**Major Project**

The task is to create a device that will fit in vehicles to measure air quality in different areas for visual comparison. This is to show what humans are breathing into their lungs in different areas. This data could then be used to relate to deaths in the areas caused from breathing in pollutants. The air quality values will be visualised using a separate online application. Many tasks need to be thought about:

* The hardware
* Hardware architecture
* Software interaction with the hardware
* Language to run on the hardware
* Storing the data
* Transferring the data from the device (to a possible server? Or online web storage)
* Retrieving data for the visual application
* Displaying the data that is appealing
* Implement various tools to easily filter visual data

**The problem**

“Each year in the UK, around 40,000 deaths are attributable to exposure to outdoor air pollution”

**The Hardware**

Air quality sensors are not the most common

**The Data**

The data that needs to be collected will be GPS and an air quality value. The GPS location will be used to identify where in the world the air quality value has been read. The air quality value will be used when visualising the data and will represent the air pollution level in that area.

The data will need filtering. