$$\begin{cases} \dot{x}_1 = \sin(x_1) + x_2 + u_1 \\ \dot{x}_2 = x_1 - \cos(x_2) + 2u_1 + u_2 \end{cases} \qquad \begin{cases} y_1 = x_1 \\ y_2 = x_1^3 + x_2 \end{cases}$$

$$\frac{dy_1}{dt} = \frac{dx_1}{dt} = \sin(x_1) + x_2 + u_1$$

$$y_2(t) = (x_1(t))^3 + x_2(t)$$

$$\frac{dy_2}{dt} = \frac{\partial y_2}{\partial x_1} \cdot \frac{dx_1}{dt} + \frac{\partial y_2}{\partial x_2} \cdot \frac{dx_2}{dt} = 3x_1^2 \cdot (\sin(x_1) + x_2 + u_1) + 1 \cdot (x_1 - \cos(x_2) + 2u_1 + u_2)$$

$$\frac{dy_1}{dt} = \sin(x_1) + x_2 + u_1 = v_1$$

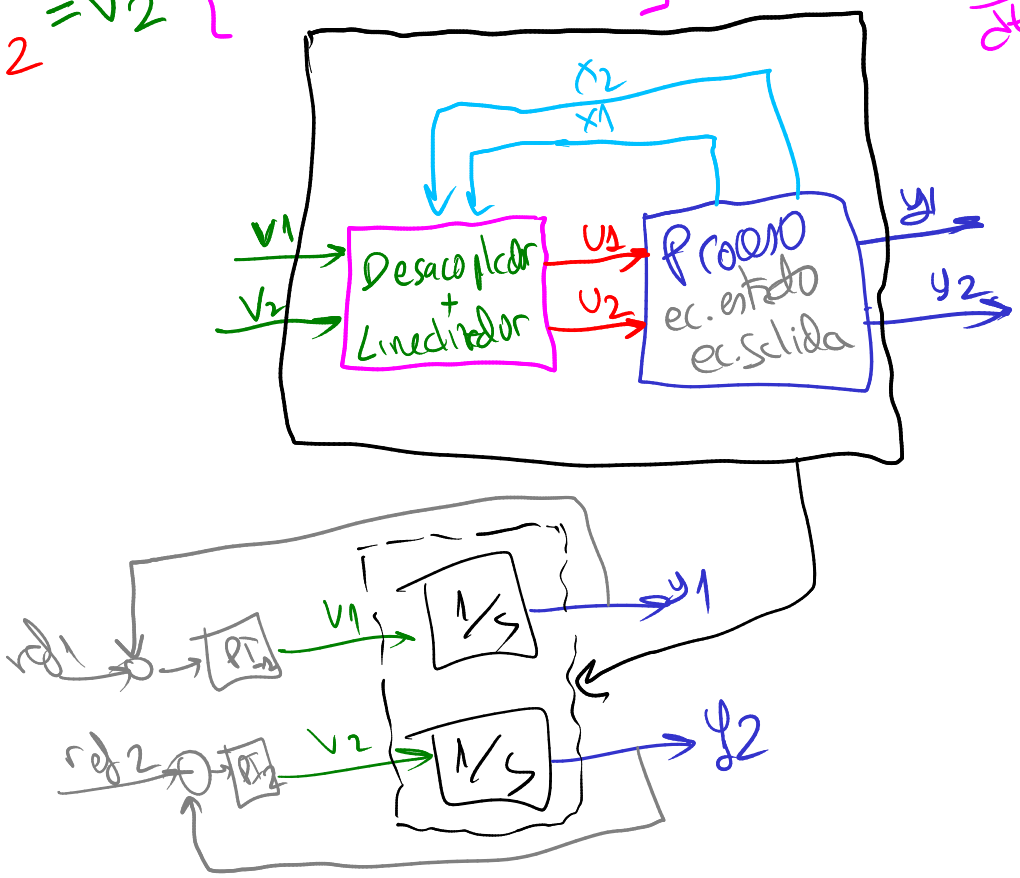
$$\frac{dy_2}{dt} = 3x_1^2(\sin(x_1) + x_2) + x_1 - \cos(x_2) + (3x_1^2 + 2)u_1 + u_2 = v_2$$

$$u_1 = v_1 - \sin(x_1) - x_2$$

$$u_2 = v_2 - \left[3x_1^2(\sin(x_1) + x_2) + x_1 - \cos(x_2)\right] - (3x_1^2 + 2)\left(v_1 - \sin(x_1) - x_2\right)$$

$$\frac{dy_1}{dt} = v_1 \qquad \frac{dy_2}{dt} = v_2$$

$$y_1 = \frac{1}{s} \cdot v_1 \qquad y_2 = \frac{1}{s} v_2$$



Presentación en vídeo en:
http://personales.upv.es/asala/YT/V/fblin1.html
https://youtu.be/ovVL0C8K4rk