**EKF reference**

Prediction step:

Update step:

**State definition**

Based on constant-speed block model in X-Y plane. Position in [cm], velocity in [cm/s], acceleration in [cm/s2]. Use inverse fit sensor model because that doesn’t explode off to infinity and doesn’t have a singularity at zero. Multiplied by 100 to convert m/s2 to cm/s2.

Prediction step:

Correction step:

Model parameters ( is guessed, from sensor data):