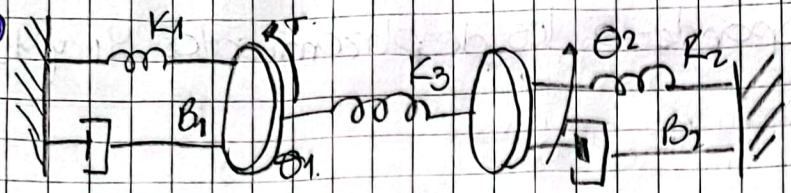
TAREAS



Salidas θ_1 θ_2

$$I_1\ddot{\theta}_1 + B\dot{\theta}_1 + (K_1+K_3)\theta_1 - K_3\theta_2 = T$$
$$I_2\ddot{\theta}_2 + B_2\dot{\theta}_2 - K_3\theta_1 + (K_2+K_3)\theta_2 = 0$$

$x_1 = \theta_1$ $\quad x_3 = \theta_2$

$x_2 = \dot{\theta}_1$ $\quad x_4 = \dot{\theta}_2$

$$\dot{x}_2 = \ddot{\theta}_1 = \frac{T}{I_1} - \frac{B_1}{I_1}\dot{\theta}_1 - \frac{(K_1+K_3)}{I_1}\theta_1 + \frac{K_3}{I_1}\theta_2$$

$$\dot{x}_2 = \frac{T}{I_1} - \frac{B_1}{I_1}x_2 - \frac{(K_1+K_3)}{I_1}x_1 + \frac{K_3}{I_1}x_3$$

$$\dot{x}_4 = \ddot{\theta}_2 = -\frac{B_2}{I_2}\dot{\theta}_2 + \frac{K_3}{I_2}\theta_1 + \frac{(K_2+K_3)}{I_2}\theta_2$$

$$\dot{x}_4 = \frac{B_2}{I_2}x_4 + \frac{K_3}{I_2}x_1 + \frac{(K_2+K_3)}{I_2}x_3$$

$$\begin{bmatrix}\dot{x}_1\\ \dot{x}_2\\ \dot{x}_3\\ \dot{x}_4\end{bmatrix} = \begin{bmatrix}0 & 1 & 0 & 0\\ -\frac{(K_1+K_3)}{I_1} & -B_1/I_1 & K_3/I_1 & 0\\ 0 & 0 & 0 & 1\\ K_3/I_2 & 0 & \frac{K_2+K_3}{I_2} & -B_2/I_2\end{bmatrix}\begin{bmatrix}x_1\\ x_2\\ x_3\\ x_4\end{bmatrix} + \begin{bmatrix}0\\ 1/I_1\\ 0\\ 0\end{bmatrix}T$$

$$y = \begin{bmatrix}\theta_1\\ \theta_2\end{bmatrix} = \begin{bmatrix}1 & 0 & 0 & 0\\ 0 & 0 & 1 & 0\end{bmatrix}\begin{bmatrix}x_1\\ x_2\\ x_3\\ x_4\end{bmatrix} + [0]T$$