Review for "Synthesis of Communication Schedules for TTEthernet-Based Mixed-Criticality Systems"

1 Description

In the Report the findings of the Paper "Synthesis of Communication Schedules for TTEthernet-Based Mixed-Criticality Systems" are presented. Additionally, the necessary backgrounds are presented. Time Triggered Ethernet (TTE) is a communication protocol, which enables deterministic communication in networks with guarantees. To achieve that, a static schedule is needed. This schedule determines at which time a given node will forward a given frame. The goal of the paper is to create such a schedule, which satisfies time constraints and minimises delay. To create the schedule, the heuristic TTESO strategy is used, which first creates a initial solution with List scheduling. This solution is then further improved with Tabu Search.

2 Strengths

- The subject topic was presented in an understandable way. The examples were especially helpful in understanding the topic.
- The Background is presented without unnecessary information enabling readers to understand the topic without prior knowledge.
- Especially Figure 3 was very helpful to comprehend the analysis framework. I also like the annotation of parts of this figure to reference them in the text and explain the figure in detail.
- I personally found the usage of ChatGPT for image creation a good use-case and will certainly try this out.

3 Weaknesses

- In the Report a lot of abbreviations and acronyms are used. This is obviously caused by the need to analyse the subject in a formal matter and therefore can not be avoided. However using a lot of acronyms makes reading the paper hard for readers without a subject related background. I suggest adding a informal annex/section/table after the References to list all acronyms and their written out description.

- The order of the figures is a little confusing. One example is figure 2, which is only once referenced in Section 3.a but after Figure 6 and 3 have used already a few times. One possible solution is to rearrange the order. However think some references to figures are still missing. E.g. I assume figure 2 was to be referenced and introduced on Page 2 already to explain the concept of dataflow paths.

- At the end of Section III a reference is broken.

- There is no evaluation of the proposed algorithms. Usually the proposed algorithm is compared to other state-of-the-art algorithms or theoretical limits. This would also give you the ability to compare your simulation results to the algorithm in the paper. In the original paper they used a simulation benchmark for this as far as I can see. I suggest either presenting the performance of the algorithm in general or comparing your results to the one in the paper.

- I suggest not submitting the seminar work under the same title as the paper itself. Something like "Seminar Report for ... " distinguishes your work from the original work. You could also add this information to the abstract. However, I think that is optional if your title is expressive enough.