Pollution sensors send out a clear message

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(PhysOrg.com) -- New technology that can tell us the exact level of traffic fumes we are breathing in at any moment in time is being trialled in the North East.

The Mobile Environmental Sensing System Across a Grid Environment – MESSAGE – has been designed by experts at Newcastle University and produces real-time, second-by-second, metre-by-metre data on traffic pollutants such as carbon dioxide (CO2), nitrogen dioxide (NO2) and even noise.

Using a system dubbed SMART dust technology, sensors called 'motes' are placed at regular intervals along busy roads where they continuously monitor the level of pollutants in the atmosphere. This data is then fed back and can be accessed in real-time via Google map.

Being trialled for the first time in Gateshead, the project has been funded by the Engineering and Physical Sciences Research Council and the Department for Transport. The aim is to understand the links between traffic flow – in particular congestion – and pollution levels.

But it also means that individuals – drivers, cyclists, pedestrians and any other road users – can potentially track the exact levels of pollution they are exposed to while going about their daily lives.

Phil Blythe, Professor of Intelligent Transport Systems at Newcastle University, said: 'Common sense tells us that pollution levels will be higher during rush hour than at other times of day but we need to

understand exactly how these levels vary – inside and outside the car, at different temperatures and humidities – before we can start to tackle the problem.

'What we hope is that this data will be used to inform new traffic management plans that will improve urban air quality and transform the way we travel.'

Professor Margaret Bell, professor of Transport and the Environment at Newcastle University, said: 'Pollution levels in cars and buses are often actually higher than they are outside, so for short journeys it makes more sense to walk.

'It's all a question of balance – if you walk, then you're exposed to less intensive pollution levels, but for a longer period than if you travelled the same journey by car.

'If you're driving aggressively or laboring your engine you're increasing the pollution behind you, so your bad driving is causing those behind you to breathe in more pollution.

'This data will be vital in helping us to understand fluctuations in air pollution so that we can find ways to keep traffic moving more freely and ultimately improve air quality in our towns and cities.'

Placed along some of the busiest roads in Gateshead, this is the first time a local authority has monitored vehicle pollution on such a large scale and the project has attracted interest across the UK as well as other parts of the world.

The plan now is to set up a transport observatory based at Newcastle University that could be used to inform the way traffic flow and pollution is managed up and down the country.

Professor Blythe added: 'In future, tens of thousands of tiny low-cost sensors could create intelligent transport infrastructure that aids decision-making at all levels.

'MESSAGE shows how new information and communication technologies will impact on the way we travel and think about travel in the years ahead, and on many other aspects of daily life too.'

Provided by Newcastle University