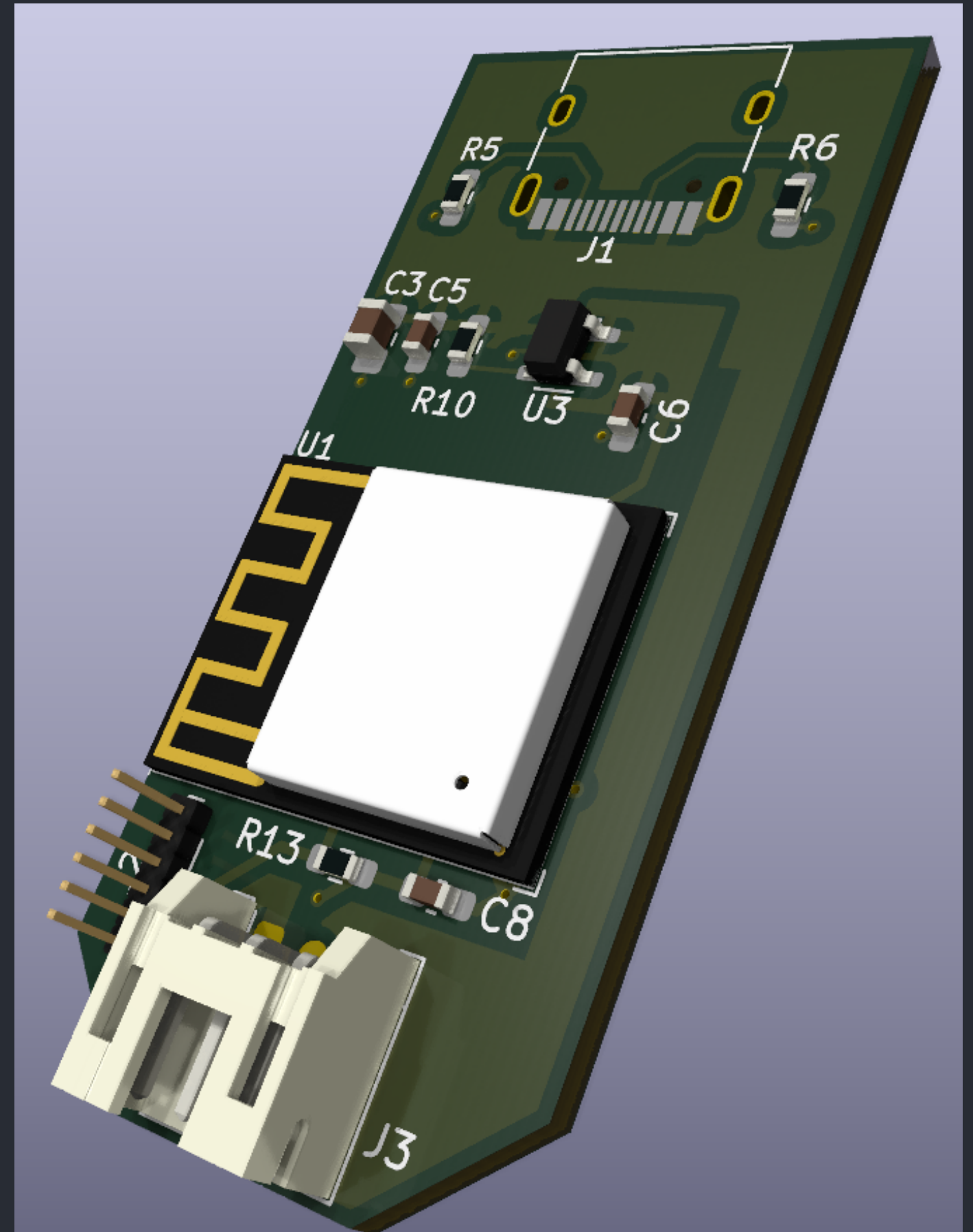


LED Controller

Features:

- ESP32-C3 Controller
- WiFi & Bluetooth Connectivity
- JST-PH Output Connector
- USB-C Connector
- WLED Compatible



