

Presentation

Title: PROFINET in Wind Generated Energy Applications:
An Experience Report

Target Audience:

Presenter: Hans Dermot Doran

Company: ZHAW, Institute of Embedded Systems

Abstract: This talk describes an application in the wind generated energy sector where PROFINET is used as a communication protocol in the internal control units of an energy generating windmill. In order to satisfy the stringent control parameters the Dynamic Frame Packing (DFP) PROFINET feature was used to optimize bandwidth and cycle times on the internal control units. DFP is a new feature of PROFINET and has been specified in the V2.3 specification which is still in the validation process. This talk will present the application – itself a new concept in the energy generation world, before discussing the controller technology used and hence the communication parameters that have to be fulfilled. The implementation, using a SIMOTION and application specific hardware, including a FPGA board with an integrated PROFINET communication controller IP (VHDL) is described. The necessary functions in a very lightweight PROFINET stack are also explained as well as the HW manipulation of isochronous frames. The talk finishes with presentation of relevant measurement results.