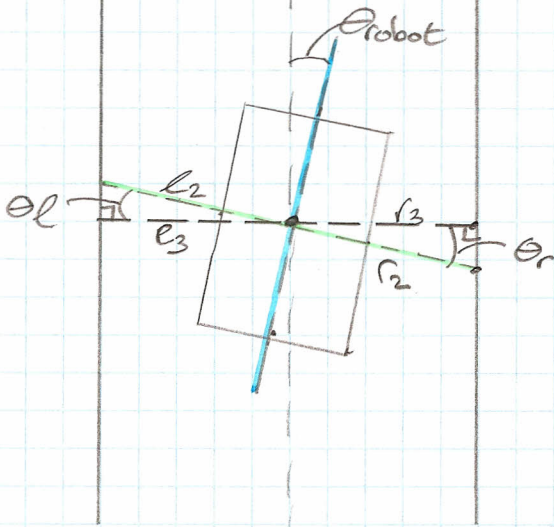


$$\text{corridor_width} = l_3 + r_2$$

$$\text{center_line} = \text{corridor_width} / 2$$



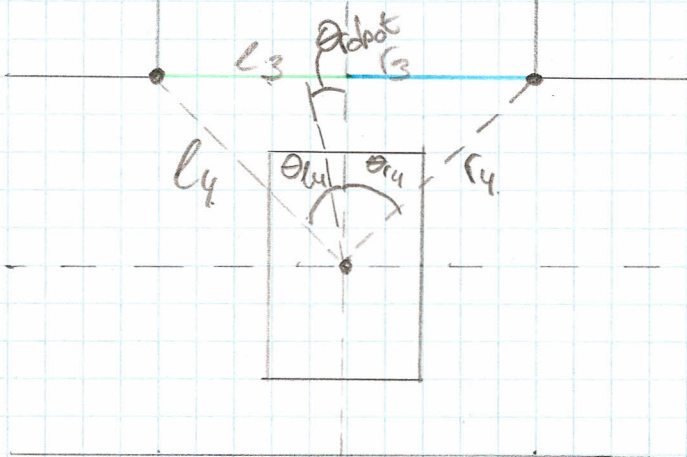
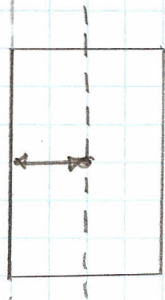
$$\theta_{\text{robot}} = \theta_3 - \theta_{r_2}$$

if $r_3 < l_3$

$$\text{current_x} = \text{center_line} - r_3$$

else

$$\text{current_x} = \text{center_line} - l_3$$



$$r_3 = r_4 \cos(\theta_{r_4})$$

$$l_3 = l_4 \cos(\theta_{u_4})$$

$$\text{corridor_width} = r_3 + l_3$$

$$\theta_{\text{robot}} = -1(\theta_{r_4} + \theta_{u_4})$$