Comparative Study of Control Methods's Application for Pneumatic System in Simulation Environment

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Abstract

In light of the rapid rates of technology development in our times, there has been a continuous effort to introduce everyday technological advances in order to cover better and easier human needs. Especially in the sector of research and applications, the need for simulation programs was seen as offering security to errors, reduce costs and they are accessible to use by professionals and higher education students. This thesis will present the study of control methods’s application for pneumatic system in simulation environment. In addition, it will analyze and describe the operation of the pneumatic system and all the testing methods used in it. The object of the study, which comes with MSc, since it deals with modern automation technology applications, will try to cover questions such as whether these control methods are appropriate and effective for the pneumatic system which is studied, and especially how effective it is the use of a Lookup table to Implement Fuzzy Controller (Fuzzy) with Proportional-Integral-Derivative Controller (PID). For the use of this Lookup table in the pneumatic system of the present study, results have not been extracted to date. These two events are the main purpose of this thesis, in an attempt to perform control of the system on the...
applications above. The main part of the study will explain the design of the system as well as
the type of controllers and the Lookup table. The way of connecting and operating among the
pneumatic system, the control methods and the Lookup table, in the simulation environment will
be presented in detail, while all this will emerge the conclusions of use specific control methods,
the advantages and disadvantages will be discussed and both will be proposed optimizations to
further expanding benefits of their operation. As a possible result of using these methods will
occur to achieve the optimal and efficient control of the system.

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Index Terms

Computer Science

Applied Sciences
Keywords

Pneumatic System, Control Methods, Simulink, PID Controller, Lookup Table FuzzyPID Controller