

# Acoustic surveillance



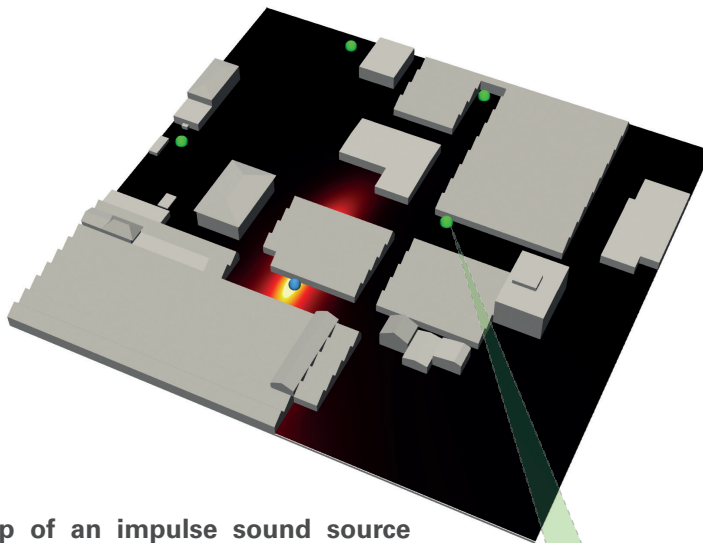
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## Situational awareness beyond line-of-sight

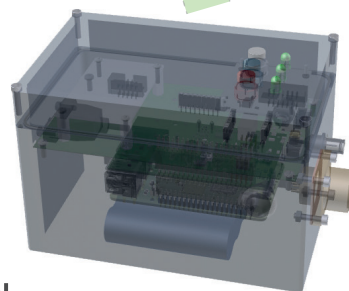
Many operational contexts involve complex environments. For example, urban areas feature buildings which dramatically alter the surveillance capacities of Line-Of-Sight sensing techniques.

The ISL develops a system for real-time, passive acoustic surveillance in such complex environments. It uses several acoustic sensors arbitrarily distributed in the area, embedded processing at the sensor level, information relay through an autonomous IoT radio communication, and decision aid analysis.

The system has been successfully tested for detecting and localising various types of shots and explosions, in various urban contexts. When available, it can ingest a model of the environment for enhanced performance.



**Localisation map of an impulse sound source (blue spot) with 4 non-line-of-sight sensors (in green). Obtained from real acoustic measurements on the ISL premises.**



**One acoustic sensing node (early stage of development). The system may include 10 such nodes, deployable within 200 m from the command post.**



## Characteristics

- Real-time, acoustic surveillance with distributed sensors
- Detects and localises loud sounds: explosions, shots, etc.
- Robust to complex environments: urban areas, natural landscapes

## Applications

- Passive surveillance in urban areas: sniper / artillery shots, accidents, etc.
- Protection of critical infrastructures, of convoy / battle group in urban terrain

## References

- Project DGA/RAPID  
"SURICATE":  
Ref. 182906006
- Project DGA/ASTRID:  
Ref. ANR-12-ASTR-0038
- Publication:  
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