# SW_SARAH-LE

Skywin
Aerospace cluster of Wallonia

## Special Aerial Response Autonomous Helicopter (Long Endurance)

2011-2015

## Axe(s)

Modeling
& Simulation
Embedded Systems

## Industries

**Flying-Cam**
Numflo

## Research Bodies

ULB
ULg

## Total Budget

2,5 M€

## Type

R&D

In recent years, the market for Vertical Take-Off and Landing of Unmanned Aerial Vehicles (VTOL MUAV) has grown exponentially. To answer to the market evolution, FLYING-CAM developed an electrically motorized helicopter called "SARAH" pushing technology to the state-of-the-art on the world map.

The market has pushed Flying-cam to launch a research that will extend their knowledge to develop a long-range version of the Flying-Cam III SARAH. This new functionality will address, for example, the needs of civilian and homeland security applications.

The project's objective is to achieve a range of 2 hours flight for a portable platform VTOL MUAV with 25 kg take-off weight and payload of 5 kg.

To achieve this objective, the following research will be conducted:

- Research for increasing the rate of discharge of the Fuel Cell.
- New propulsion with hybrid or fuel cell engine.
- Development of dedicated software in simulation of miniature helicopter rotor (for Numflo company) .
- Main rotor aerodynamic optimization using numerical simulation (CFD) and tests in order to obtain maximum performance, both in terms of stationary and translation flight
- Research on intelligent activation of the anti-torque in case of shutdown during the flight.