Abstract

Automatically, locking a load to a desired position as quickly and precisely as possible using Proportional-Integral-Derivative controller can be a major problem even in direct control depending on the amount of delay involved. This is because the formulated corrective action is based on the past output and not the current output being corrected. Hence, the effectiveness of formulated control action is determined largely by the amount of delay between the feedback link and the time of delivery of the control action to the load's actuator. The large and variable time delays incurred by remotely controlling network of satellite dishes mounted on moving vehicles in Nigeria with land area of 923,677 km² further makes the control problem daunting. Therefore, the principal objective of this research is to develop a robust PID controller with satisfactory real-time optimal control performance of satellite dish network mounted on mobile vehicles spread all over Nigeria.

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Index Terms

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