# Idea Story

Every day when I drive my car or walk roadside, I experience very noisy surroundings due to vehicle honking on the roads. It disturbs me a lot and effects my concentration to daily routine work.

According to World Health Organization, the noise pollution is one of the deadliest because of its health and social implications including hearing impairment, cardiovascular & sleep disturbances, mental health problems.

The largest portion of noise pollution in cities emanates from vehicles and "Honking" is the culprit as we zero down on further. The problem is worst at traffic signals where drivers start honking without waiting for the signal to turn green or for traffic to move. Drivers show no respect to the law that prohibits the use of horn at traffic signals and other silent zones such as areas near hospitals, schools and residential areas. Vehicular honking in cities (especially in developing countries) has reached at an alarming level and contributes approximately 70% of the noise pollution in our environment.

Currently, it's difficult to identify who has blown the horn and at which all locations. Traffic Police can't be available everywhere to catch such offenders. And when it's 20-30 vehicles waiting at a traffic light, it's difficult for a traffic policeman to point out who has blown the horn.

Apart from noise pollution, the vehicles are also a major contributor to air pollution by emitting harmful gases like carbon monoxide. As per law, all vehicles should undergo pollution checks at fixed intervals, but this doesn't provide the real time picture of air pollution caused by a vehicle. Also, there is a possibility that vehicle owners can somehow get fake "Pollution Under Control" certificate.

So, it's time now to use intelligent technologies like IoT to bring control on honking behavior of people and to track in real time the emission of vehicles.

## Solution Proposed

- ✓ Equip vehicles with sound sensors (or digital horns) to record the honking patterns
- ✓ Equip vehicles with gas sensors in the exhaust unit to measure the emission of gases like CO, NO2, HC, etc.
- ✓ Sensors collect this data which can be transmitted to cloud-based solution via the gateways installed on the roadside (e.g. on streetlights)
- ✓ Analysis on data can help determine and penalize the offenders when driver's horn usage reaches some permissible limits. Emission data statistics will help in warning the vehicle owners when polluting gases crosses defined limits.

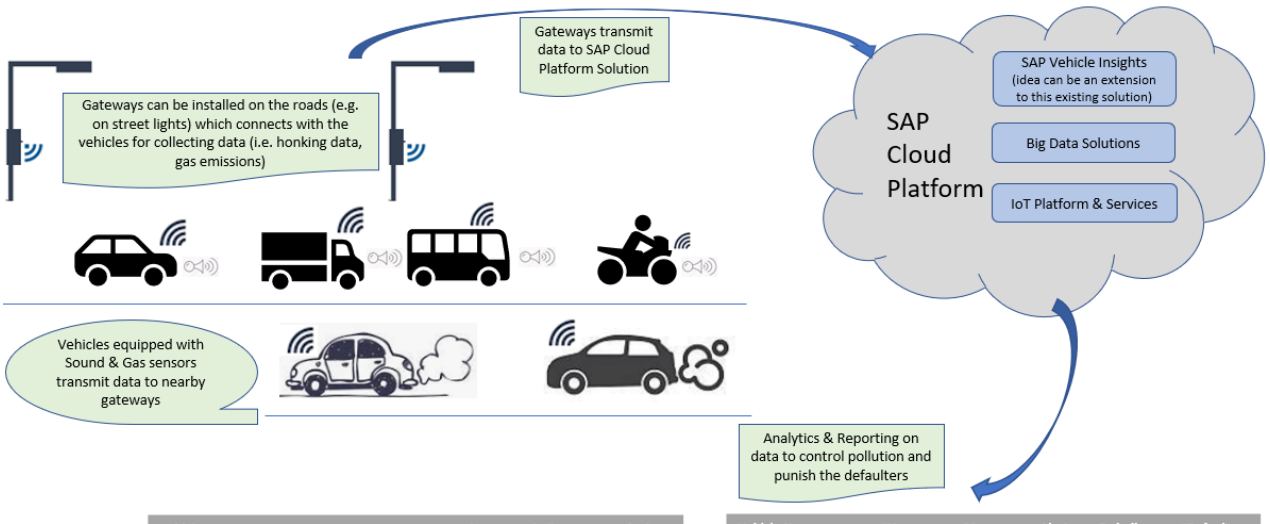
## Business Drivers

- ✓ Reduce noise pollution and traffic disruptions on the roads
- ✓ Bring control on the honking behavior of impatient drivers
- ✓ Departments like City Administration, Transport/Pollution, Fleet Management can find the culprits easily and issue fines or challans
- ✓ It's need of the hour as by 2020 it's estimated that 250 million vehicles will be connected
- ✓ Real time monitoring of noise and air pollution will make the cities livable for the people.
- ✓ As we are moving into the era of smart cities, it's become important that cities are smart enough in controlling pollution levels by using IoT technologies and bring intelligence in managing the city.
- ✓ Because of this idea, there can be various quantifiable business impacts as an outcome like for example City Liveability Index, Fleet management score in adhering to laws, efficient city administration, etc.

## Ideation Category: Transportation

Control Vehicular Noise & Air Pollution

*A High Level Solution Overview*




| Vehicle No. | CO% Emission | NO2% Emission | HC Emission | Alert | E-challan Issued | #Defaulter History |
|---|---|---|---|---|---|---|
| CA4357 | 3.0 | 0.4 | 550 | | - | 0 |
| MH9828 | 4.0 | 0.5 | 450 | | - | 5 |
| GH2367 | 7.0 | 8.0 | 900 | | Yes | 2 |
| PQ7890 | 2.5 | 3.0 | 350 | | - | 1 |
| - | | | | | | |

| Vehicle No. | #Horn Pressed | Max decibels | Alert | E-challan Issued | #Defaulter History |
|---|---|---|---|---|---|
| CA4357 | 10 times | 70 dB | | - | 2 |
| MH9828 | 50 times | 90 dB | | - | 5 |
| GH2367 | 25 times | 95 dB | | - | 0 |
| PQ7890 | 120 times | 120 dB | | Yes | 3 |
| - | | | | | |