DISPERSE

Electronics for spatially distributed sensors and transducers arrays

Labeled in PENTA, a EUREKA cluster, Call 1

PENTA Project Number 16012

D4.4 – Cross-functional Demonstrators

Due date of deliverable: M36

Start date of project: 1 February 2017	**Duration:** 36 months
Organisation name of lead contractor for this deliverable:	Philips
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Work Pack./ Task:	WP 4
Description: ***(max 5 lines)***	DISPERSE technology can be used outside the healthcare domain as is demonstrated in a smart city and a space (radio astronomy) application.

Nature:	<Use one of these codes: **R**=Report, **P**=Prototype, **D**=Demonstrator, **O**=Other>		
Dissemination Level:	**PU**	Public	**PU**
	PP	Restricted to other programme participants	
	RE	Restricted to a group specified by the consortium	
	CO	Confidential, only for members of the consortium	

DOCUMENT HISTORY

Release	Date	Reason of change	Status	Distribution
V0.1	10/01/2020	Outline (meeting at KU Leuven)	Draft	
V0.2	17/01/2020	Recording at Sorama (including Sound Intelligence)	Draft	Sorama Sound Intelligence
V0.3	21/01/2020	Recording at Astron	Draft	ASTRON Technobis
V0.4	23/01/2020	Updated tables	Concept	DISPERSE PMT
V1.0	24/01/2020	Approved by PMT after clerical changes	Submitted	PENTA Office

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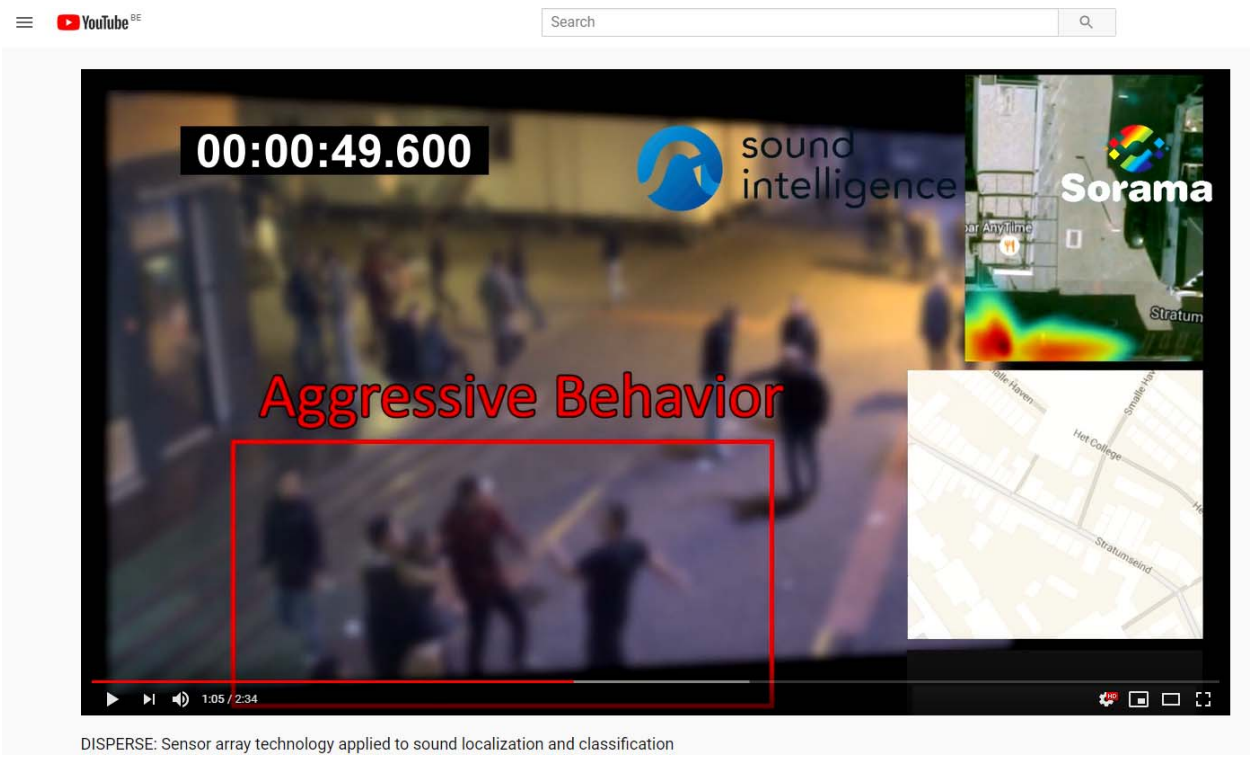
1. Smart Cities: Sound Cameras

Sound cameras employ an array of microphones to detect phase differences between the received acoustic signals in order to determine their origin. The technology developed in DISPERSE has been used to demonstrate in a smart city environment that multiple arrays can actively cooperate in a synchronized manner and that the received signals can be localized and classified to detect e.g. shotgun or street aggression.

