

Report for the Course “Projektwettbewerb Einführung in die Regelungstechnik”

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Abstract: This is a template for the laboratory course “Projektwettbewerb Einführung in die Regelungstechnik” at the Institute for Systems Theory and Automatic Control, University of Stuttgart. Use this document to write your report with L^AT_EX (cf. [Knuth2005]).

1. INTRODUCTION

We have designed a state feedback for the single-track model based on inverse kinematics, loop-shaping, feedback linearization, and robot navigation functions.

2. MAIN IDEA

Our design procedure was based on the idea that accelerating a vehicle results in shorter lap times than braking a vehicle. For presentational conciseness, we have listed some important parameters in Table 1.

Table 1. Important Parameters.

Parameter	Value
lap time t_f	∞
control gain k	0
steering angle δ	$-(e^{i\pi} + 1)$

3. RESULT

We have achieved a lap time of $t_f = \infty$. We have depicted a plot of vehicle velocity v versus an independent curve parameter γ , with which we have parameterized the racetrack, in Fig. 1.

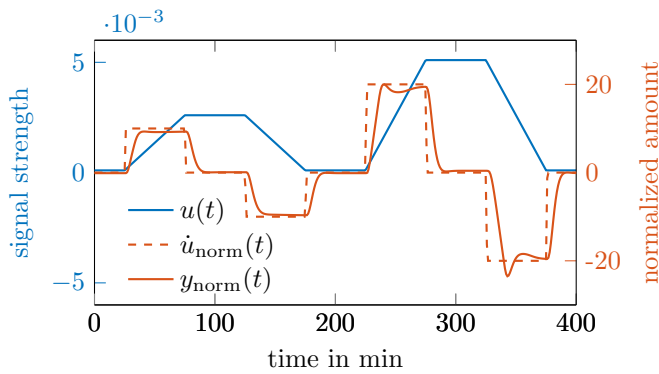


Fig. 1. Some arbitrary plot (using tikz) which doesn’t have anything to do with Projektwettbewerb ERT.

REFERENCES

Knuth, D. E. (2005). The Art of Computer Programming. Pearson Education.

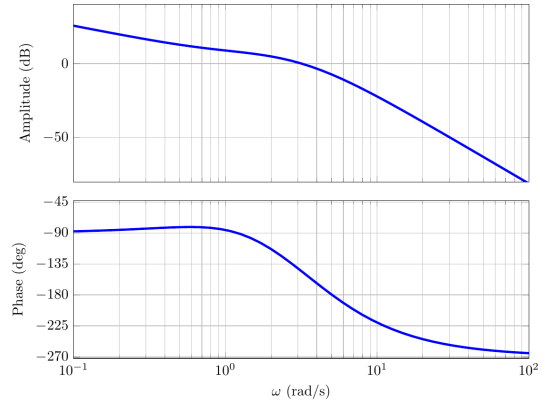


Fig. 2. Some arbitrary plot (using png) which doesn’t have anything to do with Projektwettbewerb ERT.