$$x_{n+1} = Ax_n + Bu$$

$$x_{n+1} = \begin{bmatrix} 1 & t & \frac{1}{2}t^2 & 0 & 0 & 0 \\ 0 & 1 & t & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & t & \frac{1}{2}t^2 \\ 0 & 0 & 0 & 0 & 1 & t \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix} \begin{bmatrix} x \\ \dot{x} \\ \ddot{x} \\ y \\ \dot{y} \\ \ddot{y} \end{bmatrix} + \begin{bmatrix} 0 & 0 \\ 0 & 0 \\ 0.00001 & 0 \\ 0 & 0 \\ 0 & 0 \\ 0 & 0.00001 \end{bmatrix} \begin{bmatrix} Pcos(\theta) \\ Psin(\theta) \end{bmatrix}$$

where x is state, P is power, and θ is angle

$$z_n = Hx_n$$

$$z_n = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 \end{bmatrix} \begin{bmatrix} x \\ \dot{x} \\ \ddot{x} \\ y \\ \dot{y} \\ \ddot{y} \end{bmatrix}$$