

## USE CASES, TRAININGS AND PILOTS

### 1. Portable AR equipment with real-time AI capabilities

Aim: prevention of and response to crisis situations, terrorist acts, management of asymmetric threats and assisting the public.



### 2. Advanced Identification of Friend or Foe for LEA officers in the field

Aim: coordinated response and planning of tactical approach of LEAs involved in active shooting situations.



These use cases will only be piloted in controlled research environments with volunteer participants, and not in real-world contexts. The DARLENE AR glasses interoperate with the Command and Control (C&C) system to retrieve additional information about the officers' field of view (e.g., injured civilians, further information about the identified persons such as perpetrators, etc.), as provided by police officers operating the C&C system. Furthermore, the AR applications will only identify threatening movements or objects, thus not identifying personal characteristics of individuals, in accordance with GDPR principles for the necessity of data processing.

## CONSORTIUM

### COORDINATOR



### PARTICIPANTS



## CONTACT US



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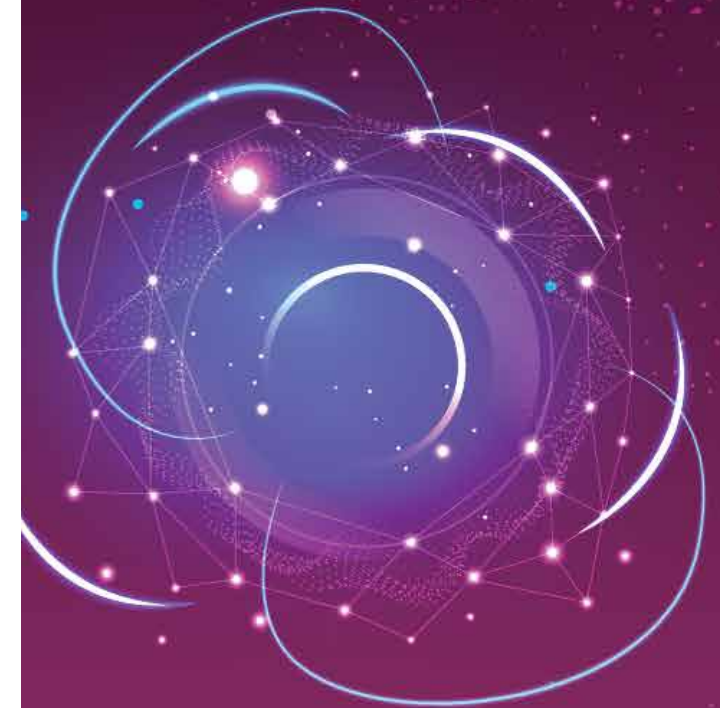
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# DARLENE

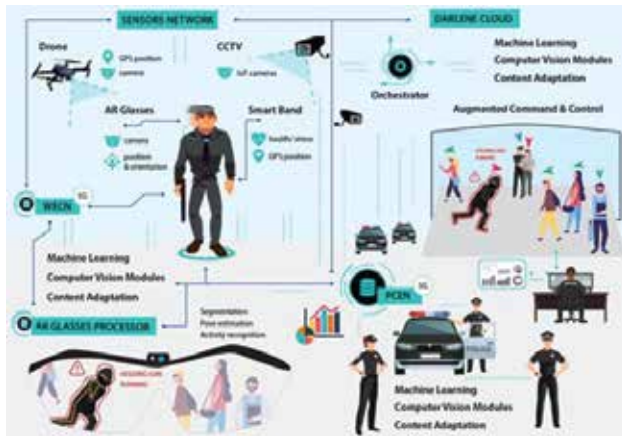
## DEEP AR LAW ENFORCEMENT ECOSYSTEM



## ABOUT

The heightened threat of terrorism continues to be one of the most prominent challenges facing Europe. The increasing accessibility and affordability of technology mean that law enforcement agencies (LEAs) require upto-date technology to stay one step ahead of criminals and terrorists.

Augmented Reality (AR) holds great potential for LEAs in improving situational awareness by overlaying useful information directly on top of the real world. This is a vital skill that is often critical to the survival and safety of officers and civilians in crime-fighting situations.



DARLENE will combine innovative AR smart glass technology and powerful computer vision algorithms with 5G network architectures to allow agile processing of realtime data to help LEAs make more informed and rapid decisions when responding to criminal and terrorist activities.

## OBJECTIVES

- 1 Achieve (near-) real-time semantic segmentation to overlay useful information on top of the real-world through the AR glasses and enable detection of objects and events without facial recognition technology
- 2 Enable officers to see the locations of people inside buildings and highlight additional information to reduce friendly fire casualties and threats
- 3 Demonstrate 5G systems in security-based field trials
- 4 Develop a personalized Head-Up Display (HUD) framework, maximising DARLENE impact on situational awareness enhancement
- 5 Develop a robust legal and ethical framework for the DARLENE ecosystem to ensure compliance and sustainability of the innovation with all relevant regulations and ethics principles
- 6 Disseminate the results of the project widely, on national, European and international levels

## CONCEPT

Given that situational awareness is critical to the survival and safety of officers and community members alike, LEAs are required to continuously work towards improving their situational awareness mindset.

DARLENE technologies will allow LEAs to take the initiative away from criminals and terrorists by developing a common operating picture for both on-scene personnel and their command staff based on data collected from various sources.

DARLENE thereby delivers innovative tools for European LEAs to gain an advantage in tactical manoeuvring scenarios by exploiting AR and machine learning together with 5G technology.



## THE FUNDAMENTAL COMPONENTS OF DARLENE

A wearable micro-computer module, capable of delivering performance and power efficiency needed for demanding visual computing applications.

Cutting-edge smart glass technology, a headmounted display (HMD) unit embedded with tracking and sensing hardware, capable of running virtual 3D rendering applications in real-time.