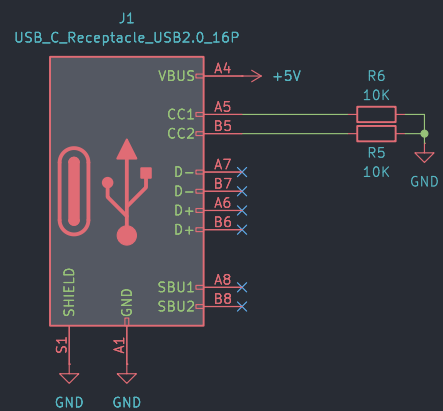
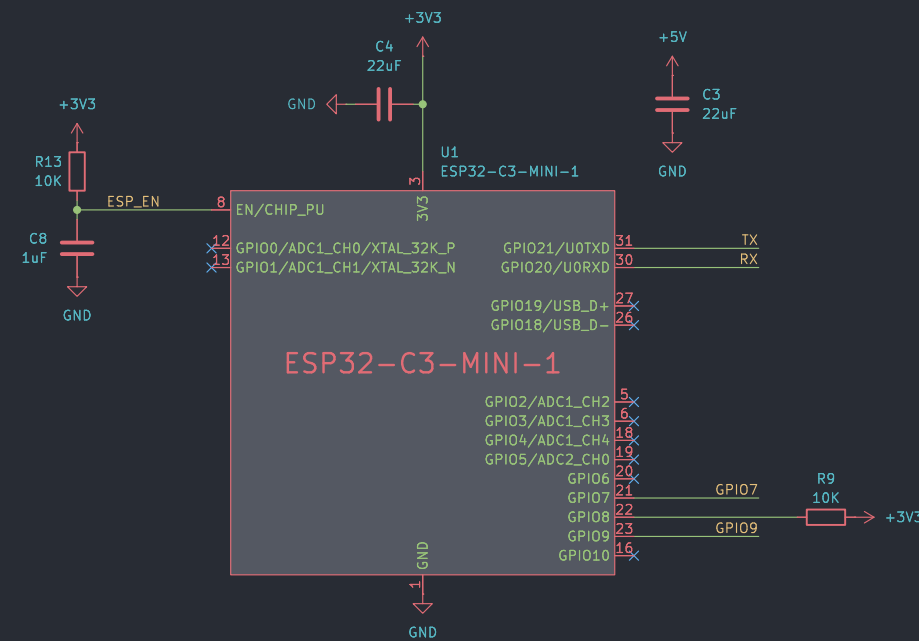
Board Name	Revision	Date	Sheet Title & File Name	Page	Size
LED Controller <small>harexew.com // github.com/harexew</small>	2	2024-12-24	Stamblatt /	1/8	A3

Table of Contents

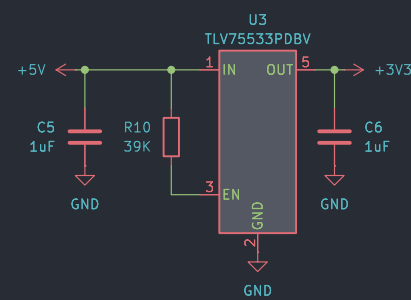
<i>Section</i>	<i>Page</i>
1. Schematics	3
2. Pinout	4
3. Board Outline	5
4. Layout	6
5. PCB Structure	7
7. Renders	8

Board Name	Revision	Date	Sheet Title & File Name	Page	Size
LED Controller <small>harexew.com // github.com/harexew</small>	2	2024-12-24	Table of Contents /Table of Contents/	2/8	A3

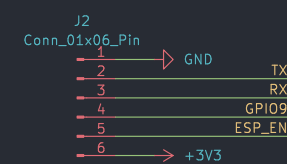
Schematics



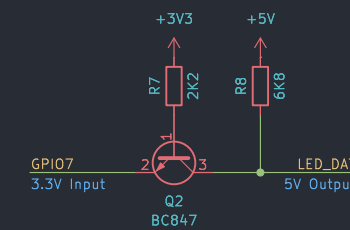
USB-C Port



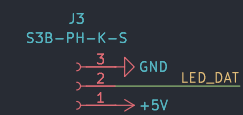
3.3V Power Supply



Programming Port



3.3V → 5V
Level Shifter



LED Connector

Board Name	Revision	Date	Sheet Title & File Name	Page	Size
LED Controller harexew.com // github.com/harexew	2	2024-12-24	Schematic /Schematic/	3/8	A3

