Instructions for Table Top Christmas Ornament (V2.2 : 9/30/2025):

The table top Christmas ornament, has been designed with a DFRobot Beetle Board (https://www.dfrobot.com/product-1075.html) as the controller. The Beetle Board is compatible with the Arduino Leonardo - ATmega32U4 programming tools. The ornament includes an LED string with 22 red, green, and blue LEDS. Each LED in the string is independently addressable. The Beetle board software is available at "https://www.gibsonsjewelry.com/other_projects.htm". Which you are free to download and modify however you wish, for software upgrades, or improvements, to the ornament.

If the ornament USB Type-A connector is attached to a personal computer USB port, the Arduino development tools can be used to modify and update the software installed in the ornament Beetle board. Otherwise, the ornament can be powered with a standard USB Type-A power adapter.

Ornament LED Operation:

1. When the ornament is first powered up, the LEDS will blink the Version and Revision of the software installed in the Beetle board. The initial version and revision is 2.2, so two long blinks in Green, and two short blinks in Blue.
2. The brass ball of the ornament is attached to an internal potentiometer, that allows turning the pot a total of 300 degrees. So slightly less than one full turn. Turning the ball allows the various LED modes to be selected. Please don't attempt to turn the brass ball past the pot limits.
3. The ornament is originally set up to operate in ten different LED modes. When the ball is turned fully clockwise, the LEDS are OFF and the ornament mode is set to the default, Mode-1. To select the LED mode, rotate the brass ball fully clockwise. Then turn the ball slightly counter-clockwise until the Red LED blinks. Leaving the brass ball in this position will cause the LEDS to blink in order. When the desired mode indicator LED blinks, rotating the brass ball further counter-clockwise will select that mode. If the brass ball is turned fully clockwise, and then rotated counter-clockwise past the LED mode select point, the LED mode will be set to run in LED Mode-1.

   LED MODES:

   1. Mode-1 : Looping Through LED Modes 3 through 6 : The ball position controls how long each mode runs, from ~10 seconds to ~60 seconds.
   2. Mode-2 : Looping Through LED Modes 3 through 10 : The ball position controls how long each mode runs, from ~10 seconds to ~60 seconds.
   3. Mode-3 : Rainbow - Marching Colors Cycle : The ball position controls the LED brightness. Included in Mode-1 and Mode-2.
   4. Mode-4 : Rainbow - Marching Colors Cycle - Slower Version : The ball position controls the LED brightness. Included in Mode-1 and Mode-2.
   5. Mode-5 : Steady Slow Hue Fade : The ball position controls the LED brightness. Included in Mode-1 and Mode-2.

LED MODES (continued):

6. Mode-6 : Steady Fast Hue Fade : The ball position controls the LED brightness. Included in Mode-1 and Mode-2.
7. Mode-7 : Shooting Star Animation : The ball position controls the tail length, the shooting star speed, and the LED brightness. Included in Mode-2.
8. Mode-8 : Bouncing LED Animation : The ball position controls the bounce speed and the LED brightness. Included in Mode-2.
9. Mode-9 : Beat Sine Wave with Dual Racing LEDS : The ball position controls the number of LEDS lit and the LED brightness. Included in Mode-2.
10. Mode-10 : Beat Sine Wave with Dual Racing LEDS and Blur Effect : The ball position controls the number of LEDS lit and the LED brightness. Included in Mode-2.

The desktop ornament stand with brass riser is weighted with 4 oz. of lead-free weights in the bottom of the base, for improved stability. The stand allows the ornament and USB cable to be removed, to allow the ornament to be hung by the cable, instead of being a desk-top ornament.