World Academy of Science, Engineering and Technology
International Journal of Aerospace and Mechanical Engineering
Vol:9, No:12, 2015

Defects Estimation of Embedded Systems Components by a Bond Graph Approach

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Abstract : The paper concerns the estimation of system components faults by using an unknown inputs observer. To reach this goal, we used the Bond Graph approach to physical modelling. We showed that this graphical tool is allowing the representation of system components faults as unknown inputs within the state representation of the considered physical system. The study of the causal and structural features of the system (controllability, observability, finite structure, and infinite structure) based on the Bond Graph approach was hence fulfilled in order to design an unknown inputs observer which is used for the system component fault estimation.

Keywords : estimation, bond graph, controllability, observability
Conference Title : ICAMAME 2015 : International Conference on Aerospace, Mechanical, Automotive and Materials Engineering
Conference Location : Istanbul, Türkiye
Conference Dates : December 21-22, 2015