# Comparison table

Prithvi Yarlagadda

**Article**: Cofaru, C. (2011, February). Strategies of Developing Road Transport by Controlling Automotive Emissions to Reduce Local and Global Environment Impacts. In *Proceedings of 6th IASME/WSEAS International Conference on Energy & Environment* (pp. 23-25).

| Competitor | My Algorithm |
|---|---|
| **Result:** The reduced life road transport exhaust emissions across Europe, there have been no significant improvements in concentrations of $PM_{10}$ and nitrogen dioxide ($NO_2$). As exhaust emissions decline, tire and brake wear contributes to total road transport emissions of air pollutants. The Euro 5 standard for light and heavy duty vehicles was implemented and the next standard, Euro 6 will be released in 2014 for both categories of vehicles | **Result:** In my research I considered different methods to understand how it is distributed and predicted and I will implement those on our dataset. I also consider the parameters like correlation between area and pollution, population and pollution. Because we cannot say that these part of city have high pollution based on parameters, there could be more vehicles running in these areas at some particular time interval and which results in these kind of increase in air pollution. So population should also be a main factor in deciding and predicting the air pollution. |
| An important element of this effort is the development of alternative powertrains to the internal combustion engine (ICE). While a number of these alternatives present a great expectation for improving energy efficiency or reduced emissions, some early technical solutions lack the power density of ICEs and deficiency implies that either performance must be compromised or the rest of the vehicle must be made lighter | Research considers different factors varying from simple highways to as complicated as emission of gases with respect to speed. These all factors play major role in air pollution. |
| Different studies show that the internal combustion engines (ICEs) have the potential to increase the fuel efficiency by 2020. The alternative powertrains can be included into four main categories which can be easily developed: hybrids, fuel cell, battery powered, and the compressed natural gas. | In our research we consider the location, time and different gases as we have access to this data only and perform different regression models and test which one is best suited and gives more accurate results in predicting the pollution for next hour or next day. |
| When different energy carriers with varying degrees of energy losses during fuel production are compared and distribution is used, primary energy efficiency analysis becomes necessary. | This paper will also provide with the areas which are highly polluted. This can be used in various field to make the world better place by implementing some measures reduce the pollution or showing the public what are the dangerous places to live or travel regarding air pollution. |
| The European economy loses nearly 100 billion euros, or 1% of the EU's GDP per year. Year by year the level of air and noise pollution is increasing. Urban traffic is responsible for 40% | These can be categorized into different time series like calculate for monthly, daily and hourly. From this we can find a pattern and may predict for the next day or hour. These can be very helpful in understanding the pollution |

| | |
|---|---|
| of $CO_2$ emissions and 70% of emissions of other pollutants arising from road transport. | distribution and help people in avoiding those areas. We can use Brasov city data and use the location data and find the values of the pollution and show case the highly polluted areas in the city by heatmap. |
| A solution could be the smaller, efficient and clean vehicles used for local distribution. Negative impacts of long distance freight transport passing through urban areas should be reduced through planning and technical measures. | Using these heatmap we can find the highly polluted areas so that public can avoid those in case of traveling. This can also help in taking measures for reducing the pollution in those areas, may be by planting more trees or making vehicles to take alternate route. Some ideas of show casing the polluted areas are by making specific areas green where it is not polluted and red where it is highly polluted |
| Technical innovations, such as the catalytic converter and improved fuels, have decreased the emission of VOC, NOx, SOx, and lead due to road transport during the last 15 years while the limited improvement in vehicle fuel economy has been offset by a growing demand for transportation. | Pollution is relatively proportional to the population of the area. For example less densely populated areas have less transportation so this result in less gas emissions and which results in less pollution. So correlation between pollution and population is also considered in study. This makes huge difference in understanding and finding the patterns |
| Implementing and reinforcing EU environmental legislations in order to diminish gaseous pollutants, particulates, and noise emissions due to road traffic | One limitation for this approach is that we need to have access to the population dataset and we need to have location data too for that population. We have the pollution dataset and locations based on sensors. But we do not have sensors for calculating the population. Even if we had, it would not be same locations as the sensor data. |
| Financial policy supporting the replacement of vehicle fleet with new generation one that satisfied latest pollution level | The population and pollution locations will operate on different areas. So this approach cannot be accurate enough, though we can find the city population and can calculate. But this will be for whole and cannot be relied on it |
| Implementing a policy of taxation for second hand vehicle registration and promoting a lower taxation for new vehicles | Even emissions from flights are causing damage to ozone layer. This in turn will reflect on living organisms on earth like cancer. Pollution will have huge impact on health of living organisms. Humans are the main factors for these air, water and other pollutions. |
| Investments for infrastructure to result in an improvement of urban road traffic flows, air quality and noise reduction | The perspectives of this work are Understand how transportation technology can help save the environment, Decrease vehicles pollution by technology like hybrid cars and electric vehicles, Install sensors and maintain traffic-related air quality updated, Real-time traffic related air pollution can be maintained. |