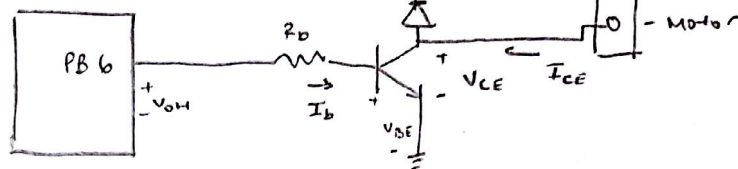


Lab 10 DC Motor

PWM Output



TIP120: $h_{fe} = 1000$, $I_c = \text{Max } 3A$

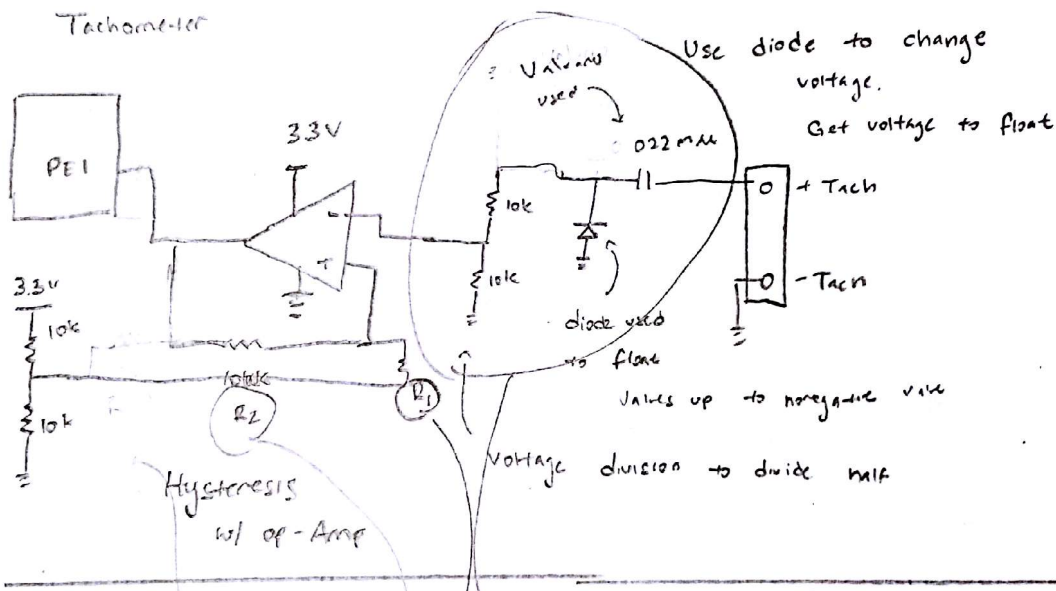
$$R_b \leq \frac{(V_{OH} - V_{BE})}{I_b}, \quad I_b = \frac{I_c}{h_{fe}} = \frac{3A}{1000} = 3mA$$

↖ datasheet

$$R_b \leq \frac{(3 - 2.5)}{0.003} \leq 167\Omega$$

Pick resistance less than 167Ω , $R_b = 100\Omega$

Tachometer



$$\Delta V = 3.3 \cdot \frac{R_1}{R_1 + R_2}$$

Adjust R_2 or R_1 accordingly

$V_{IH} = 2.0$
 $V_{IL} = 1.5$

$R_2 = 100k$
 $R_1 = 10k$

TM4C

Input Range.

Diode clamper:

Shifts values up

