**I. Ticker Circuit Testing**

**Breadboard Synchronization Test**

**Description**: Attach a 500 ohm trimpot in series with a resistor (R1) to complete an RC circuit between the 555 and ground. The output of the 555 will be periodic, with a target period of 1.000 seconds. The targeted output will be achieved by adjusting the trimpot.

**Measurement**: The output will be tied to an input GPIO of an Arduino Nano. The input will be interrupt-triggered on each rising edge. The seconds will be counted and transmitted to the serial monitor along with system time stamps.

**Success Parameters**: If the milliseconds of the time stamps remain the same +/- 1 ms, then the calibration will be considered correct and the test successful.

**II. Alarm Circuit Testing**

**Alarm Trigger Test**

**Description:** The alarm circuit is attached to an output GPIO of the microcontroller. Whenever an alarm is triggered, the GPIO will be driven high, effectively turning on the alamar circuit.

**Measurement:** An alarm time will be programmed into an Arduino Nano. The current time will approach the alarm time until it arrives at the alarm time. This should trigger the alarm output GPIO of the Arduino Nano to be driven high, turning on the alarm circuit. The alarm circuit, when on, should produce an audible periodic beeping tone.

**Success Parameters:** This test will be a success if the alarm triggers when current time equals alarm time.

**Alarm Clear Test**

**Description:** The microcontroller will have a connection to a clear alarm button, which will be connected to an input GPIO. When triggered, it would turn the alarm output GPIO low, turning off the alarm. This alarm has a precondition of the alarm going off.

**Measurement:** This test's measurement will be the audible sound of the alarm tone. Again, an Arduino Nano will be used for this test.