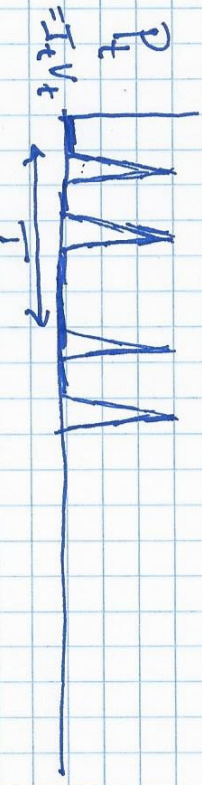
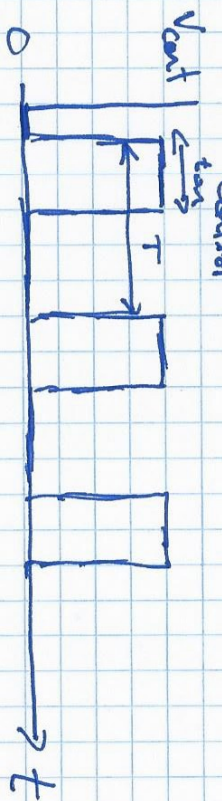
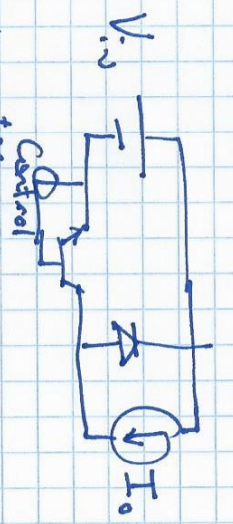


Real transistors & Power $t_{ri} \uparrow \downarrow, t_{fv} \uparrow \downarrow$

Consider Buck / Simplified



$$\langle P_t \rangle = \frac{1}{T} \int_0^T I_D V dt = \frac{\text{area under curve}}{T}$$

$$= \frac{1}{T} \left(\frac{1}{2} \frac{I_o V_{in}}{\text{width}} (t_{ri} + t_{fv}) + \frac{1}{2} I_o V_{in} (t_{on} + t_{fi}) \right)$$