

Project acronym: SHERPA

Project full title: " Smart collaboration between Humans and ground-aerial Robots for improving rescuing activities in Alpine environments "

Starting date: 01/02/2013

Duration in months: 48

Call: FP7-ICT-2011-9

Principal Investigator: Prof. Vincenzo Lippiello (Università di Napoli Federico II)

Host Institution: Consorzio C.R.E.A.T.E.

The goal of SHERPA is to develop a mixed ground and aerial robotic platform to support search and rescue activities in a real-world hostile environment like the alpine scenario. The technological platform and the alpine rescuing scenario are the occasion to address a number of research topics about cognition and control pertinent to the call.

What makes the project potentially very rich from a scientific viewpoint is the heterogeneity and the capabilities to be owned by the different actors of the SHERPA system: the "human" rescuer is the "busy genius", working in team with the ground vehicle, as the "intelligent donkey", and with the aerial platforms, i.e. the "trained wasps" and "patrolling hawks". Indeed, the research activity focuses on how the "busy genius" and the "SHERPA animals" interact and collaborate with each other, with their own features and capabilities, toward the achievement of a common goal.

A mix of advanced control and cognitive capabilities characterize the SHERPA system, aiming to support the rescuer by improving his awareness of the rescue scene even in tough environments and with the "genius" often "busy" in the rescuing activity (and thus unable to supervise the platform). Thus emphasis is placed on robust autonomy of the platform, acquisition of cognitive capabilities, collaboration strategies, natural and implicit interaction between the "genius" and the "SHERPA animals", which motivate the research activity.

Five benchmarks, inspired by real-world scenarios, drive the research and motivate demonstration activities on realistic testing sites planned during the project.

Seven top academic groups, two SMEs, and the Italian Association of Alpine Rescuers with the role of end-user and evaluator of the project outcomes for the specific application of search and rescuing in the alpine scenario compose the consortium.