Pinout

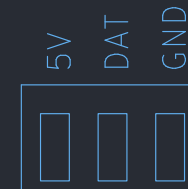
Programming Port

- GND
- TX
- RX
- I09
- EN
- 3.3V

Pin Header (Not Populated)
1 x 6
1mm Pitch

Pins:
 GND – Ground
 TX – UART Transmit Pin of MCU
 RX – UART Recieve Pin of MCU
 I09 – GPIO9 of MCU
 EN – Chip Enable of MCU
 3.3V – 3.3V Supply for MCU
 (Disconnect when powering over USB)

LED Port



JST-PH Socket
1 x 3
2mm Pitch

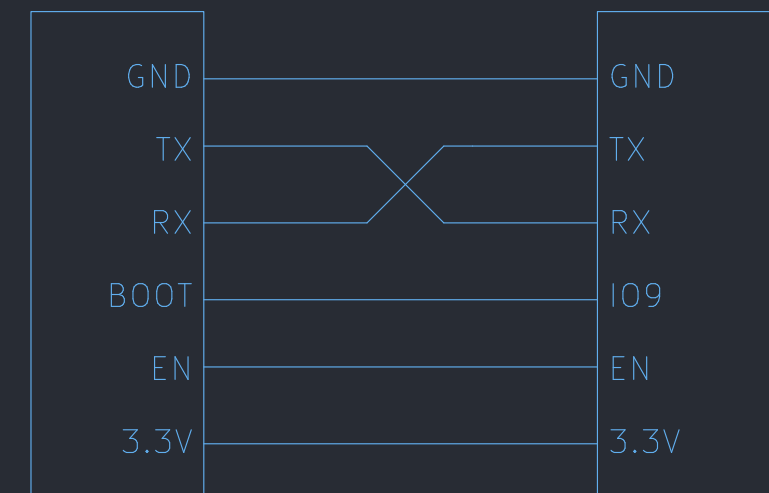
Pins:
 5V – 5V Supply for LEDs, Maximum 2A
 DAT – Data line for LEDs
 GND – Ground

