Review of: "Optimal Latency Compensator for Improved Performance of Teleoperated UGVs on Soft Terrains"

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Potential competing interests: No potential competing interests to declare.

This paper presents an investigation on the effect of the time delay for bilateral teleoperation of low-speed Unmanned Ground Vehicles (UGVs) on soft terrains. In the paper, the authors gave the model of the UGV and the control procedure. For the optimal latency compensator, the fine-tuning parameters for the predictor were calculated by using Genetic Algorithm.

In this study, the literature for modeling and control approaches was used extensively. The only different part is the determination of predictor parameters (alpha and beta) in the control phase. The authors examined in detail the effects of the control system on the bilateral teleoperation of low-speed UGV according to the parameter values obtained with GA. The paper consists of a simulation study and the performance of the proposed control system is presented comparatively.

The obvious superiority of the proposed control system is shown and expressed with graphs and tables. However, there are some contradictions in the comparisons. For example, a comparison was made with the study [16] cited in the paper. It seems that the UGV in [16] and the UGV used by the authors are different from each other. As a result, the model parameters are also different from each other. The authors need to clarify this situation. That is, are the values in Table II independent of the test setup? Transparency was mentioned as a comparison in many parts of the paper. However, technical information was not provided regarding this term. Also, there is no explanation about Figure 12 in the manuscript. It was stated in the paper that all test studies were performed in a straight line with pure rolling. In reality, it is clear that the actual performance of such a system will manifest itself in a curvilinear path. The authors are expected to clarify this issue as well.

My opinion on this paper is a minor review. After corrections and contradictions are completed and clarified, this paper can be published in Qeios.