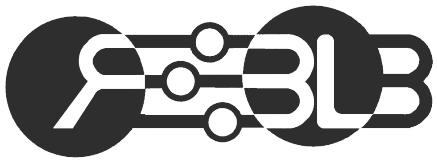

Trabajo Voluntario 1

Introducción a la Robótica Inteligente

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18 de febrero de 2022

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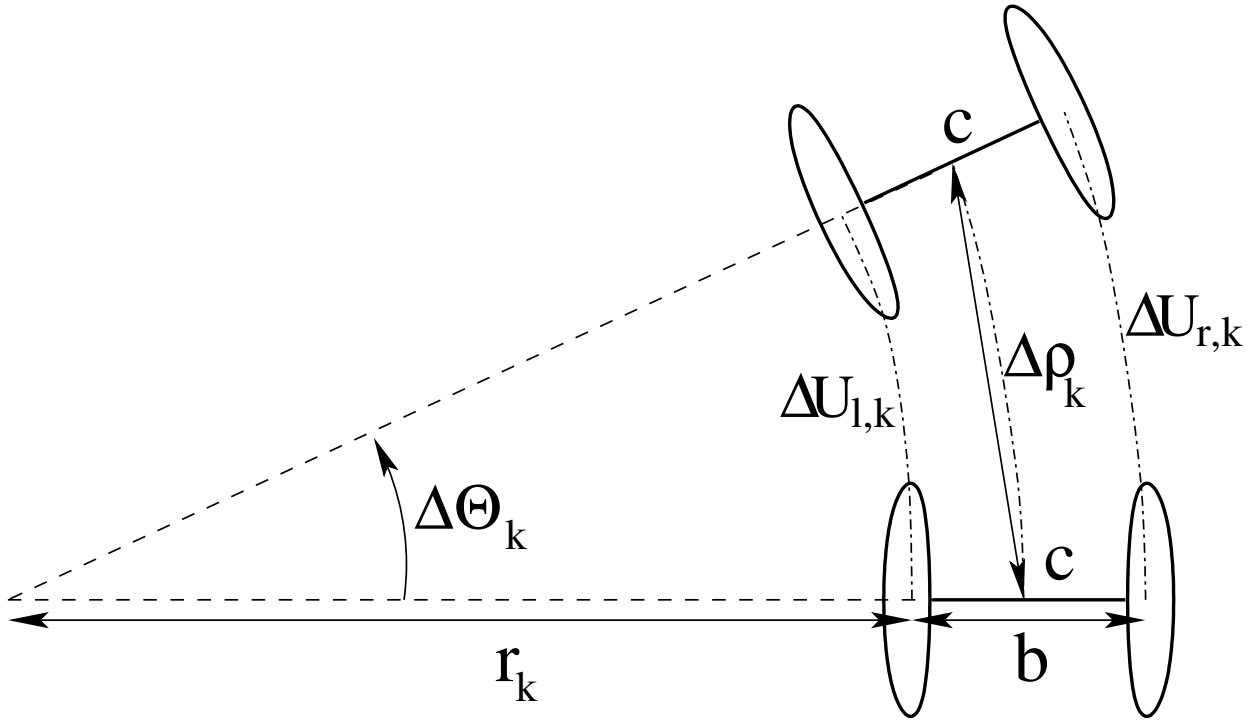
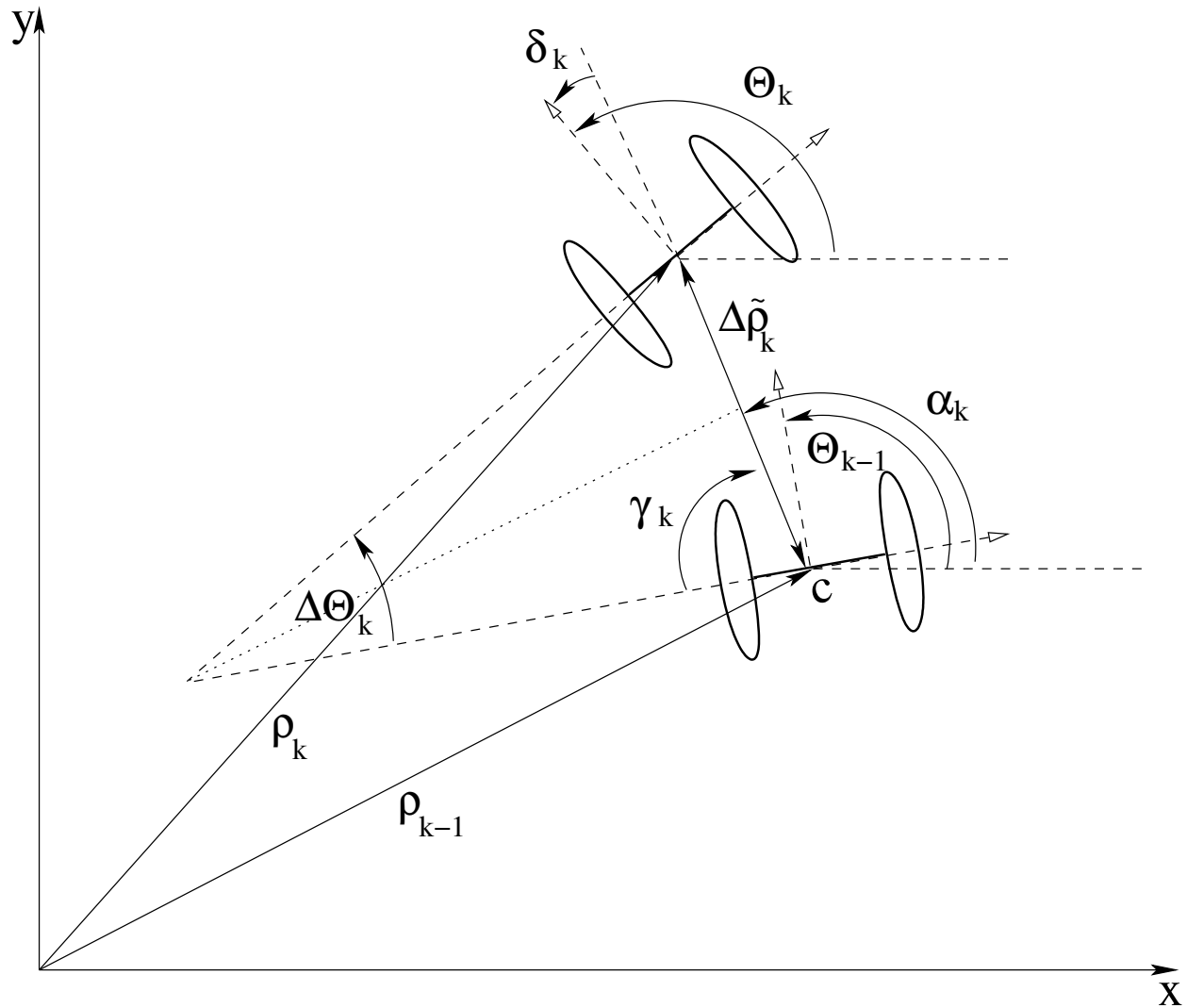
Solución

