Ticker test

This test is to verify the calibration of the ticker circuit.

The 555 timer IC is calibrated with an RC circuit. The period of the output should be exactly 1 second.

The output of the timer IC is attached to the input of the Arduino Nano, pin D2.

For this test, the Arduino serial monitor is used with a baud rate of 19200. Each rising edge of the ticker circuit triggers an interrupt on the Arduino that writes the new time to the serial monitor. Timestamps are enabled for this experiment. If the timestamp does not show an increasing/decreasing pattern, then we can conclude that the ticker is properly calibrated.

|  |  |  |
| --- | --- | --- |
| **Program Time** | **Timestamp** | **ms Differential** |
| 11:59:58 AM | 01.448 | 0 |
| 11:59:59 AM | 02.338 | -110 |
| 12:00:00 PM | 03.324 | -14 |
| 12:00:01 PM | 04.261 | -63 |
| 12:00:02 PM | 05.199 | -62 |
| 12:00:03 PM | 06.136 | -63 |
| 12:00:04 PM | 07.120 | -16 |

Clearly, some fine-tuning is required. The pot was dialed clockwise slightly.

|  |  |  |
| --- | --- | --- |
| **Program Time** | **Timestamp** | **ms Differential** |
| 12:01:50 PM | 00.620 | 0 |
| 12:01:51 PM | 01.621 | 1 |
| 12:01:52 PM | 02.621 | 0 |
| 12:01:53 PM | 03.623 | 2 |
| 12:01:54 PM | 04.624 | 1 |
| 12:01:55 PM | 05.627 | 3 |
| 12:01:56 PM | 06.635 | 8 |
| 12:01:57 PM | 07.639 | 4 |
| 12:01:58 PM | 08.623 | -16 |
| 12:01:59 PM | 09.654 | 31 |
| 12:02:00 PM | 10.638 | -16 |

The pot tuning seems a bit inprecise, and the design of the pot itself is flawed. I have placed an order for new pots that snap in more easily.