

Dear Managing Editor and Reviewers of IFAC Workshop on Intelligent Control Systems 2010,

We are very thankful for the detailed, useful and constructive comments on our paper “**From SFC Specification to C Programming Language on the Context of Aerospace Systems Control**” **W-10-026**. We have incorporated the reviewers’ comments in our revision. First of all, we have to admit that some parts of the paper were not presented properly, which caused some ambiguities in the text and elicited some of the comments.

Further, there are presented all the changes that we have done, according to the reviewers’ comments. Comments and questions by the reviewers are written in italics and changes, made by authors, are presented as normal text, in blue colour.

Reviewers' comments and changes on the revised paper:

Reviewer #1:

No comments addressed to the authors.

Reviewer #2:

The methodology proposed is not specific to aero spatial systems.

Indeed, the methodology presented, in this paper, intends to show how to translate a SFC specification to C code, no matter the considered Dependable system. However, as this paper is a “position paper” considering the very large context presented in figure 2, the authors contextualize, also, the application of this study, on the context of aerospace systems.

In Step variables computation section it is not very clear what is author contribution and what is taken from EN 2002.

There is a paragraph, on the end of the Introduction Chapter where is written: “*In this paper it is intended to propose a systematic methodology for translating SFC formalism to the C programming language, speediest than the methodology proposed by (Bayó-Puxan et al. 2008) and, more than that, this approach considers the behaviour of the controller device where the C code will be implemented.*” The EN 2002 defines the execution algorithm of a SFC (with and without stability research). This algorithm can be taken into account in order to reproduce the behaviour of a reactive controller, considering time intervals to inputs reading, execution of program and outputs updating.

In Elaboration of a c language program based on algebraic equations section it is not very clear how the outputs are updated. In Fig.10, what means $x[i]=i$ (state variable no i which is a Boolean variable is changed to the value of the index?). Also it is not presented how the output variables activation is related to the states

The figure 10 has been changed. In fact, this mistake was solved. In this figure it is intended to show how the SFC step variables are updated. The loop *FOR* checks the values of $x[i]$ comparing it with the old value of $x[i]$ (named $xold[i]$). If $xold[i]$ is not

equal to $x[i]$ then $x[i]$ is updated to the new value calculated during the present cycle of the controller.

The last paragraph of section 4 was changed too. The new redaction is: *“Further, the program updates the values of the SFC step variables (Figure 10) with for and if cycles. The value of a SFC step variable is changed if $x[i]$ is not equal to $xold[i]$: $xold[i] \neq x[i]$. Concerning the SFC actions (that model the outputs of the controller), they depend, directly, of the SFC step variables. Each SFC action must be calculated, in each controller cycle, according the respective SFC step variable. As the SFC actions are models of the controller outputs, the connection of these output variables with the controller physical outputs and respective indexation to physical addresses of the controller device depends directly of the used controller device, so the comment: “to define according the used controller”, in figure 10”*