# Team Zephyr Capstone Project

## Predict Changes In Air Quality Based On Industry

**Abstract**

With this project we plan to look at data on air quality by county and the growth of certain industries over time to determine if there is a correlation between certain industries growth and changes in air quality by county. Air Quality can be tied to many socioeconomic factors, and we felt it was important to track the AQI to determine what industries have a sizeable impact on those factors.

Data used:

EPA.gov – Link

Census.gov – Link

**Questions we hope to answer:**

What industries, if any, have a noticeable impact on Air Quality?

What have the general trends over 10 years been within certain industries?

What have the general trends over 10 years been in Air Quality?

**Machine Learning Module**:

Taking Median AQI by Year and Industry Employment by County.

Linear Regression Model testing significance of Industry on Air Quality Index

Machine Learning model to predict industry change with correlation to change in Air Quality Index. The ML-based AQI prediction models have been proved to be more reliable and consistent. Advanced technologies and sensors made data collection easy and precise. The accurate and reliable predictions through such huge environmental data require rigorous analysis which only ML algorithms can deal with efficiently.

**Database:**

Pandas

Google Collab

The Air Quality Index (AQI), an assessment parameter is related to public health directly. A International Journal of Environmental Science and Technology 1 3 higher level of AQI indicates more dangerous exposure for the human population. Therefore, the urge to predict the AQI in advance motivated the scientists to monitor and model air quality. Monitoring and predicting AQI, especially in urban areas has become a vital and challenging task with increasing motor and industrial developments.