



Rationale:

To protect citizens from crime, violence and terrorism, it is sometimes necessary to stop “non-cooperative” vehicles. For example, this could be vehicles that are used for trafficking of arms and dangerous, illegal substances, or for conducting terrorist attacks (e.g., car bombs).

However, studies from the U.S. have shown that intercepting vehicles is often dangerous and even threatens the lives of those who intercept, for example the police or border guards. At the same time, interception of non-cooperative vehicles can also result in the loss of life of the offenders, which is not intended because citizen security does not justify extrajudicial killing. More precisely, studies have shown that in the U.S., 29% of vehicular pursuits end in accidents, of which 1% are fatal. Moreover, often innocent third parties are involved in accidents occurring in vehicular pursuits, that is, people who just happen to stand or pass by.

Subsequent studies conducted in other places have reproduced approximately the same statistical ratio.

Research and development of protective technology is needed to mitigate risk to citizens from “non-cooperative” (for example, terrorist) vehicles, and to address the problem of disproportionate and unintended results of “old-style” interception measures: Hard physical interceptions very often endanger the life of occupants of the non cooperative vehicles and of other persons, including police and other law enforcing forces, and third parties. This is where AEROCEPTOR comes in to explore “new style” interceptions that minimize the risk of disproportionate and unintended results of interceptions.

1) National Institute of Justice (NIJ), Pursuit Driving: Planning Policies and Action from Agency, Officer and Public, 1996 California Highway Patrol Pursuit Study, 1983

Aeroceptor project objectives and development:

Aeroceptor project aims at setting up the standards to cope with this problem. The main objective of the project is to develop a new and innovative concept of operation to remotely and safely control, slow and stop non-cooperative vehicles in both land and sea scenarios, by means of Unmanned Aerial Systems (UAS) or in the more updated terminology - the Remote Piloted Aerial System (RPAS). These scenarios will be developed based on full consideration of legal and human rights aspects, which are an integral part of the project. The scenarios will moreover be audited from the ethics point of view before their implementation.

AEROCEPTOR PROJECT (CP)
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AEROCEPTOR aims at the latter by the means of:

- Providing a comprehensive and holistic security study on the topic, ensuring that the new developed means will be safe and will meet all the ethical and Social Science and Humanities (SSH) standards;
- Ensuring impossibility of misuse of the technology, guaranteeing that the new developed means will be secure and will include all required safeguards;
- Offering a cost effective solution taking advantage of the Commercially-Off-The-Shelf (COTS) components readily available, ensuring modularity and standardisation to minimise industrialisation and operational costs as well as making it easier to implement in the daily activity of the law enforcement agencies;
- Following the innovative system engineering approach to the required technology Research and Development;
- Promoting a series of Workshops (WS) where the inputs and collaboration of End Users and Stakeholders will validate the project activities and results.

Why a RPAS:

As its name indicates, a RPAS consists of an aerial vehicle that is remotely piloted. This has several advantages, such as:

- Higher security level for law enforcement agents and lower error rate;
- Increasing the efficiency and effectiveness of interception operations, since RPAS are quickly deployable and have an all-weather and 24/7 operation capability;
- Decreasing the risk of human overreaction in interception operations.
- Offering a cost effective and environmentally friendlier solution due to their reduced weight and therefore less fuel consumption;
- And last but not least, being humans still the best decision makers, RPAS offers a solution able to combine the human capability for decision making with a high automated operation capability owing to the continuous monitoring of the operation and fulfilling “state of the art “ privacy respect legal requirements

AEROCEPTOR is a multidisciplinary consortium that comprises scientists from Social Sciences and Humanities, car manufacturers, aeronautic researchers and industry, as well as law enforcement agencies. The AEROCEPTOR consortium is lead by INTA (Spanish research institute for Aerospace), the coordinator name is Vicente de Frutos and will be carried out during 2013, 2014 and 2015, with around 3.5M€ co-funding from the European Union (7th EU Framework Programme for Research). Before the funding was granted, the project was evaluated and reviewed by several international experts committed by the European Commission. It was also positively assessed by an ethics screening and a security screening committee, committed by the European Commission, before the funding was granted. During the project, an external expert review will take place.