Design of swing and stabilization algorithms of the inverse pendulum fixed on a motor shaft

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Abstract. In this paper, the task of swing and stabilization of the inverse pendulum fixed on a motor shaft is considered. The nonlinear differential equations describing this system behavior are given and transition to its linearized model is performed. The swing algorithm of the pendulum from stable position to area of a point of an unstable equilibrium is offered. The stabilization algorithm allowing to ensure demanded quality of transient in system is developed. Simulation of the closed system with the controller in Matlab Simulink program environment is spent.

Key words: inverse pendulum, swing, stabilization, controller.

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