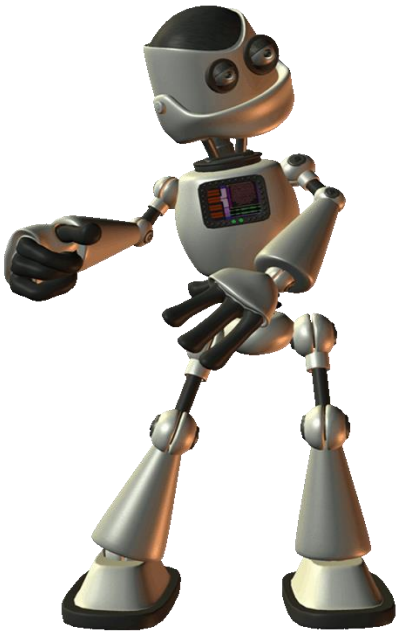
UNIVERSIDAD POLITECNICA DE LA ZONA METROPOLITANA DE GUADALAJARA

CINEMATICA DE ROBOTS



INGENIERIA MECATRONICA 8°B

PRACTICA #2

MAESTRO:

CARLOS ENRIQUE MORAN GARABITO

ALUMNO:

ALEXIS ISRAEL VIORATO ARAMBULA

8.- (3,-9) (-8,5) (-4,-1)

L1 = 30

L2 = 45

(3,-9)

L1 = 30

L2 = 45

$$q_2 = \operatorname{atan}\left(\frac{(3)^2 + (-9)^2 - (30)^2 - (45)^2}{2(30)(45)}\right) = \frac{-2835}{2700} = -1.05$$

$$q_2 = \operatorname{atan}(-1.05)$$

$$q_2 = -46.397$$

$$q_2 = \operatorname{atan}\left(\frac{-9}{3}\right) - \operatorname{atan}\left(\frac{45\ sen(-46.397)}{30 + 45\cos(-46.397)}\right) = \frac{-32.586}{61.034} = 0.533$$

$$q_1 = \operatorname{atan}(-3) - \operatorname{atan}(-0.533) = -43.50$$

$$\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -30sen(-43.50) - 45sen(-43.50) + (-46.397) - 45sen(-43.50) + (-46.397) \\ 30cos(-43.50) + 45cos(-43.50) + (-46.397) + 45cos(-43.50) + (-46.397) \end{bmatrix} \begin{bmatrix} q_1 \\ q_2 \end{bmatrix}$$

(-8,5)

L1 = 30

L2 = 45

$$q_2 = \operatorname{atan}\left(\frac{(-8)^2 + (5)^2 - (30)^2 - (45)^2}{2(30)(45)}\right) = \frac{-2836}{2700} = -1.05$$

$$q_2 = \operatorname{atan}(-1.05)$$

$$q_2 = -46.397$$

$$q_2 = \operatorname{atan}\left(\frac{5}{-8}\right) - \operatorname{atan}\left(\frac{45\ sen(-46.397)}{30 + 45\cos(-46.397)}\right) = \frac{-32.586}{61.034} = 0.533$$

$$q_1 = \operatorname{atan}(-0.625) - \operatorname{atan}(-0.533) = -3.94$$

$$\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -30sen(-3.94) - 45sen(-3.94) + (-46.397) - 45sen(-3.94) + (-46.397) \\ 30cos(-3.94) + 45cos(-3.94) + (-46.397) + 45cos(-3.94) + (-46.397) \end{bmatrix} \begin{bmatrix} q_1 \\ q_2 \end{bmatrix}$$

(-4,-1)

L1 = 30

L2 = 45

$$q_2 = \text{atan}\left(\frac{(-4)^2 + (-1)^2 - (30)^2 - (45)^2}{2(30)(45)}\right) = \frac{-2908}{2700} = -1.077$$

$$q_2 = \text{atan}(-1.077)$$

$$q_2 = -47.123$$

$$q_2 = \text{atan}\left(\frac{-1}{-4}\right) - \text{atan}\left(\frac{45\ sen(-47.123)}{30 + 45\cos(-47.123)}\right) = \frac{-32.97}{60.61} = -0.543$$

$$q_1 = \text{atan}(0.250) - \text{atan}(-0.543) = 42.53$$

$$\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -30sen(42.53) - 45sen(42.53) + (-47.123) - 45sen(42.53) + (-47.123) \\ 30cos(42.53) + 45cos(42.53) + (-47.123) + 45cos(42.53) + (-47.123) \end{bmatrix} \begin{bmatrix} q_1 \\ q_2 \end{bmatrix}$$

Practica #2

Viorato Arambula Alexis Israel 26/Marzo/2019

$L_1 = 30$

$L_2 = 45$

$8\ (\overset{x}{3}, \overset{y}{-9})\ (\overset{x}{-8}, \overset{y}{5})\ (\overset{x}{-4}, \overset{y}{-1})$

$$q_2 = \text{atan}\left(\frac{(3)^2+(-9)^2-(30)^2-(45)^2}{2(30)(45)}\right) = \frac{-2835}{2700} = -1.05$$

$$q_2 = \text{atan}(-1.05)$$

$$q_2 = \boxed{-46.397}$$

$$q_1 = \text{atan}\left(\frac{-9}{3}\right) - \text{atan}\left(\frac{45\ \text{Sen}(-46.397)}{30+45\cos(-46.397)}\right) = \frac{-32.586}{61.034} = \boxed{0.533}$$

$$q_1 = \text{atan}(-3) - \text{atan}(-0.533) = \boxed{-43.50}$$

$$\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -30\ \text{Sen}(-43.50) + 45\ \text{Sen}(-43.50) + (-46.397) - 45\ \text{Sen}(-43.50) + (-46.397) \\ 30\cos(-43.50) + 45\cos(-43.50) + (-46.397)) + 45\cos(-43.50) + (-46.397) \end{bmatrix} \begin{bmatrix} q_1 \\ q_2 \end{bmatrix}$$

$(\overset{x}{-8}, \overset{y}{5})$

$$q_2 = \text{atan}\left(\frac{(-8)^2+(5)^2-(30)^2-(45)^2}{2(30)(45)}\right) = \frac{-2836}{2700} = \boxed{-1.050}$$

$$q_2 = \text{atan}(-1.05)$$

$$q_2 = \boxed{-46.397}$$

$$q_1 = \text{atan}\left(\frac{5}{-8}\right) - \text{atan}\left(\frac{45\ \text{sen}(-46.397)}{30+45\cos(-46.397)}\right) = \frac{-32.586}{61.034} = \boxed{0.533}$$

$$q_1 = \text{atan}(-0.625) - \text{atan}(-0.533) = \boxed{-3.94}$$

$$\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -30\ \text{sen}(-3.94) - 45\ \text{Sen}(-3.94) + (-46.397) - 45\ \text{sen}(-3.94) + (-46.397) \\ 30\cos(-3.94) + 45\cos(-3.94) + (-46.397) + 45\ \text{sen}(-3.94) + (-46.397) \end{bmatrix} \begin{bmatrix} q_1 \\ q_2 \end{bmatrix}$$