MESAP
Mechatronics and Systems for Advanced Production

projects

MEchatronics and Systems for Advanced Production Innovation Cluster

SISMA

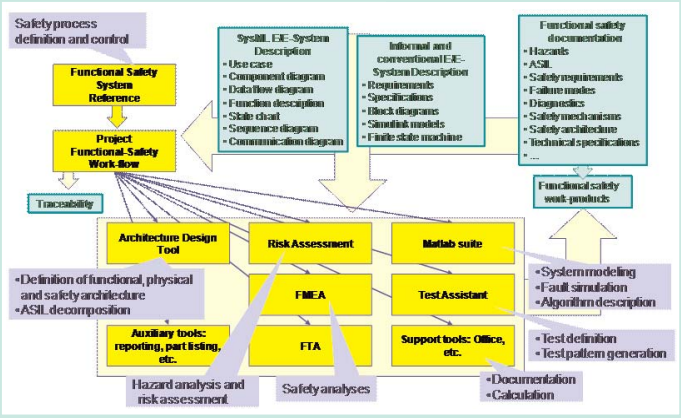
Budget: 2,2 MEuro
From 2010 to 2012

SAFETY DESIGN PROCEDURES FOR MECHATRONIC AUTOMOTIVE SYSTEMS

SISMA aims to offer designers of automotive electronic systems a support to meet the requirements of the norm ISO 26262, which concerns the functional safety of road vehicles. A software environment, together with an innovative test equipment, will be realized in order to rapidly and exhaustively perform the numerous safety analyses required to design a safe system, and to automatically execute the tests as to validate the system in nominal and faulty conditions, applying the fault injection technique.

TECHNOLOGIES

- **Adoption of semi-formal languages (e.g. SysML)** to describe the system under development in consistent and non ambiguous way
- **Interactive guidance for the management of the development process flow,** to activate functions, record the results, monitor the development status, keep tracks of the activities and the safety requirements
- **Integration of safety analysis tools to elaborate Risk assessment, FMEA and FTA** on the base of a common system view and coherent data, and meeting the specific requirements of the ISO norm
- **High level graphic language to define tests and to program the test machine,** including automatic processing functions to produce test patterns and test reports



- **Seamless process from test design to test execution** with on purpose hardware for fault injection, in a complete test environment based on Hardware-in-the-loop method

APPLICATIONS

- **Development of automotive electrical/electronic systems both at system and component level**, from concept phase to verification and validation phase, as regards functional safety
- **Assessment of automotive product functional safety by experts,** e.g. safety managers, assessors.

The application field can be easily extended to similar ones, such as agricultural, construction equipment and earth moving machines, and robotics.

INDUSTRIAL EXPLOITATION

A significant market demand is expected in the near future, due to the introduction of standard ISO 26262. The project partners are interested to exploit the results according to the respective business areas:
4S Group: Safety validation test machine, consultancy to developers
AMET, **NEOHM**: Test systems, HIL simulators, Fault Injection devices
IBIMEC, **CSP**, **4S**: Software environment and tools
VCA: Assessment of automotive Functional Safety
ST Microelectronics: Development of advanced automotive systems

PARTNERS

4S Group – Technology for Sustainability
AMET
NEOHM componenti
IBIMEC
ST
VCA
CSP innovazione nelle ICT
POLITECNICO DI TORINO

SYNERGY FOR SUCCESS

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www.mesapiemonte.it
mesap@ui.torino.it