Components:
 Socket: JST S3B-PH-K-S
 Plug: JST PHR-3

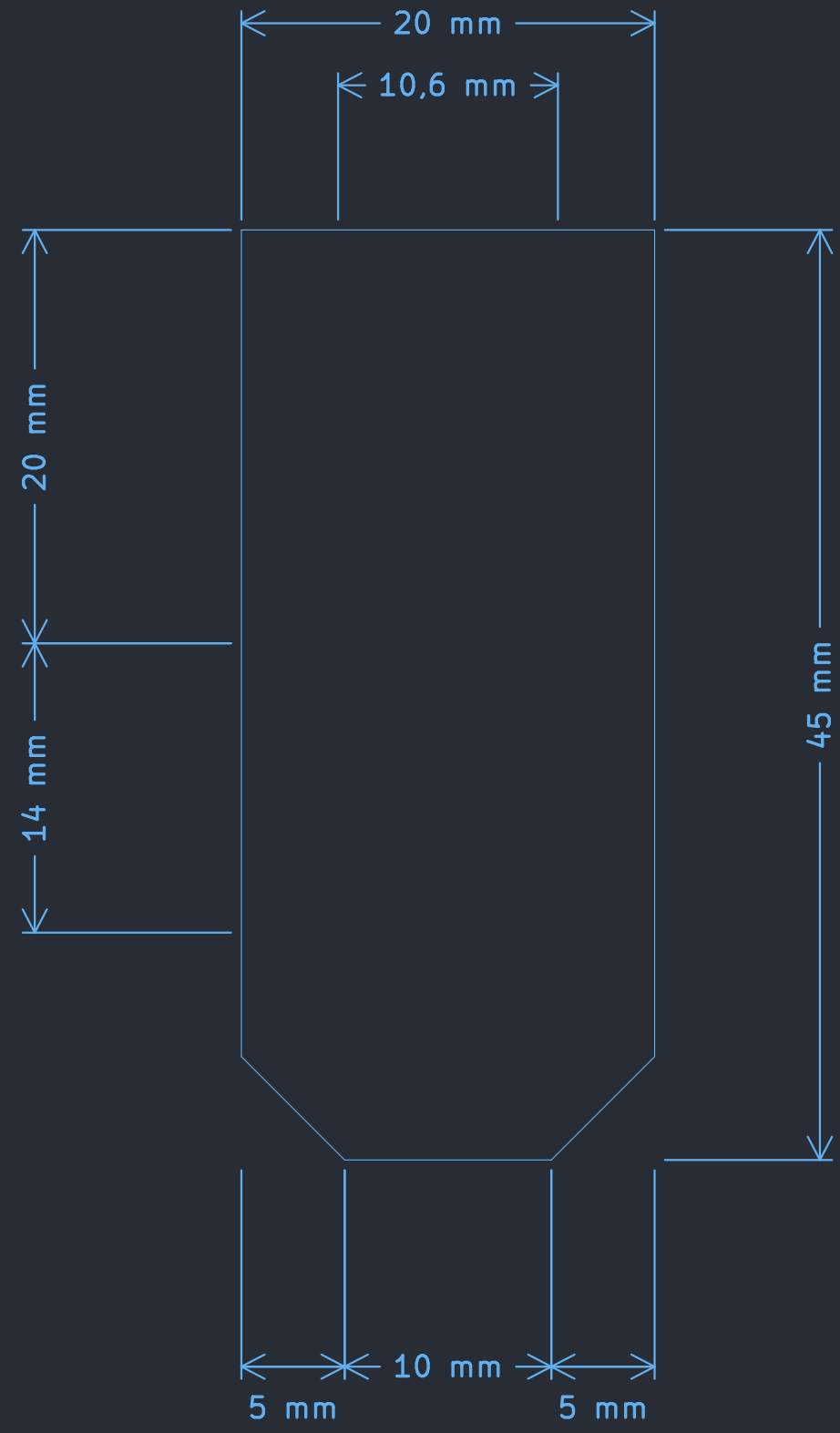
Connection to Programmer

Programmer

Board



Board Outline

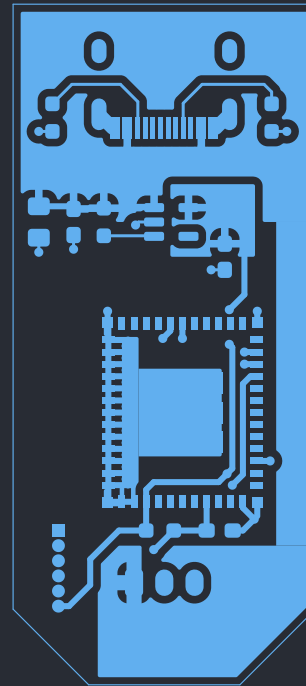


Scale 1:3

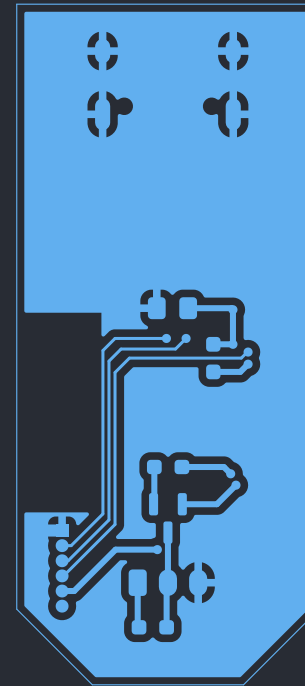
Board Name	Revision	Date	Sheet Title & File Name	Page	Size
LED Controller horexew.com // github.com/horexew	2	2024-12-24	Board Outline /Board Outline/	5/8	A3

