

# *Protecting communities with vehicle noise cameras*

SoundVue detects and captures disruptive vehicles in real-time.



# SoundVue

*Noise Camera Systems*





## About *SoundVue™*

*SoundVue™* noise camera systems allow local government and law enforcement agencies to manage excess noise emission from road vehicles.

Modified mufflers and aggressive/ anti-social driving can be a significant source of disturbance and distress to local communities. *SoundVue™* detects this sound and allows the operators to issue warnings, citations or fines in accordance with local legislation.

## Our team

*SoundVue™* was designed and developed by a team of expert acoustic engineers from Intelligent Instruments Ltd in the United Kingdom.

In addition to supplying the hardware our team are here to help you develop a successful and robust noise camera strategy.

Our services include site selection, system set up and specification and full expert witness services to help defend any legal challenges you may receive







In September 2020 two systems were piloted for 3 months in the Royal Borough in London.

The technology was used to issue 163 fines from nuisance vehicles over that period with no repeat offenders.

Following the trial Councillor Johnny Thalassites (Lead Member for Transport) said:

*“Residents have made it clear to us that many drivers are using our streets as a racetrack. Piloting new noise camera technology has helped us catch more of the worst offenders”*

## The concept

The Royal Borough of Kensington & Chelsea in London (UK) had a significant issue with excess noise from road vehicles, very often performance cars, driven in residential areas at night causing disturbance and distress to those living there. The Royal Borough received many letters and emails of complaint and petitions from residents encouraging them to take more action against these noisy drivers.

In 2019 the Royal Borough approached Intelligent Instruments and asked if we could develop a technical solution in the form of a noise camera which would detect this sound and identify the offending vehicle.

We developed several prototype systems and tested them extensively on a selection of different roads and vehicle types throughout 2019 and 2020.

