

Internet Based Teleoperation of the Quad Rotor with Force Feedback Using Smith Predictor

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Abstract : In this paper, teleoperation of the quadrotor using Internet with Force feedback is addressed. Teleoperation with Force feedback is the ability to remotely control a robot, where contact (obstacle) or environment (wind gust etc) information (force feedback) is communicated from the quadrotor to the master joystick and thus giving the operator a sense of telepresence. The stability and performance of such a teleoperator is highly dependent on the amount of time delay present in the control loop. This problem is further complicated given the fact that for network based communication the time delay is itself time varying and highly non deterministic. In this paper, a novel method using Neural based Smith Predictor at the master side the stability is achieved. The performance of the system even during worst case scenario is within acceptable.

Keywords : teleoperation, quadrotor, neural smith predictor, time delay

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