Layout

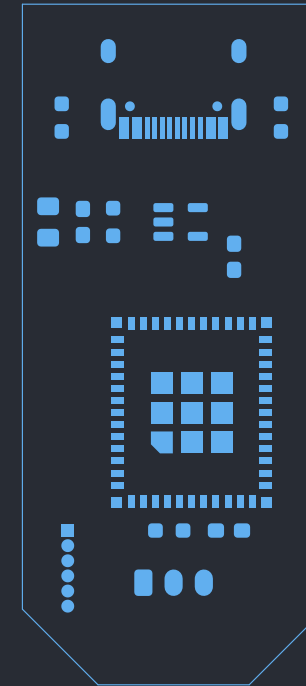
Front



Back



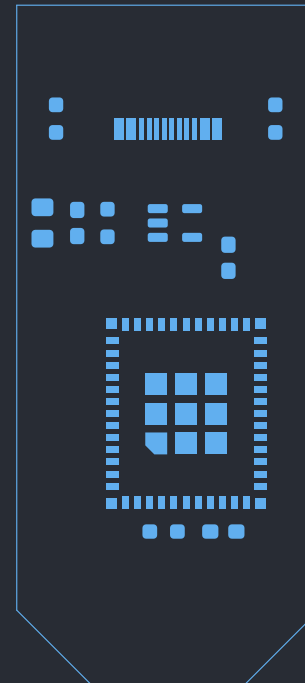
Front Mask



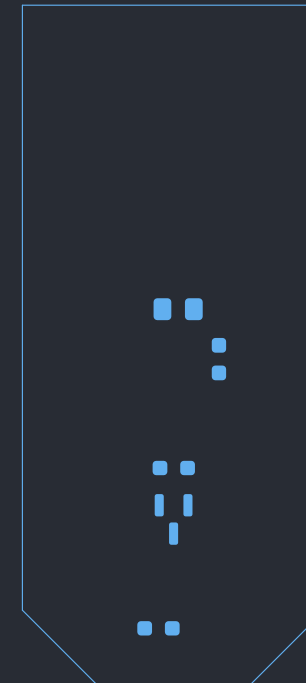
Back Mask



Front Paste



Back Paste



Scale 1:2

Board Name	Revision	Date	Sheet Title & File Name	Page	Size
LED Controller harexew.com // github.com/harexew	2	2024-12-24	Layout /Layout/	6/8	A3

PCB Structure

- PCB Thickness: 1.6mm
- Layers: 2

Layer	Thickness	Material
Front Mask	10 μ m	
Front	35 μ m	Copper
Dielectric	1,51mm	FR4
Back Cu	35 μ m	Copper
Back Mask	10 μ m	

