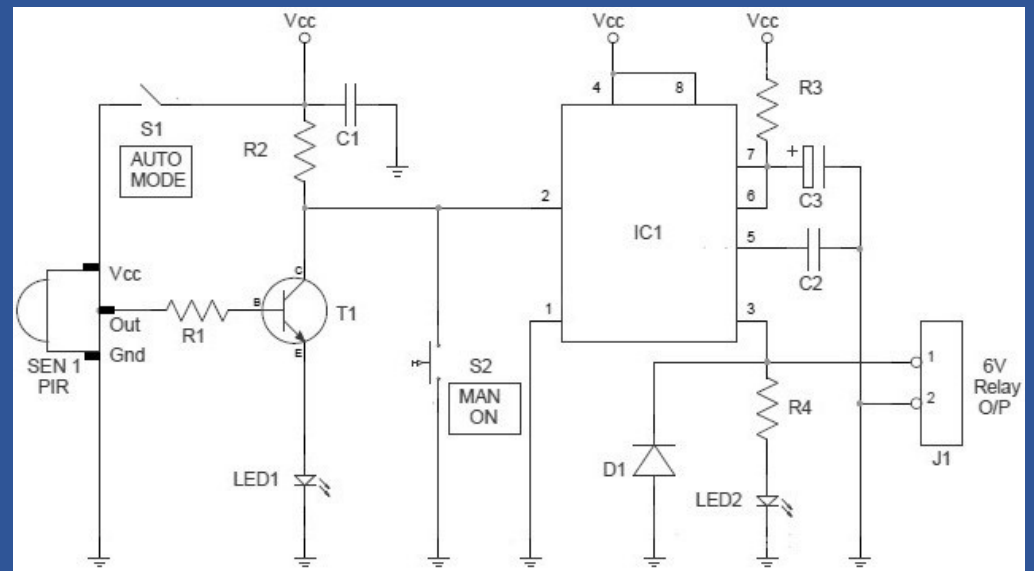


Motion Sensor Faucet

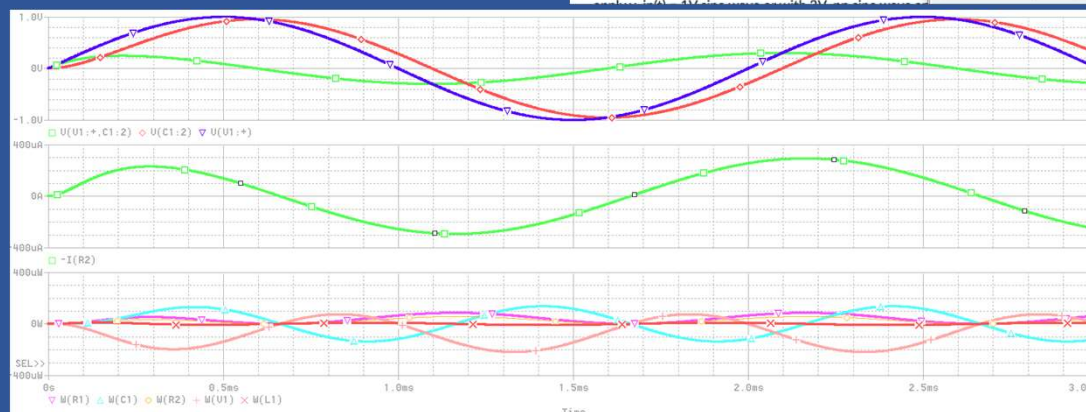
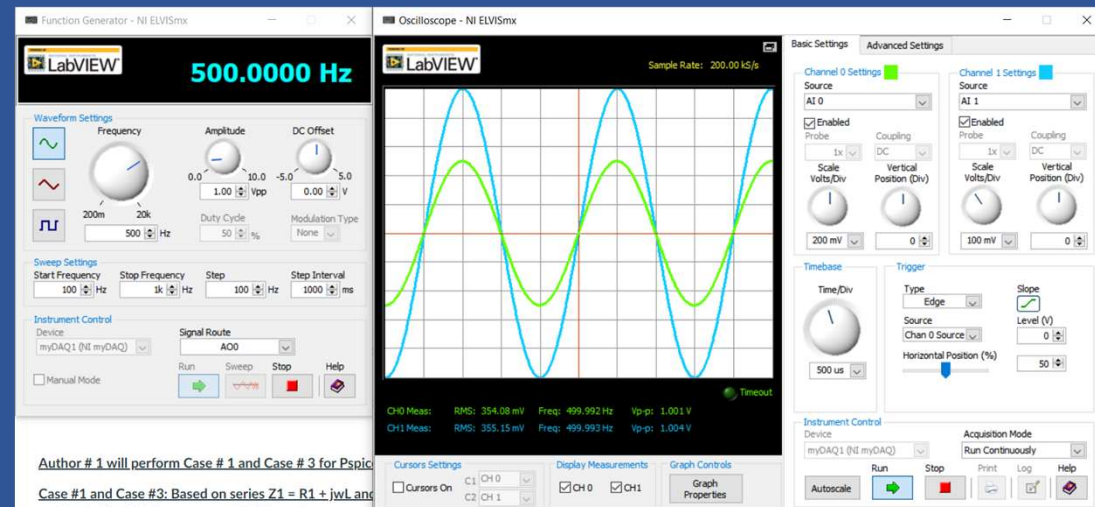
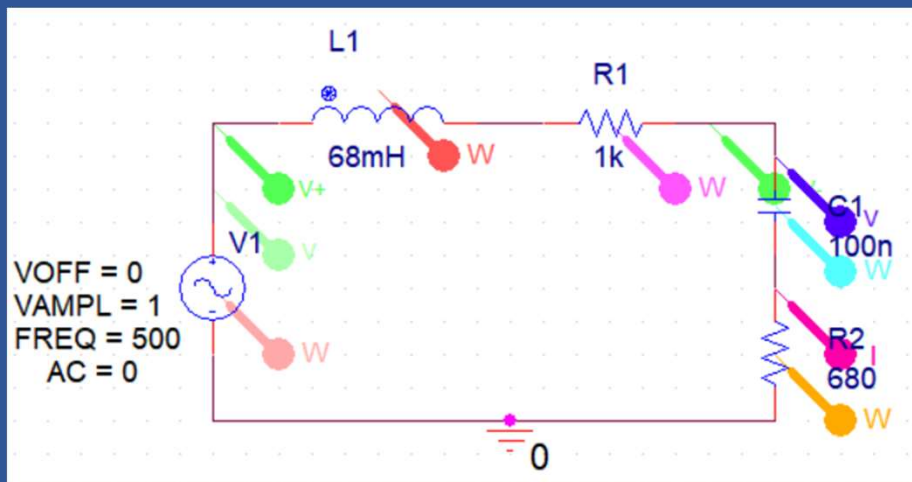


Motion Sensor Faucet Circuit

- The motion sensor in a faucet looks for motion to send signals that control the value of a solenoid that controls valves that control the flow of water
- The motion part of the faucet that controls the water uses inductors but in other parts of the schematic we can see resistors and capacitors making it a second order circuit



Applications of 2nd Order Circuits



References

- AC induction motors: How AC motors work. (2020, April 21). Retrieved December 05, 2020, from <https://www.explainthatstuff.com/induction-motors.html>
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