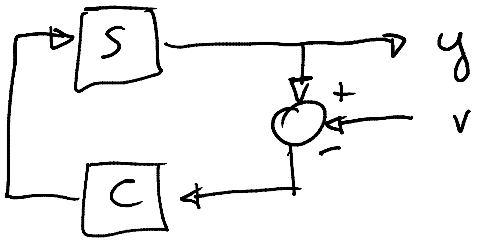
8. Tracker

sabato 4 luglio 2020 17:55

Is a particular case of dynamic compensator when $M = -K$, $N = 0$



$$C: \begin{cases} \dot{z} = (A - KC + BF)z + K(y - v) \\ v = Fz \end{cases}$$

$$\dot{x} = Ax + BFz$$

If the eigenvalues of the 2 subsystems are < 0 then $y(t) \to v(t)$

$$\det \begin{pmatrix} sI - A + KC - BF & -K \\ F & 0 \end{pmatrix} = \det \begin{pmatrix} sI - A & -K \\ F & 0 \end{pmatrix}$$

$$= \det(sI - A) \cdot \det(F(sI - A)^{-1}K)$$

$$\to \frac{\det \begin{pmatrix} sI - A & -K \\ F & 0 \end{pmatrix}}{\det(sI - A)} = \det(F(sI - A)^{-1}K)$$