

Design Clinic Scheme for MSMEs

Professional Design Project Description for calling design experts inquiry

Proposal: GUI interface Design of the Automotive CAN controller & Virtual Modeling thereof

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Project Title GUI interface Design of the Automotive CAN controller & Virtual Modeling thereof

MSME Unit Name SANKHYA TECHNOLOGIES PRIVATE LIMITED

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Industry Type and products Automotive, CAN controller model

Project Brief The volume & use of electronic contents in vehicles & automotives are increasing at exponential rate.- Such contents are generated, processed & released / interacted with by a host of microcontrollers & devices.

CAN (Controller Area Network) works as an in-between Interface & allow these microcontrollers and devices to communicate with each other within a vehicle without a host computer.

CAN is one of the most accepted & standardized message based protocol, designed specifically for automotives, but now also used in industrial automation and medical equipments.

CAN controller implements the CAN specification in a system. CAN controller consist of necessary logic to perform CAN function. In this project, we propose to develop a virtual CAN controller and perform all the functions of the CAN controller hardware device. The advantage is that, one can do all possible performance analysis, failure mode analysis at a very early stage during the system design even in the absence of the hardware. This will serve as one of peripheral model component, which can be reused as interface component to any microcontroller in a SOC (System-On-Chip).

'Teraptor' the electronic design automation platform will be used to develop the CAN controller model. Teraptor is a software tool which helps to define behavioural aspects of a component at high level and it will generate the necessary logic accurately to meet the requirements in an automatic manner. Teraptor can also generate the required test vectors to simulate the proposed CAN model.

Now, to make or to 'Design' the CAN Controller as a unique peripheral model component, its program logics, behaviours, allocation of function (between the level of automation versus user interaction), 'levels of fuzziness & intelligence' are to be 'Designed (as verb)' in a most optimum / universal yet robust level. Thus, the inputs & outputs - and interactions thereof are to be 'Designed (both as verb & noun)', guided / viewed by way of 'Designing (as noun)' appropriate graphical user interface (GUI) and other means of information design & a universal pattern of Interaction Design.

Designer Preferences (If any)

- a. Preferred to have one who has the ability to synthesize a design on a Xilinx FPGA platform
- b. Interface designer who can create the appropriate graphical interface and Interaction design.