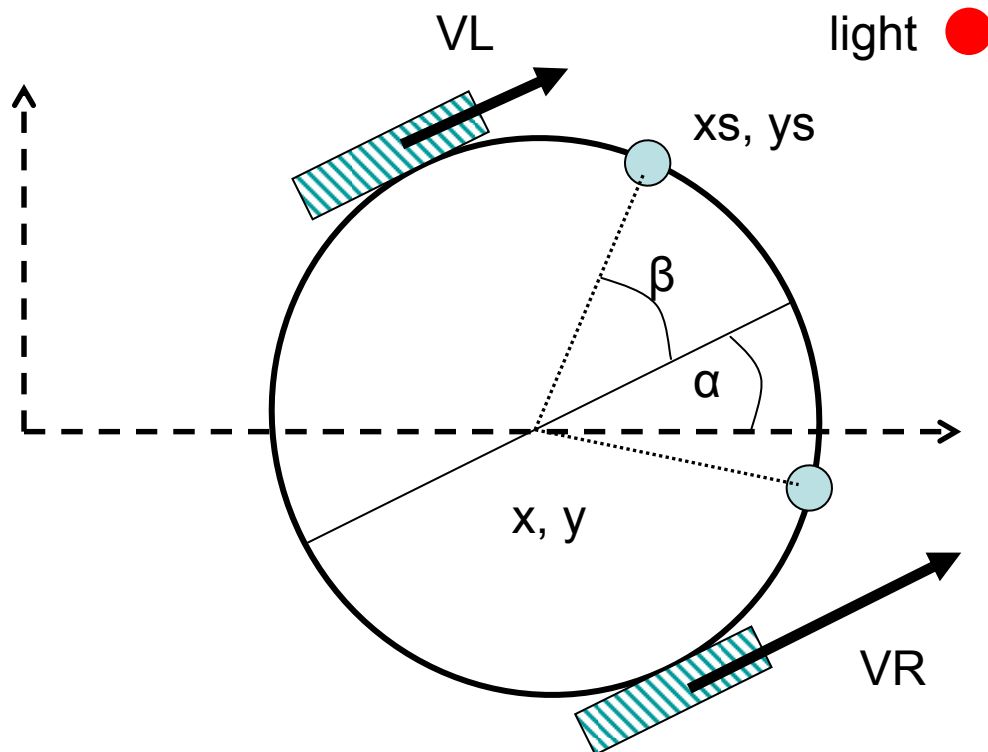


Simple, low inertia wheeled robot



If $A = (\text{Radius}^2 + D_s^2)/D^2 \leq 1$
 where D_s = distance light/light sensor
 and D = distance light/robot-centre
 then
 Light impinges on sensor
 "local intensity" = Source intensity/ D_s^2

New position (at each update):

$$x_{\text{new}} = x + Dt \cdot V_c \cos(\alpha)$$

$$y_{\text{new}} = y + Dt \cdot V_c \sin(\alpha)$$

$$\alpha_{\text{new}} = \alpha + Dt \cdot \Omega$$

where

Dt = timestep in seconds for each update (eg, 0.1)
 (same as used for neural net)

$$V_c = (VR + VL)/2$$

$$\Omega = (VR - VL)/(2 \text{ Radius})$$

Sensor position:

$$x_s = x + \text{Radius} \cos(\alpha + \beta)$$

$$y_s = y + \text{Radius} \sin(\alpha + \beta)$$