

ARGUS 3D

Project co-funded by the FP7 of
the European Commission

“AiR GUIDance and Surveillance 3D”

WHAT IS ARGUS 3D?

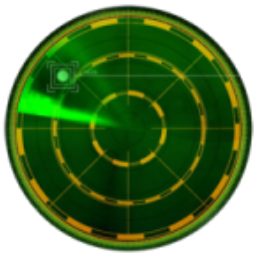
ARGUS 3D (Air Guidance and Surveillance 3D) is an European Union co-funded collaborative project, with the aim to improve the detection of manned and unmanned platforms by exploiting the treatment of more accurate information of cooperative as well as non-cooperative flying objects, in order to identify potentially threats.



WHY ARGUS 3D?

Conventional ATC systems for civil applications cover large airspace and are able to locate and identify (considering A/C as “friendly”) only cooperative A/C (i.e. those responding to the interrogations from the SSR), but are characterised by the following main drawbacks:

- 1.** they do **not assure the full coverage**, particularly at low altitudes, due to the presence of the so called *radar blind zones*;
- 2.** they are **not able to fully localise non-cooperative targets** (NCTs), because the PSR only returns range and azimuth angle and without response by the airborne transponder no information at all is available concerning the A/C altitude;
- 3.** they are **not able to identify NCTs**, that could be either hostile A/C approaching a forbidden area and/or somehow threatening the homeland security or friend A/C having a breakdown;
- 4.** they are **unable to detect A/C characterised by a low value of radar cross section** (RCS), because they are tailored for efficiently monitoring large A/C.



ARGUS 3D

Project co-funded by the FP7 of the European Commission

ARGUS 3D OBJECTIVES

The overall objective of ARGUS 3D is to enhance the security of European citizens, as well as of strategic assets by contrasting, on large areas, unpredictable and unexpected terrorist threats that can be delivered by means of small and low-flying (manned or unmanned) A/C.

In order to achieve this general objective, ARGUS 3D project intends to carry out R&D activities aimed at improving the current ATC systems for civil applications, extending their coverage and making them able to detect, recognise and track non-cooperative targets (NCTs).

The scientific and technical objective of ARGUS 3D project is studying, designing and implementing an innovative, low-cost, multi-sensor, radar-based system for 3D air guidance and surveillance that integrates conventional surveillance systems currently used for civil applications and two classes of non-conventional radar systems:

- 1. 3D PSR sensors:** PSR with monopulse estimation capability in the vertical plane and therefore able to return the altitude information for any detected target;
- 2. Networks of multi-operational, high-performing passive/bistatic radar sensors:** Special form of radar receiver that detect and track objects by processing reflections from non-cooperative sources of illumination already available in the environment (e.g. commercial broadcast and communications signals).

The integration of 3D PSR sensors will enhance the capability of the ATC systems of getting 3D information also for NCTs; the introduction of passive radar sensors will allow both to extend the conventional surveillance coverage into areas typically not well catered for by current systems (considerably reducing if not completely removing the radar blind zones) and to improve the recognition capability of the ATC systems also for NCTs.

ARGUS 3D PARTNERS

Italy

Selex-Sistemi Integrati (project coordinator)
SESM Scarl
Università "La Sapienza" di Roma - INFOCOM
ENAV S.p.A.
CiaoTech Srl

Germany

Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e. V.
ISO Software Systeme GmbH

Poland

Przemysłowy Instytut Telekomunikacji S.A.

United Kingdom

Dependable Real Time Systems Ltd.
University College of London

Spain

REDHADA S.I.
ECONET S.I.

Visit ARGUS 3D at: www.argus3d.eu