A video recording has been made public:
https://youtu.be/hb5UoMbb9TA



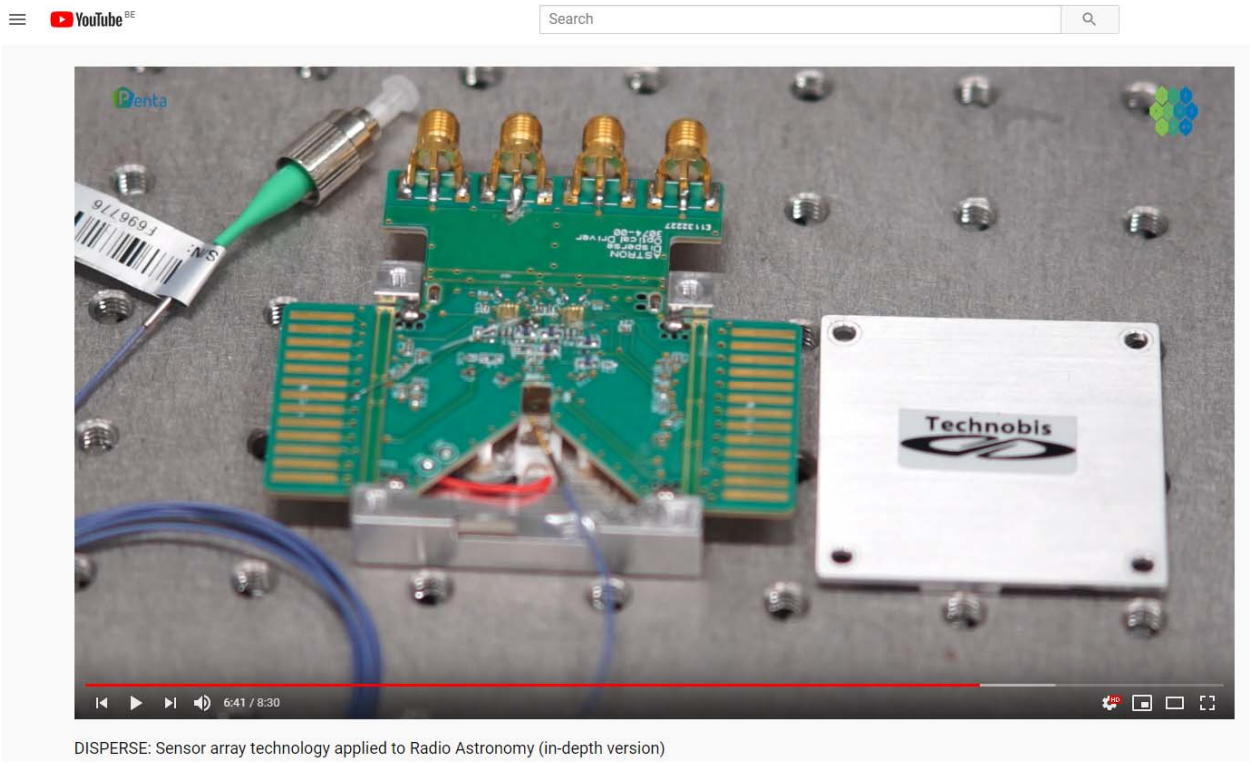
2. Space application: Radio Astronomy

In phased-array radio telescopes only analogue optical link techniques are currently available for the transfer of the signals from the antennas to a signal processor over a distance beyond 100 meters. Analogue optical signal transfer can only be applied in case of moderate temperature fluctuations. In the case of a satellite based telescope, with its low power, uncooled antenna units, relatively large temperature fluctuations can be observed at the antennas which cause analogue optical link performance fluctuations/degradation beyond the required limits. Up to now only coaxial cable based techniques are available for the transfer of the signals from the antennas to a signal processor.

In DISPERSE digital optical transmitter technology was developed for sensor arrays. This technology was applied to demonstrate a low volume power transmitter that enables the transfer of antenna signals with sufficient dynamic range over large distances.

In this way the DISPERSE transmitter technology enables improved data collection from existing radio telescope arrays and the realisation of future satellite based systems.

A video recording has been made public:
https://youtu.be/GezM0KoE6Ek



For other social media (LinkedIn) a one-minute summary has been made:
https://youtu.be/KREHdT6jazA