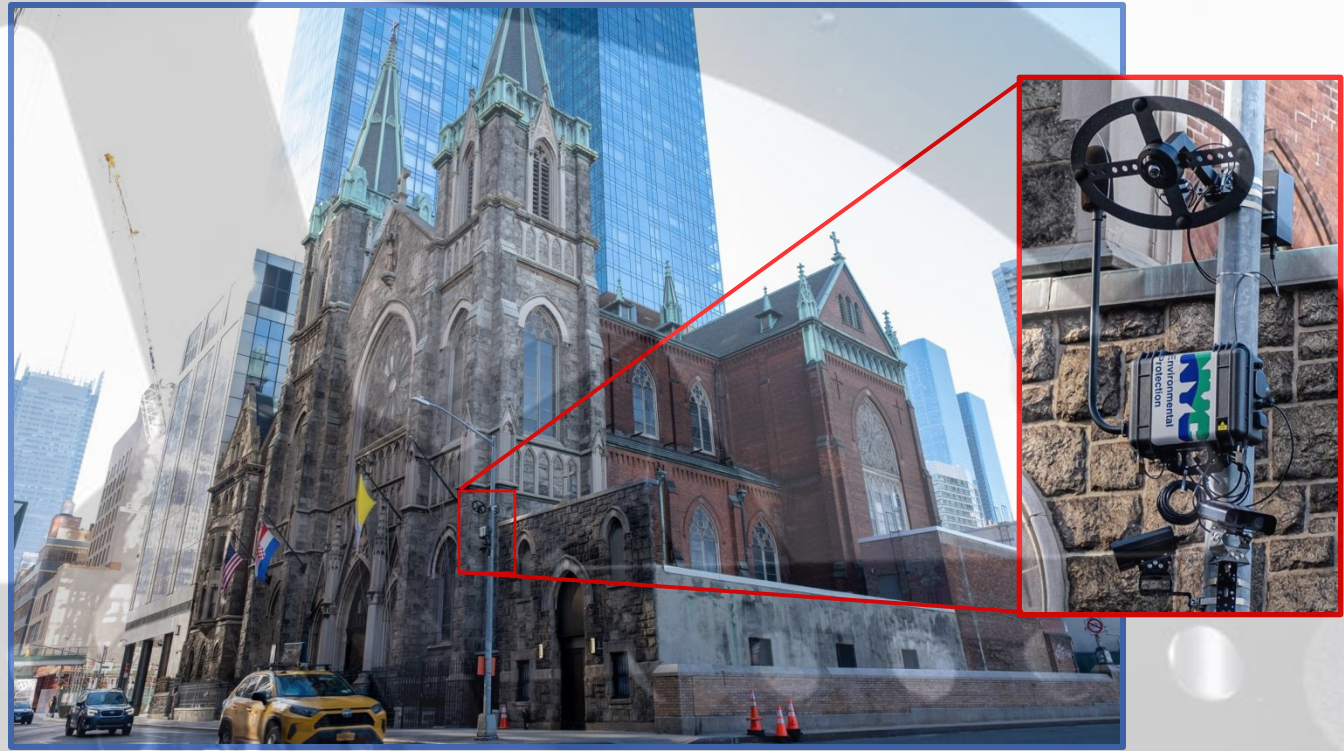


## Our evolution

New York City piloted a system in 2021 and 2022. The system was rigorously tested over 5 locations for 12 months.

At that time Commissioner Rit Aggarwala said:

*“Vehicles that emit obnoxious levels of noise in violation of state and city law have become a top quality of life concern for many New Yorkers and this technology offers some real promise in helping us to provide some relief for our neighbors,”*



Following the New York City pilot refinements were made to the system which included provision of ANPR/ LPR cameras, a wide angle/ vehicle tracking camera and a microphone array which is used to detect the dominant noisy vehicle (even when there are multiple vehicles in the imagery).

This second generation system from Intelligent Instruments became known as SoundVue™.

# SoundVue



# Progress



SoundVue™ noise camera systems have been tested in and are now in operation in multiple cities across three continents.

Our systems in London and New York City have been used to fine offending motorists since 2020/2021 respectively. Some other territories issue warnings whilst they fully evaluate the technology.

## Cities in which we operate/ have run pilot studies

- UK- London, Alderley Edge, Great Yarmouth
- Miami Beach
- New York City
- Sacramento
- Knoxville
- Longmont
- Sydney
- Philadelphia (coming soon)
- Hawaii (coming soon)
- Iowa (coming soon)
- **Your city next?**



# The technology

SoundVue™ utilizes a Class 1 accuracy microphone (certified in accordance with EIC 61672-1:2013) to detect excess noise from road vehicles. The system listens continuously and triggers on noise from engines, horns, music and Jake brakes.

When it triggers it uses secondary microphones to identify the offending vehicle (even if there are multiple vehicles in the images) and LPR cameras read the licence plate of the offending vehicle.

A 14 second clip of video, audio and noise level is uploaded to a secure webserver providing an evidence pack for interrogation by the user who can then decide on the appropriate course of action.

We have partnered with several third party companies who can provide further (optional) back-office services which includes identification of the vehicle owner, administration of the fine/ warning letter, collection of payments and court action if payment is not made.



## Privacy

To mitigate privacy concerns SoundVue™ uses face blurring technology so that it is not possible to identify individuals.

It also only triggers at noise levels significantly greater than speech levels (typically 85 dBA at the microphone) and hence does not record speech or voices.

### Precision microphone

Detects offending noise & level



### Microphone array

Identifies offending vehicle



### Wide angle camera

Places visual marker on offending vehicle



### ANPR/ LPR cameras

Reads licence plate of offending vehicle



### Processor & router

Sends video clip + noise data to secure webserver



### User/ operator

Reviews footage & issues warning/ fine

## Events

Search events 🔍 ⌵

Location Show all Vehicle Make Show all

Start date 14-Oct-2024 End date 14-Oct-2024 Days of the week Mon Tue Wed Thu Fri Sat Sun

Time of day From 00:00 to 00:00 Noise level (dB L<sub>max</sub>) slow 4 117 4 36 72 108 140

