VISVESVARAYA TECHNOLOGICAL UNIVERSITY

SANTHIBASTAWAD ROAD, MACHHE BELGAUM – 590014 INDIA

A
PROJECT REPORT
ON

"Temporal Partitioning of Communication Resources in an Integrated Architecture"

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Abstract

The project titled "**Mechanisms for temporal partitioning of communication resources in an integrated architecture and assessment of performance**" in the automotive and avionic domain promise improved resource utilization and enable a better coordination of application subsystems compared to federated systems. An integrated architecture shares the system's communication resources by using a single physical network for exchanging messages of multiple application subsystems. Similarly, the computational resources (for example, memory and CPU time) of each node computer are available to multiple software components. In order to support a seamless system integration without unintended side effects in such an integrated architecture, it is important to ensure that the software components do not interfere through the use of these shared resources. For this reason, the DECOS integrated architecture encapsulates application subsystems and their constituting software components. At the level of the communication system, virtual networks on top of an underlying time-triggered physical network exhibit predefined temporal properties (that is, bandwidth, latency, and latency jitter). Due to encapsulation, the temporal properties of messages sent by a software component are independent from the behavior of other software components, in particular from those within other application subsystems.