

## **TI-30x Pro Calculator Lighting Unit Project Report**

Tyson Eastep

June 15, 2025

## TI-30x Pro Calculator Lighting Unit Project Report

### Project Expectations and Requirements:

- Provide lighting for calculator in low-light conditions
- Remain portable / No external power
- Not damage or interfere with calculator functions

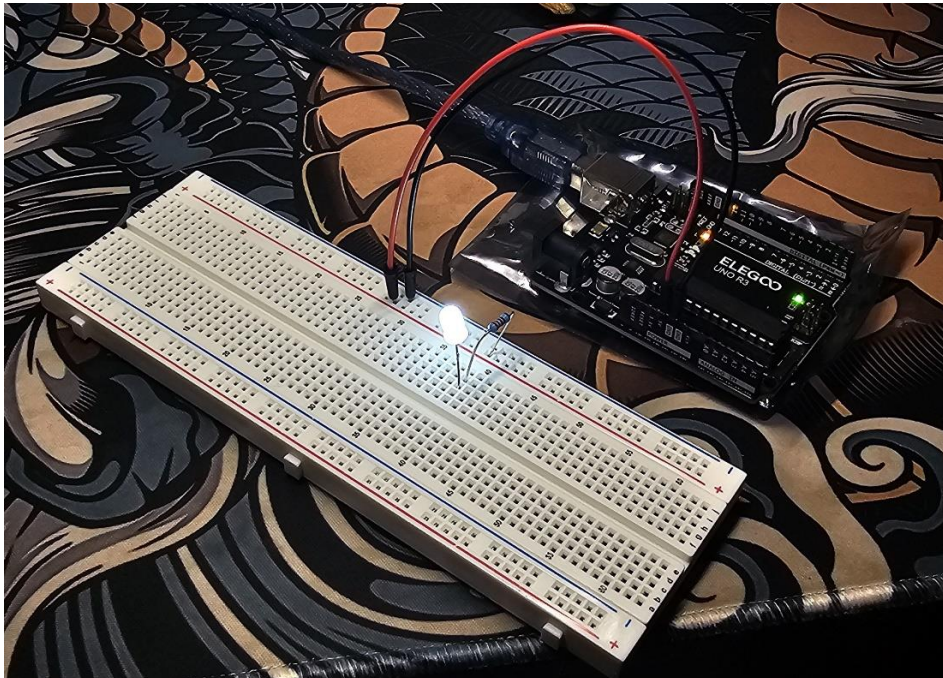
### Revision 1: Arduino Component Test

Mock-up/Prototype of desired functionality utilizing Arduino starter kit components and tutorial code.

#### Equipment:

- Arduino UNO R3
- USB Type A to Type B Cable
- 830 Tie Points Breadboard
- (2) x M-M Wires (Male to Male Jumper wires)
- White LED
- 220 Ohm Resistor

