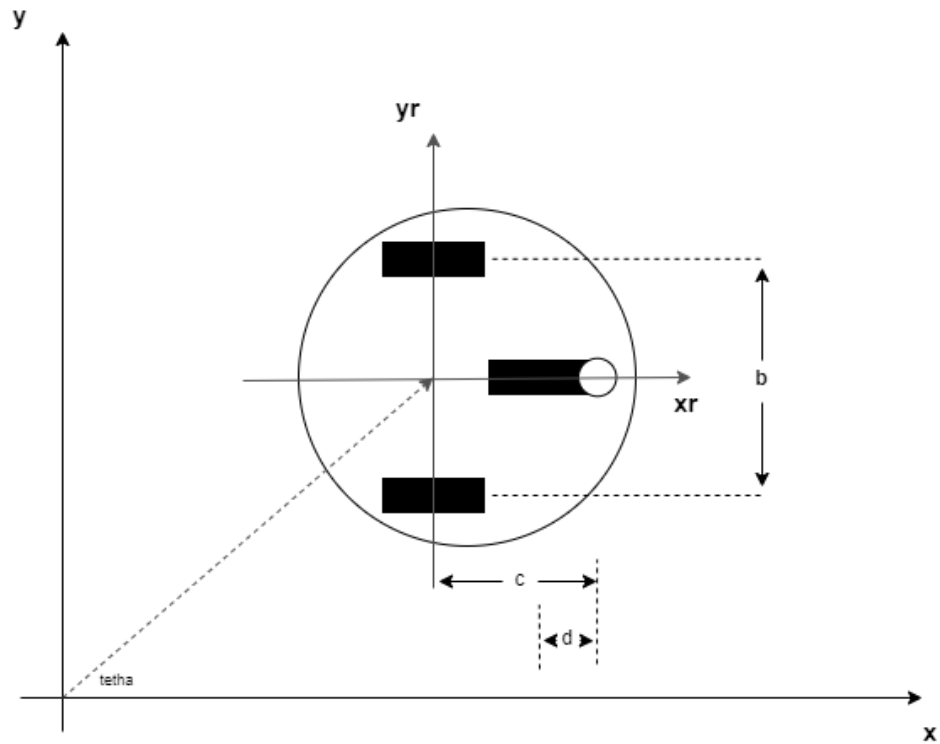
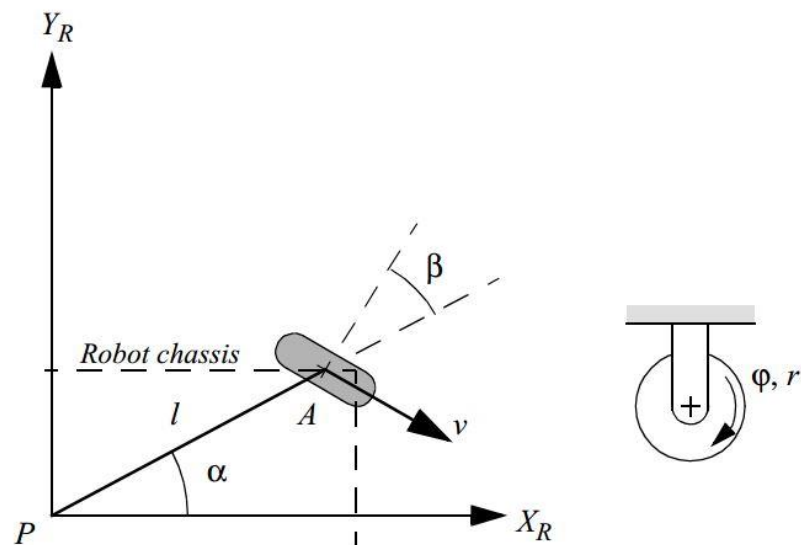


ROBÔ PIONEER



- Roda Padrão Fixa



- Roda Direita:

$$\varphi_r = -90^\circ$$

$$\alpha_r = 180^\circ$$

$$l_r = \frac{b}{2}$$

$$\begin{bmatrix} 0 & 1 & 0 \end{bmatrix} ({}^I R_R)^T \cdot q' = 0$$

$$\begin{bmatrix} 1 & 0 & \frac{b}{2} \end{bmatrix} ({}^I R_R)^T \cdot q' = w_r \cdot r_r$$

- Roda Esquerda:

$$\varphi_l = 90^\circ$$

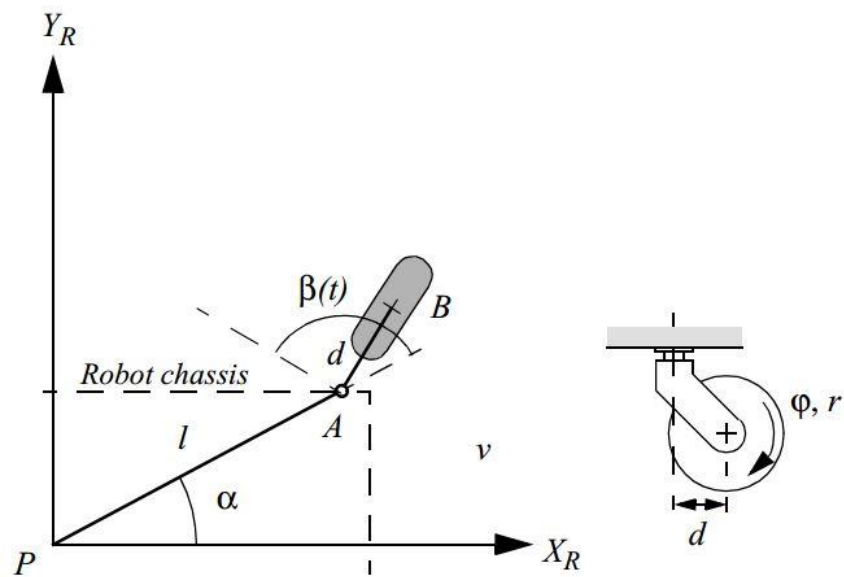
$$\alpha_l = 0^\circ$$

$$l_l = \frac{b}{2}$$

$$\begin{bmatrix} 0 & 1 & 0 \end{bmatrix} ({}^I R_R)^T \cdot q' = 0$$

$$\begin{bmatrix} 1 & 0 & -\frac{b}{2} \end{bmatrix} ({}^I R_R)^T \cdot q' = w_l \cdot r_l$$

- Roda Castor:



$$\begin{aligned}\varphi_c &= 0^\circ \\ \alpha_c &= t \\ l_c &= c \\ d_c &= d\end{aligned}$$

$$\begin{aligned}[\cos(t) \quad \sin(t) \quad d + c.\sin(t)]({}^1R_R)^T.q' &= -d.\dot{t} \\ [\sin(t) \quad -\cos(t) \quad -c.\cos(t)]({}^1R_R)^T.q' &= w_c.r_c\end{aligned}$$