COBRA industrial robot Kinematic

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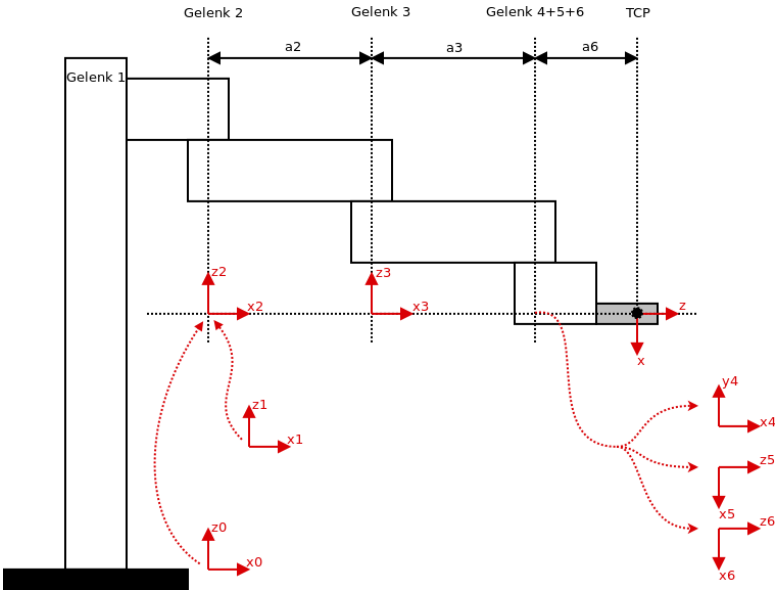

1 Gelenke

$$d_1 = d_1 \qquad q_1 = 0°$$
$$d_2 = 0 \qquad q_2 = \theta_2$$
$$d_3 = 0 \qquad q_3 = \theta_3$$
$$d_4 = 0 \qquad q_4 = \theta_4$$
$$d_5 = 0 \qquad q_5 = \theta_5$$
$$d_6 = 0 \qquad q_6 = \theta_6$$

2 Armteile

$$a_1 = 0 \qquad \alpha_1 = 0°$$
$$a_2 = 255mm \qquad \alpha_2 = 0°$$
$$a_3 = 255mm \qquad \alpha_3 = 0°$$
$$a_4 = 0 \qquad \alpha_4 = 90°$$
$$a_5 = 0 \qquad \alpha_5 = 90°$$
$$a_6 = 175mm \qquad \alpha_6 = 0°$$

3 Denavit-Hardenberg Matrix

$$
{}^{0}A_{1} = \begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & d_1 \\ 0 & 0 & 0 & 0 \end{pmatrix}
$$

$$
{}^{1}A_{2} = \begin{pmatrix} cos\theta_2 & -sin\theta_2 & 0 & a_2\ cos\theta_2 \\ sin\theta_2 & cos\theta_2 & 0 & a_2\ cos\theta_2 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}
$$

$$
{}^{2}A_{3} = \begin{pmatrix} cos\theta_3 & -sin\theta_3 & 0 & a_3\ cos\theta_3 \\ sin\theta_3 & cos\theta_3 & 0 & a_3\ cos\theta_3 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}
$$

$$
{}^{3}A_{4} = \begin{pmatrix} cos\theta_4 & 0 & sin\theta_4 & 0 \\ sin\theta_4 & 0 & -cos\theta_4 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}
$$

$$
{}^{4}A_{5} = \begin{pmatrix} cos\theta_5 & 0 & sin\theta_5 & 0 \\ sin\theta_5 & 0 & -cos\theta_5 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}
$$

$$
{}^{5}A_{6} = \begin{pmatrix} cos\theta_6 & -sin\theta_6 & 0 & a_6\ cos\theta_6 \\ sin\theta_6 & cos\theta_6 & 0 & a_6\ cos\theta_6 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}
$$