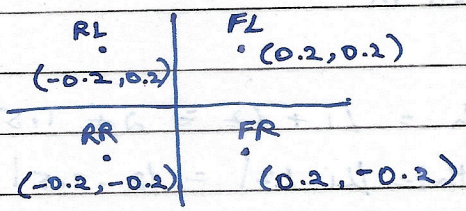
DATE : / /

4-Wheel independent steering.

Wheel positions



Max steering range = $\pm 90^\circ$

Formula:

Steering angle $\theta = \arctan((x - x_0) / (y - y_0))$

Case 1: Rotation about center $O = (0, 0)$

$\theta_{FL} = \arctan(0.2 - 0 / 0.2) = \arctan(1) = 45^\circ$

$\theta_{FR} = \arctan(0.2 - 0 / -0.2 - 0) = \arctan(-1) = -45^\circ$

$\theta_{RL} = \arctan(-0.2 / 0.2) = \arctan(-1) = -45^\circ$

$\theta_{RR} = \arctan(-0.2 / -0.2) = \arctan(1) = 45^\circ$

Case 2: Rotation about center $O = (0, 1)$

$\theta_{FL} = \arctan(0.2 / 0.2 - 1) = \arctan(-0.25) = -14.04^\circ$

$\theta_{FR} = \arctan(0.2 / -0.2 - 1) = \arctan(-0.167) = -9.46^\circ$

$\theta_{RL} = \arctan(-0.2 / 0.2 - 1) = \arctan(0.25) = 14.04^\circ$

$\theta_{RR} = \arctan(-0.2 / -0.2 - 1) = \arctan(0.167) = 9.46^\circ$

PAGE NO :

DATE : / /

Case 3 : Rotation about center $O = (0, -1)$

$\theta_{FL} = \arctan(0.2 / 0.2+1) = \arctan(0.167) = 9.48°$

$\theta_{FR} = \arctan(0.2 / -0.2+1) = \arctan(0.25) = 14.04°$

$\theta_{RL} = \arctan(-0.2 / 0.2+1) = \arctan(-0.167) = -9.48°$

$\theta_{RR} = \arctan(-0.2 / -0.2+1) = \arctan(-0.25) = -14.04°$