#### Images:



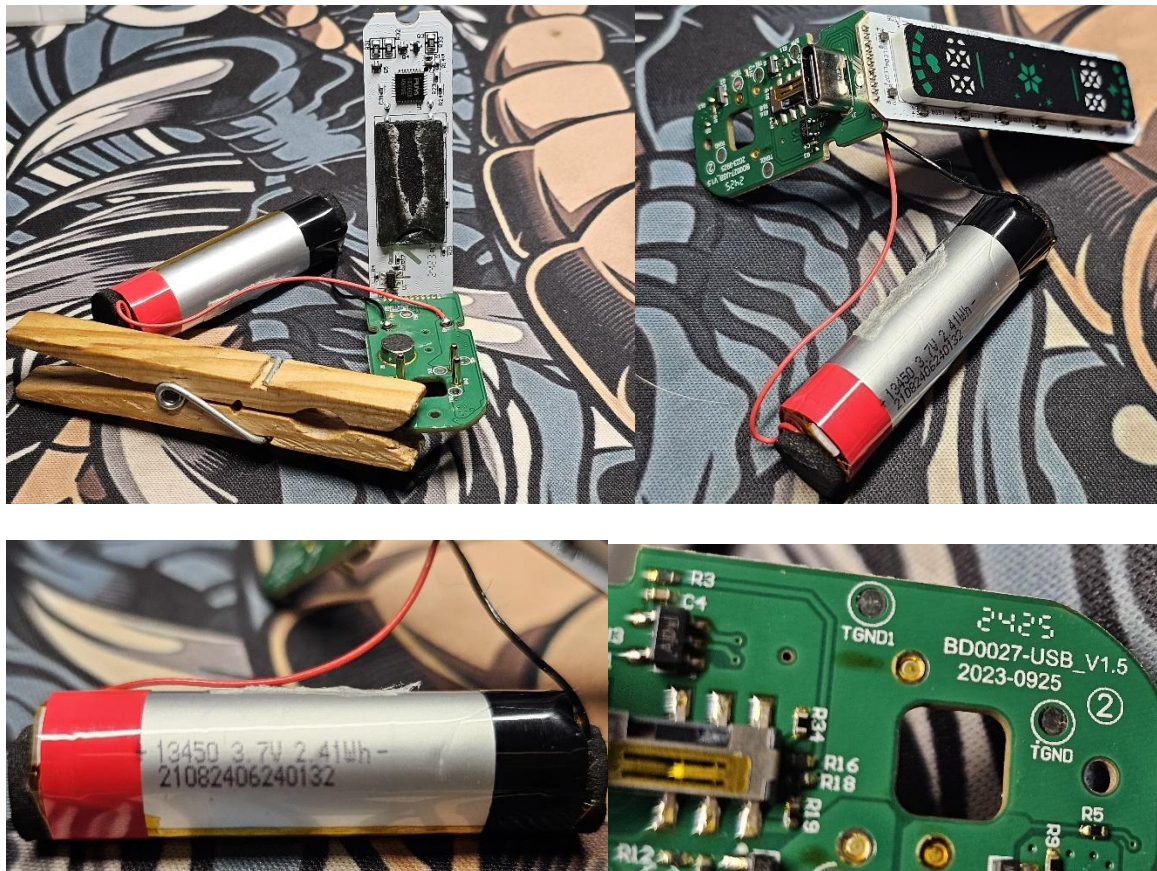
## Revision 2: Repurposed Vaporizer Components

Mock-up/Prototype of desired functionality with the inclusion of scavenged vaporizer components.

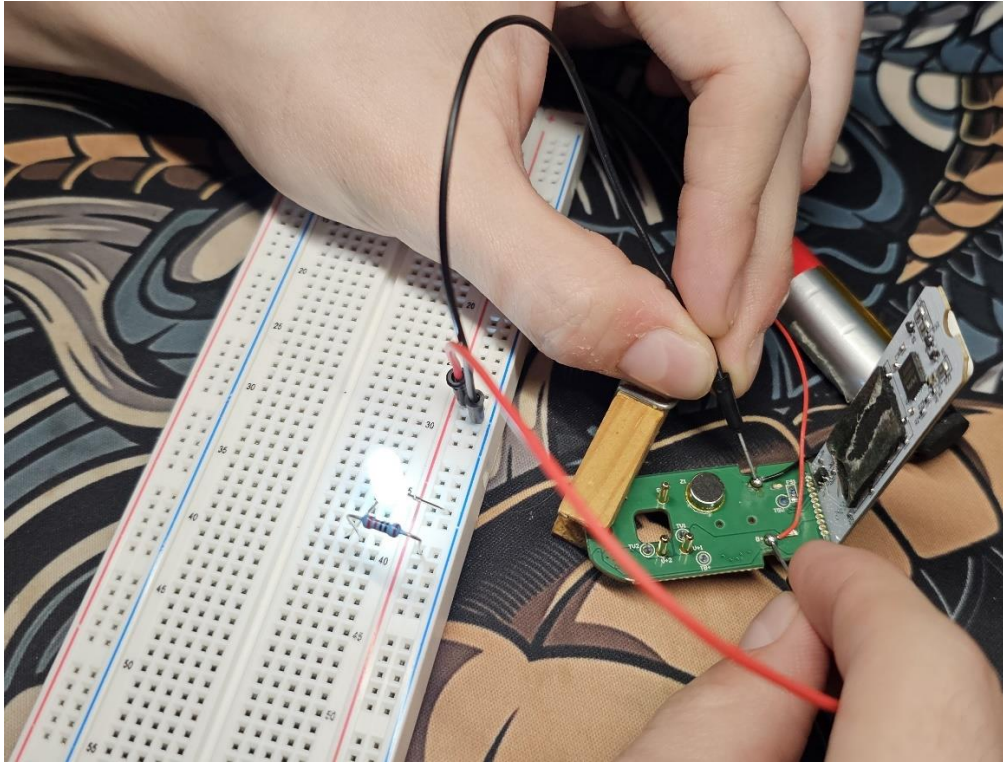
Equipment:

- 830 Tie Points Breadboard
- (2) x M-M Wires (Male to Male Jumper wires)
- Scavenged Battery Cell, USB C Charge Controller, LED Display – PCB Board
- White LED
- 220 Ohm Resistor

