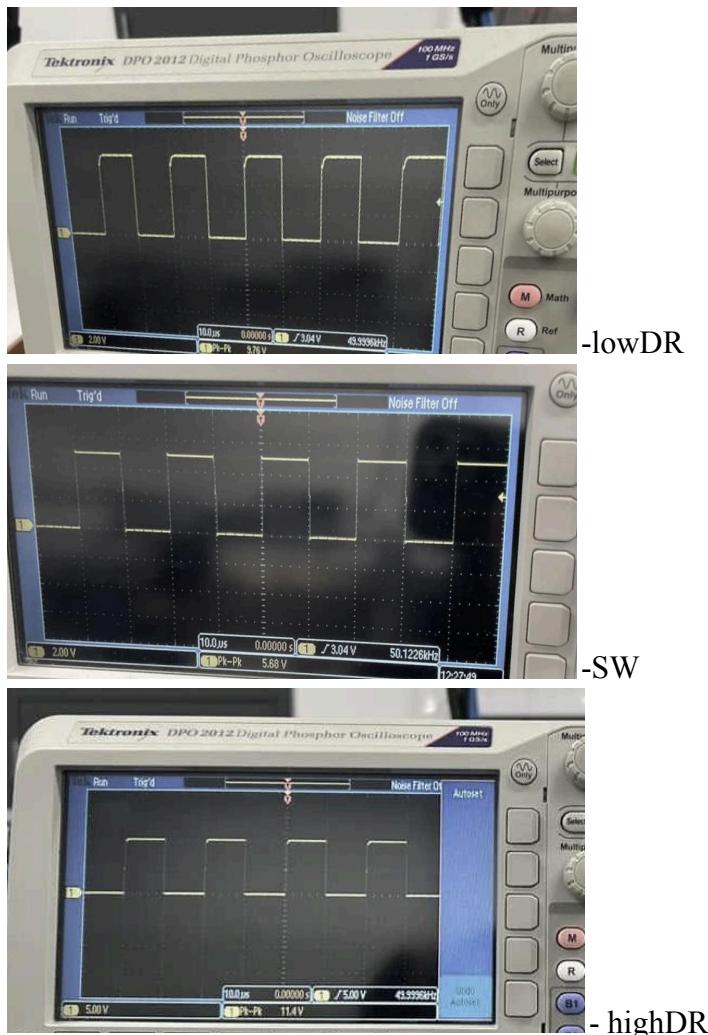
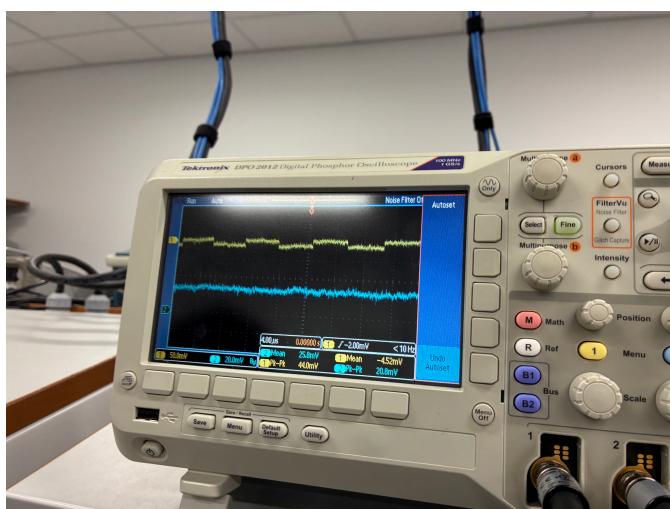


Lab Submission:

1. Task #1



2. Task #2



Vary the frequency of PWM between 50 kHz to 100 kHz and note any changes on Vout.

As the frequency varies between 50 kHz and 100 kHz, the output was smoother at a higher frequency, but Vout does not change by a large margin.

Vary the duty cycle of PWM. How does this change Vout?

Vout changes by both increasing and decreasing with the duty cycle.

3. Task #3

How much current is flowing through the current sense resistor?

The current flowing through the current sense resistor is:

$$V_{in}=6V \rightarrow V = 6.4mV \rightarrow I = V/R = 13mA$$

Scale Vin up to 16V and note how the current and voltage output changes.

When scaling Vin up, the output voltage and current both increase.

$$V_{in}=16V \rightarrow V = 8mV \rightarrow I = V/R = 16mA$$

Note the relationship between Vout and OPAMP_OUT.

OPAMP_OUT and Vout have a linear relationship. OPAMP_OUT changes the duty cycle and is therefore proportional to Vout.

Soldered Board:

