Assignment #5 – 555 Timer Project Design Verification

Grading Rubric

Spice Simulation (40 points)

The following must be included to receive full points:

- A schematic of your 555-timer design. This can be at minimum the 555-timer used in your design configured as monostable, bistable, or a-stable. However, the more of your circuit you can simulate the better off you will be (10 points)
- The schematic components are clearly labeled with realistic values (10 points)
- A simulated waveform of either voltage, current, or both, that provides evidence that your circuit is working as intended (20 points)

Breadboard Simulation (40 points)

The following must be included to receive full points:

- A functional bread board prototype. This can be at minimum the 555-timer used in your design configured as monostable, bistable, or a-stable. However, the more of your circuit you can simulate the better off you will be (20 points)
- Proof that your breadboard prototype works. This could take the form of an indicator LED, the waveform measured from an oscilloscope, etc. (20 points)

Report (20 Points)

The following must be included to receive full points:

- A PDF submitted containing the following:
    - An explain of how you verified your design (5 points)
    - An explanation of the input voltage source, actual components, and component types that you plan to use in your design, and whether this will differ from what you used in verification (example: in spice it was not indicated that my 9V power supply will be a battery, my breadboard design used THT components, but I plan to use SMD, etc.) (5 points)
    - An explanation of how your verification results prove that your design will function as intended (5 points)
    - Images of your schematic and simulated waveform or your breadboard and verification proof (5 points)

Late Submission Policy:

- All work submitted after the specified date and time deadline will receive a **30% deduction** penalty. An additional 30% deduction will also occur for **every class period that occurs** after the assignment deadline if the late assignment has not yet been submitted.