SafeEV
Safe Small Electric Vehicles through Advanced Simulation Methodologies

Funding: European (7th RTD Framework Programme)
Duration: Oct 2012 - Sep 2015
Status: Complete with results
Total project cost: €3,107,350
EU contribution: €2,120,472

Call for proposal: FP7-SST-2012-RTD-1
CORDIS RCN : 105864

Background & policy context:
In the next 20 years the number of small and light-weight fully electric vehicles will substantially increase especially in urban areas. These Small Electric Vehicles (SEVs) show distinctive design differences compared to the traditional car (e.g. no bonnets, vertical windscreens, outstanding wheels). Thus the consequences of impacts of SEVs with vulnerable road users (VRU) and other (heavier) vehicles will be different from traditional collisions. These fundamental changes are not adequately addressed by current vehicle safety evaluation methods and regulations. VRU protection, compatibility with heavier opponents and the introduction of active safety systems have to be appropriately taken into account in order to avoid any SEV over-engineering (e.g. heavy or complex vehicle body) by applying current regulations and substantially impair the SEVs (environmental) efficiency.

Objectives:
The project SafeEV aims are based on future accident scenarios to define advanced test scenarios and evaluation criteria for VRU, occupant safety and compatibility of SEVs. Moreover, industrial applicable methods for virtual testing of these scenarios and criteria (e.g. a method for active occupant safety assessment) will be developed. These methods are applied in order to derive protection systems for enhanced VRU and occupant safety for SEVs. The evaluation of one developed hardware system will be used to demonstrate the potential and applicability of these new methods. Dedicated best practice guidelines for VRU and occupant safety evaluation of SEVs will ensure a sustainable impact for industry and regulatory organisations beyond the project duration. With the new evaluation methods developed, vehicle safety for SEV on urban roads in the next decade will be adequately addressed resulting in less fatalities and injuries without compromising vehicle efficiency. Moreover, cost-efficient development of SEVs will be made possible by the new virtual testing methodologies developed.

Parent Programmes:
FP7-SST - Sustainable Surface Transport

Institute type: Public institution
Institute name: European Commission
Funding type: Public (EU)

Lead Organisation:
Kompetenzzentrum - Das Virtuelle Fahrzeug Forschungsgesellschaft M.b.h.
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<tr>
<td>Technische Universitaet Graz</td>
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**Technologies:**
Key Results:

Improving safety for tomorrow's small electric cars

A steep rise in small electric vehicle (SEV) sales is expected in urban areas, leading to unfamiliar accident scenarios and new safety concerns. An EU initiative is devising innovative methods to enhance the safety of SEVs for the next 10 years.

In the near future, collisions between SEVs and conventional vehicles, pedestrians, cyclists and motorcyclists will have much different consequences compared to today's crashes. This changing urban traffic landscape and the unique design and chassis of SEVs have not been foreseen by current vehicle safety assessment procedures and laws.

With EU funding, the 'Safe small electric vehicles through advanced simulation methodologies' (http://www.project-safeev.eu/ (SAFEEV)) project is developing a set of advanced tools and guidelines to improve the safety of pedestrians and of drivers and passengers of SEVs in urban areas by 2025.

Work during the first reporting period focused on examining and defining the most relevant future accident situations in urban areas involving pedestrians and occupants of SEVs. The study of projected accident scenarios showed an overall drop in collisions, collision speed, speed limits and vehicle weight, and a rise in safety systems.

Activities also concentrated on providing methods, criteria and virtual assessment tools that are needed to protect pedestrians and SEV occupants. This simulation work will be carried out with two demonstration SEVs and specific test scenarios, as well as with the defined criteria for pedestrian and occupant safety in SEVs.

SEVs will eventually play an important role in urban transport, and SAFE EV wants to ensure that they are safe for their drivers, their passengers and pedestrians. Society should also reap the overall socioeconomic and environmental benefits of safe SEVs.

STRIA Roadmaps: electrification
Transport mode: Road transport
Transport sectors: Passenger transport
Transport policies: Decarbonisation, Safety/Security
Geo-spatial type: Other