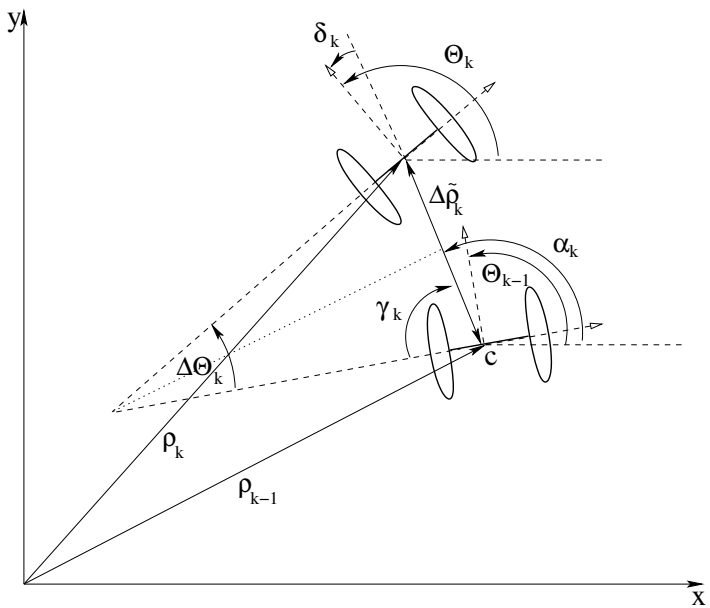


$$\Delta\theta_k = (\Delta U_{r,k} - \Delta U_{l,k})/b$$
$$\Delta\rho_k = (\Delta U_{r,k} + \Delta U_{l,k})/2$$
$$\Delta\tilde{\rho}_k = (r_k + b/2) \cdot 2 \cdot sin(\Delta\theta_k/2)$$

Solución


y
x
δ_k
Θ_k
$\Delta\tilde{\rho}_k$
α_k
Θ_{k-1}
γ_k
$\Delta\Theta_k$
c
ρ_k
ρ_{k-1}

$$\boldsymbol{x}_{k-1} = \begin{bmatrix} x_{k-1} & y_{k-1} & \theta_{k-1} \end{bmatrix}^T \quad (1)$$



$$\boldsymbol{x}_k = \begin{bmatrix} x_{k-1} + \Delta\tilde{\rho}_k cos\left(\alpha_k\right) \\ y_{k-1} + \Delta\tilde{\rho}_k sin\left(\alpha_k\right) \\ \alpha_k + \delta_k \end{bmatrix} \quad (2)$$

$$\gamma_k = \pi/2 - \Delta\theta_k/2 \quad | \quad \delta_k = \pi/2 - \gamma_k \quad (3)$$

$$\alpha_k = \pi - \gamma_k + (\theta_{k-1} - \pi/2) = \theta_{k-1} + \Delta\theta_k/2 \quad (4)$$

$$\boldsymbol{x}_k = \boldsymbol{x}_{k-1} + \begin{bmatrix} \Delta\tilde{\rho}_k cos(\theta_{k-1} + \Delta\theta_k/2) \\ \Delta\tilde{\rho}_k sin(\theta_{k-1} + \Delta\theta_k/2) \\ \Delta\theta_k \end{bmatrix} \quad (5)$$

Gracias

GRACIAS!!

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