CALIBRATION AND MODELLING OF ACTIVE FORCE CONTROL PARAMETERS USING PV POSITION CONTROL

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ABSTRACT

Force control is a famous technology, which rapidly grew due to demanding on wide application. The purpose of this project is to calibrate the control parameters by modeling an active force control using PV controller. This project will use Linear Motion Servo Plant (IP02) to design a PV controller. The tuning of PV controller follows certain specifications, which the value Percentage Overshoot (PO) and Peak Time (t) should be below or same with 10% and 0.15s. The behavior of active force in control systems are depending on value of proportional position gain, Kp and proportional velocity gain, Kv. This project will introduce an application of force control system in automatic drilling. Active drilling force requires as fast and more accurate in trajectories. Because of variable of cross sectional density, accurate trajectory requires variable force being applied. The limitation of this project is the disturbance of the non-homogeneous material is substitute with the spring. Tuning the PV controller will be covered in simulation and real time implementation. The result from tuning the PV controller will be compared to theoretical values.

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