Functional Block Diagram

Arduino Nano

Power (9V battery) via 2-state flip switch

2-state pushbutton switch

Counter Function

LED mode

LED Function

white LED output

C/C++ code which increments a counter each time button is pressed (regardless of if switch causes LOW → HIGH or HIGH → LOW transition). Counter will count from 0 to 4, and reset back to 0 after counting to 4.

C/C++ code which outputs PWM wave to a pin to vary brightness via analogWrite function (used for LED modes 0-3,). For mode 4, will use millisecond time comparisons to change light's state if light has been in current state for ≥ 250ms (2Hz).

LED Mode	Effect
0	off
1	bright
2	intermediate
3	low
4	flashing bright @ 2Hz

1 press: 0 → 1; 1 press: 1 → 2; 1 press: 2 → 3; 1 press: 3 → 4; 1 press: 4 → 0

* Note: If possible, might try to create flashing functionality independent of light brightness. Ex: light at intermediate brightness, double press switch quickly to enable flashing at intermediate brightness, double press again to disable flashing

Battery State Function

(if time permits) C/C++ code to determine what percentage of battery is still available

tri-color LED output

green = 70 - 100%

blue = 40 - 70%

red = 0 - 40%