**Binary Counter**

**User Instructions**

**Introduction:**

This binary counter is an attempt to help students understand the relationship between binary numbers and base ten numbers. It uses 8 leds, each representing a bit of the whole byte, and displays the corresponding base ten value on the seven segment module. Through the use of several switches, the arduino microcontroller is used to control the execution of the counting system.

**Manual Mode:**

1. Set Mode Switch to manual position.
2. Set Power Switch to on.
3. Increment counter by pressing the Manual Pushbutton.
4. To reset, see reset instructions below.

**Semi-Automatic Mode:**

1. Set Mode Switch to manual position.
2. Set Power Switch to on.
3. Increment counter by pressing and holding the Manual Pushbutton.
4. To reset, see reset instructions below.

**Automatic Mode:**

1. Set Mode Switch to automatic position.
2. Set Power Switch to on.
3. Counter will increment automatically.
4. To reset, see reset instructions below.

**Museum Mode:**

1. Set Mode Switch to automatic position.
2. Set Power Switch to on.
3. Press and hold the Manual pushbutton for 5 seconds.
4. Push the Manual pushbutton to increment the counter.
5. If the Manual pushbutton is not clicked for 10 seconds, counter will increment automatically.
6. To exit museum mode, flip the mode switch.

**Reset Mode:**

1. Ways to reset counter:
   1. Switch the Mode Switch
   2. Switch the Power Switch
2. The reset mode is indicated by all the leds flashing on and the seven segment displays 255 then off and the seven segment displays 0 twice.