Board Name

LED Controller

horexew.com // github.com/horexew

Revision

2

Date

2024-12-24

Sheet Title & File Name

PCB Structure
/PCB Structure/

Page

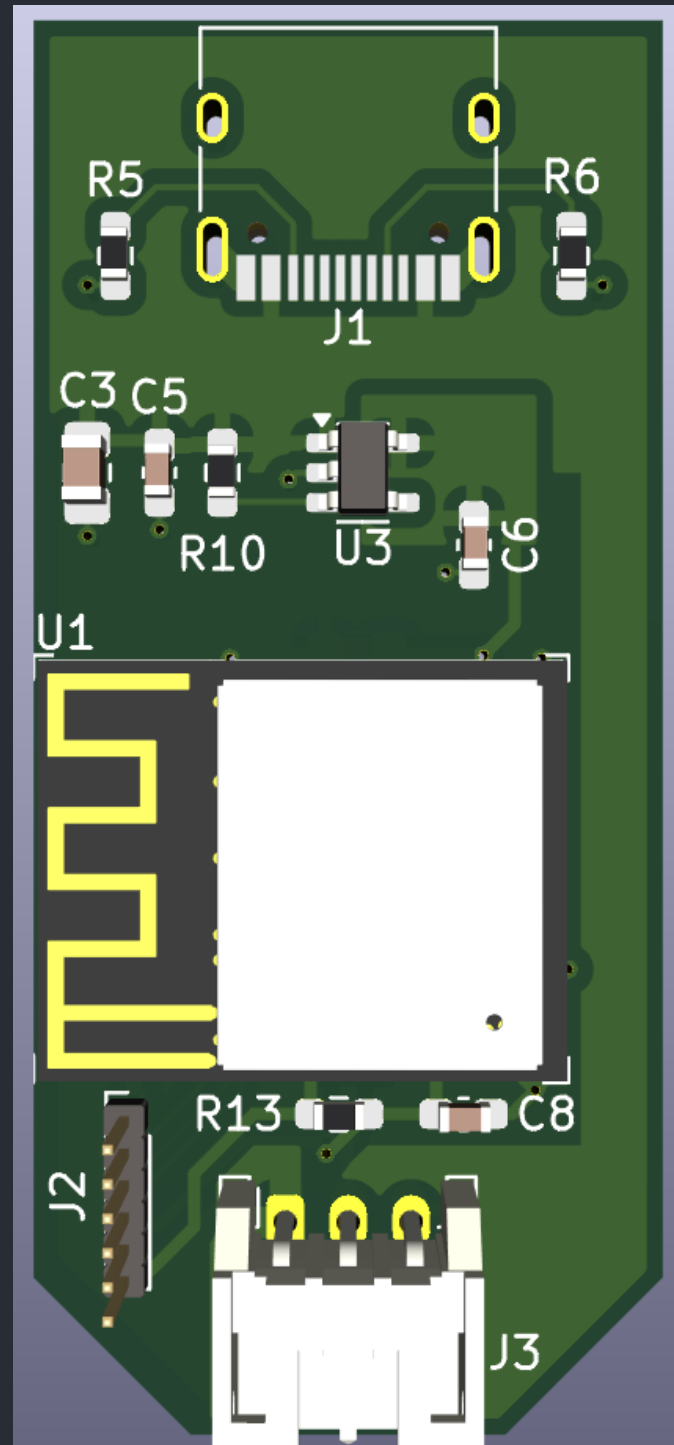
7/8

Size

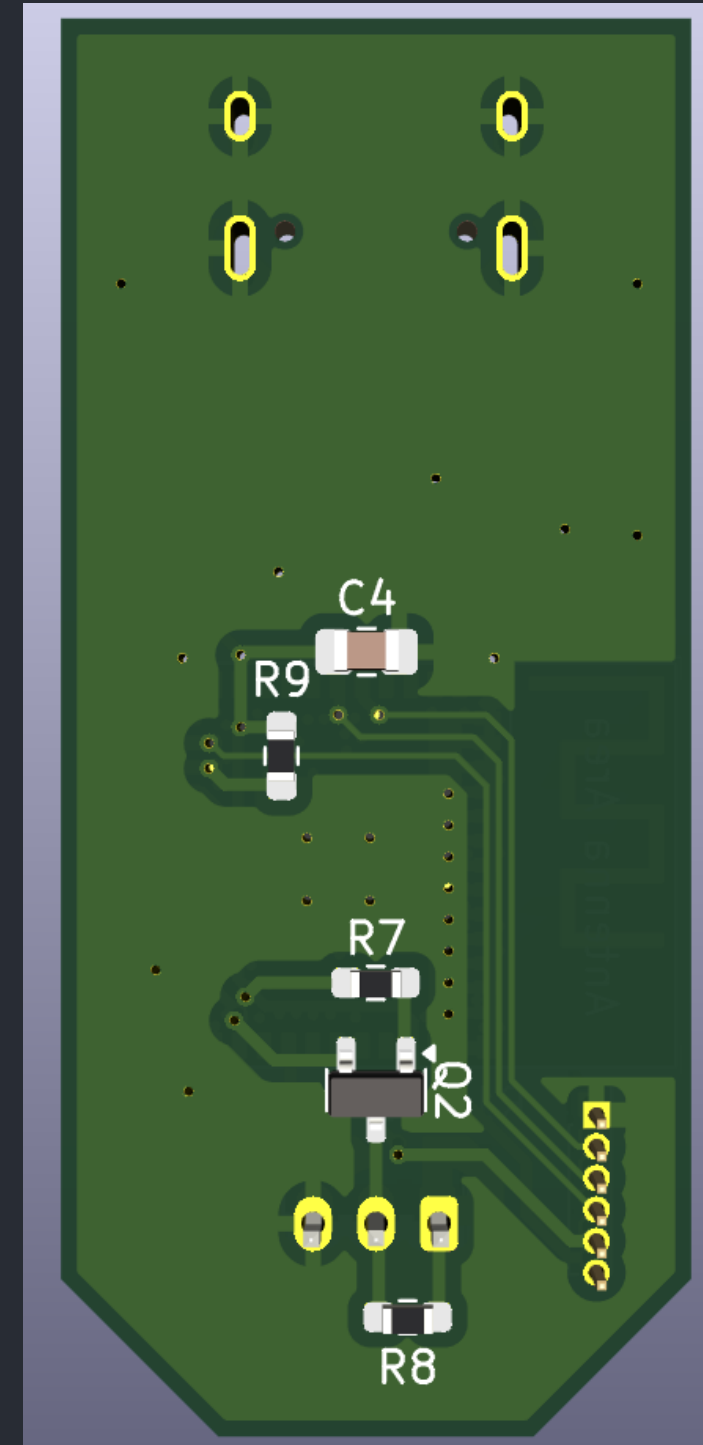
A3

Renders

Front



Back



Board Name	Revision	Date	Sheet Title & File Name	Page	Size
LED Controller harexew.com // github.com/harexew	2	2024-12-24	Renders /Renders/	8/8	A3