$$\begin{bmatrix} x \\ y \\ \theta \\ v \end{bmatrix}^{+} = \begin{bmatrix} x + dt(v\cos\theta + \cancel{0}\sin\theta) \\ y + dt(v\sin\theta) \\ \theta + \dfrac{v\tan(\delta)}{l} \\ v + C_v(x) \end{bmatrix} \quad \delta = C_\delta(x)$$

v Controller.

$$C_\delta = \tan^{-1}\left(\frac{k e(t)}{v_f(t)}\right)$$

$$e = \min\left(\sqrt{(l_{i,x} - r_x)^2 + (l_{i,y} - r_y)^2}\right).$$

Cross track error.