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PBL 3 Literature Review

Measurement of Air Quality Index

Monitoring air quality is important, so as to understand and address the problems of air pollution. While traditional methods like lab sampling and analysis have been phased out due to it being time-consuming and expensive, newer methods including the use of sensors have been implemented into measuring the different factors that make up the Air Quality Index, or AQI for short. These sensor-based technologies offer continuous and accurate measurements of various pollutants. The information that is generated from these sensor-based systems are crucial; quick and real time information is needed to provide the latest updates.

According to a research paper done by Shiram and Malladi (2021), AQI is measured by as many as seven different parameters, including nitrogen dioxide (NO_2), sulfur dioxide (SO_2), ground level Ozone (O_3), particulate matter 2.5 (PM2.5), particulate matter 10 (PM10), carbon oxide (CO) and Ammonia (NH_3) levels. These pollutants are measured in the air via sensor technologies and an average score is produced, to produce the AQI. In a paper done by Concas et al. (2021), however, stated that as more low-cost air quality sensing is more widely used, the quality of the results can suffer, due to cross-sensitivities between different ambient pollutants, as well as external factors like traffic, weather changes and human behaviour.

While the information generated might face inaccuracies because of the quality of sensor that is used, the information would nevertheless prove useful to our application. The data and AQI score that is generated is crucial to the application because it would form the backbone and basis of the air quality application.

References:

Shriram, P., & Malladi, S. (2021). A study and analysis of air quality index and Related Health Impact on Public Health. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3768477

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