Images:







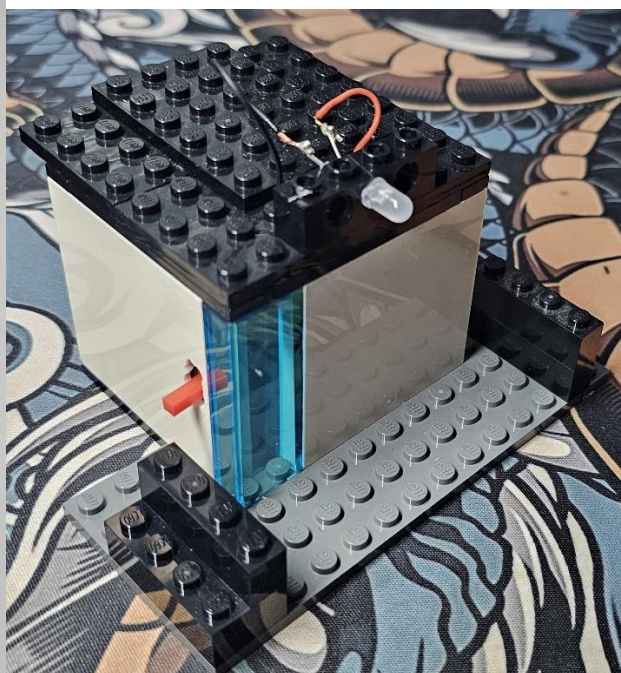
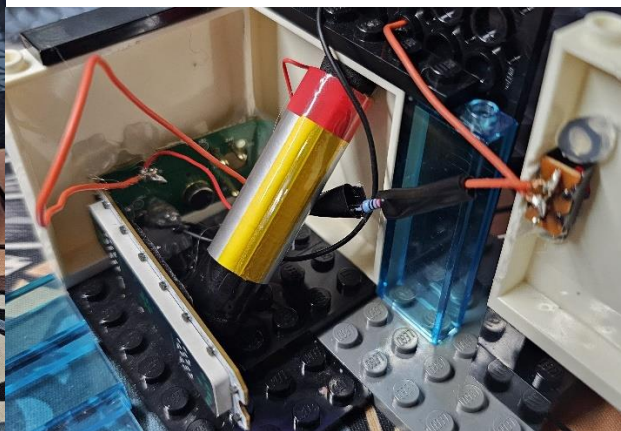
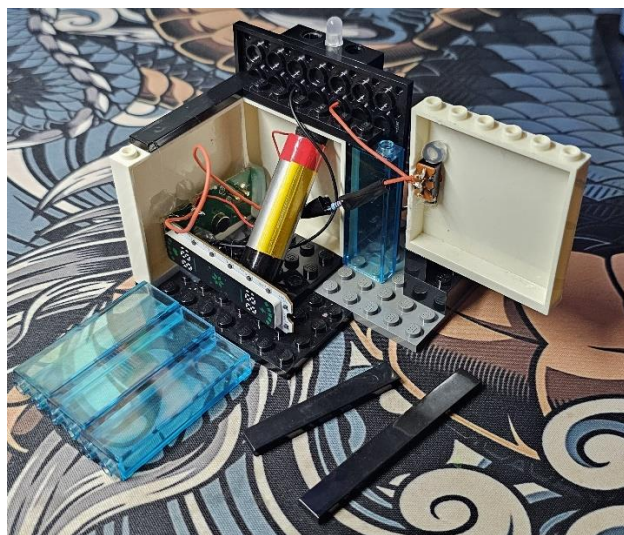
### Revision 3: Final Design – Component Incorporation with LEGO Housing

Final mock-up/prototype of desired functionality and components incorporated into a LEGO enclosure.

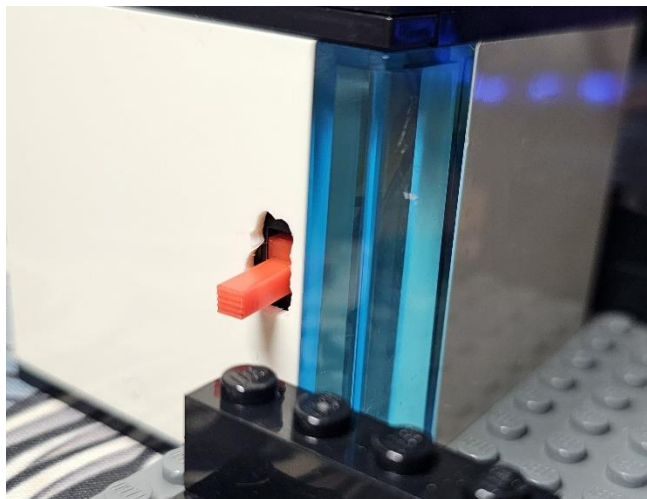
Equipment:

