

Simulating a PID controller using Xcos

Talk To a Teacher

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National Mission on Education through ICT

<http://spoken-tutorial.org>

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Objectives

In this tutorial you will learn:

- ▶ How to Implement a PID controller in Xcos



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System requirements

- ▶ Scilab should be installed.



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System requirements

- ▶ Scilab should be installed.
- ▶ I am using Ubuntu 16.04 64-bit OS and Scilab version 6.0.0 for demonstration.



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Prerequisites

- ▶ Watch the spoken tutorial on Xcos Introduction



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- ▶ `firstorder.xcos` file must be available



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Prerequisites

- ▶ Watch the spoken tutorial on Xcos Introduction
- ▶ `firstorder.xcos` file must be available
- ▶ Basic understanding of PID controllers is required



Exercise

1. Implement a proportional controller only. Change the proportional gain such that the setpoint matches the output but without overshoots.



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Exercise..

2. Include the output of the summation block in the plot. You may use CMSCOPE to keep it separate. Compare it visually with the output of PID block.



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Summary

In this tutorial we have learnt to:

- ▶ Modify the `firstorder.xcos` file to implement a PID controller
- ▶ Configure each block as per the simulation requirements
- ▶ Setup the simulation parameters



About the Spoken Tutorial Project

- ▶ Watch the video available at http://spoken-tutorial.org/What_is_a_Spoken_Tutorial
- ▶ It summarises the Spoken Tutorial project



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- ▶ If you do not have good bandwidth, you can download and watch it



Spoken Tutorial Workshops

The Spoken Tutorial Project Team

- ▶ Conducts workshops using spoken tutorials
- ▶ Gives certificates to those who pass an online test
- ▶ For more details, please write to contact@spoken-tutorial.org



Forum to answer questions

- ▶ Do you have questions on THIS Spoken Tutorial?
- ▶ Choose the minute and second where you have the question.
- ▶ Explain your question briefly.
- ▶ Someone from the FOSSEE team will answer them. Please visit

<http://forums.spoken-tutorial.org/>



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Forum for specific questions

- ▶ The Spoken Tutorial forum is for specific questions on this tutorial
- ▶ Please do not post unrelated and general questions on them
- ▶ This will help reduce the clutter
- ▶ With less clutter, we can use these discussion as instructional material



Acknowledgements

- ▶ Spoken Tutorial Project is a part of the Talk to a Teacher project
- ▶ It is supported by the National Mission on Education through ICT, MHRD, Government of India
- ▶ More information on this Mission is available at <http://spoken-tutorial.org/NMEICT-Intro>

