

PREDICTIVE CONTROL APPLIED TO A WATER CANAL PROTOTYPE

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Abstract: Predictive Control is an intelligent tool to manage complex systems. This control strategy is getting more and more application in industrial fields. This paper shows the application of the predictive control methodology to a water distribution canal. Water canals are complex hydraulic systems because they are open and big scale systems, characterized by big delays and great inertia. Many models and control strategies have already been simulated using linear control theory. In the present study, a predictive control strategy is experimentally implemented in a modern automated canal prototype where sensors and actuators are controlled via a PLC network supervised by a SCADA system. The performance of this predictive controller is experimentally tested and very good results were obtained. The presented field studies show the potential of predictive control applied to water distribution canals and motivate its development for the management of water distribution networks in the near future.

Keywords: Modelling, Predictive Control, Automatic Irrigation Canals