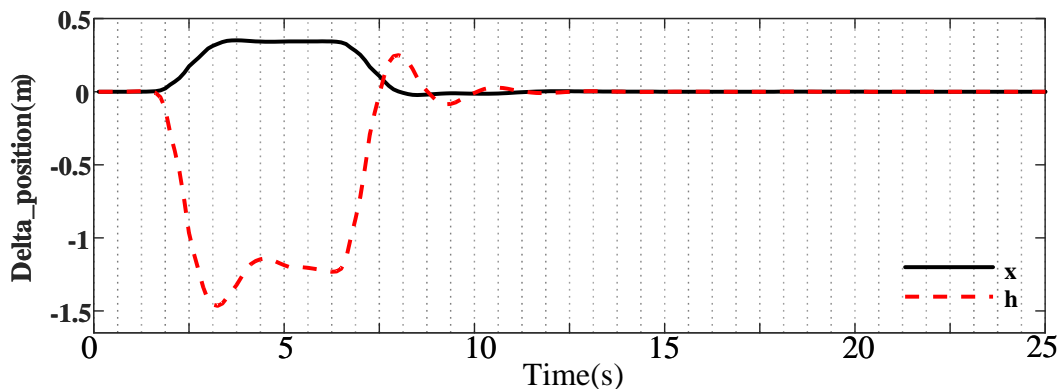(a) Without LQR controller

(b) With LQR controller