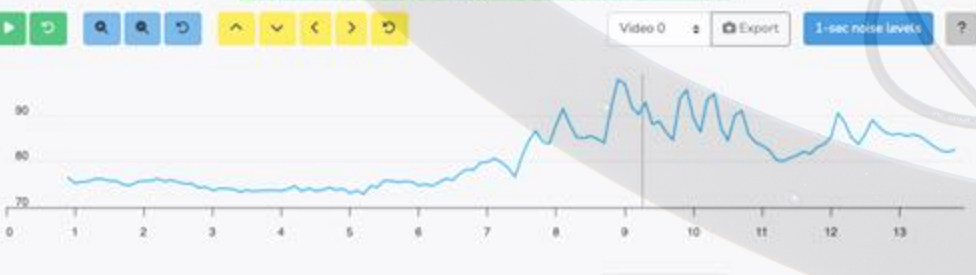
Sort by Time stamp

Export results list **101 events**

Archived events Hide archived events Actioned events Hide actioned events

Events outside PSPO time Hide out of time events

ID	Time stamp	Location	Number Plate	Slow	Fast	Audio ID	Notes	Action
100001	14-Oct-2024 10:00:00	Chesham Road	GC 6	203	203			<span>🔍</span> <span>🔊</span> <span>📄</span> <span>🗑️</span>



## User interface

Following each trigger event an evidence package comprising video, audio, noise levels and licence plate information is automatically sent to our secure webserver in real time.

The user can then review each event and check the data prior to taking action.

The system API can be programmed to interface with the customer's existing front end and hence integrated with other camera enforcement technology operated by that jurisdiction.

If required our partners can provide full back office functionality providing an end-to-end solution.



# Installation & specifications



*SoundVue™* is frequently installed on street lamp columns as we find that they are located in the right position relative to the road and are a cost effective alternative to constructing a new, bespoke powered pole.

Our service includes appraisal of the suitability of system locations but we advise installing with a clear minimum line of sight of at least 15 m in each direction. Any existing columns used must be checked for structural integrity/ wind loading.

## SOUNDVUE™ NOISE CAMERA Class 1 Autonomous Noise System

### NOISE CAMERA

Specifications apply to SoundVue Noise Camera fitted with the supplied microphone and input stage, and running associated software

### STANDARDS

Conforms with Class 1 IEC 61672-1: 2013

### CLOCK

Continuous synchronisation with UTC. High performance RTC chip with battery backup

### COMMUNICATIONS

4G dual SIM capability

### MICROPHONE

Prepolarised precision 1/2" microphone and Halo source detection array

### CAMERA SYSTEM

2 x high performance imaging cameras. Vehicle tracking camera

### STORAGE SYSTEM

High capacity solid state storage on device (encrypted)  
Secure online cloud storage

### CALIBRATION

Calibration history stored on instrument

### MEASURING RANGE

Single high dynamic range

### POWER

Mains (110 - 230 V)

### MOUNT

Easy mount bracket with security

### WEIGHT

19.9 kg including mounting system

### CONTACT

Intelligent Instruments Ltd  
The Kennel Building  
3 Bassett Avenue  
Southampton  
SO16 7DP

### ORDERING INFORMATION

SoundVue Noise Camera System



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# Testimonials and awards



*Intelligent Instruments has been crucial to the success of the NYC Noise Enforcement Program.*

*They are constantly improving their equipment and software to meeting NYC's needs. Their staff are courteous and prompt with any requests. I have recommended them to government agencies throughout the US and Canada.*

Oscar Gonzales, Director of Technology and Field Ops



*RBKC's experience of working with Intelligent Instruments has been an absolute pleasure. Their team of skilled professionals are not only knowledgeable in their field but also dedicated to providing the highest level of service and support.*

*Intelligent Instruments took the time to understand the borough's unique problems and needs and developed a tailored solution that exceeded our expectations.*

*I cannot recommend Intelligent Instruments highly enough for any business seeking innovative enforcement options and exceptional customer care*

Cem Kemali, Lead Member for Planning & Public Realm



*Winners of the prestigious Intertraffic Production Innovation Award for User Experience, Amsterdam, April 2024*

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## **SoundVue**