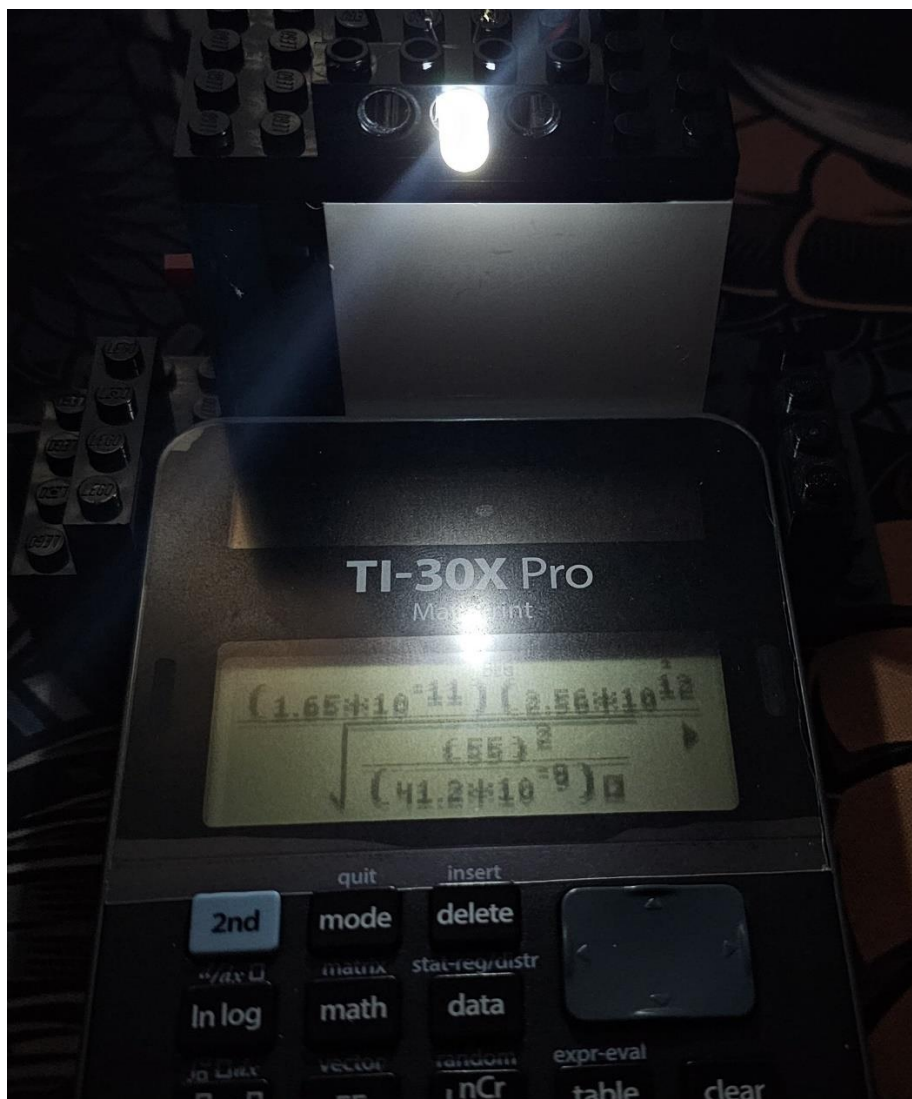
- White LED
- 220 Ohm Resistor
- Scavenged Battery Cell, USB C Charge Controller, LED Display – PCB Board
- Scavenged Two-Way Switch from Hobby Lobby RC Car
- Black & Red ~22 AWG Wire
- Electrical Tape
- Hot Glue
- Various LEGO's

Images:









**Further Thoughts / Future Additions & Changes:**

The current form of the design works well and solves the problem that it was intended to solve. While I would like to make changes, these changes would mostly be cosmetic, and to do with how the system attaches to the actual calculator. The cosmetic and structural changes that I wish to implement would be accomplished efficiently with the use of a 3D printer; but as of now, that will have to wait. The 3D printer would also be beneficial in altering the design of the calculator mounting system in order to accommodate a pressure fit system to reduce movement and increase stability.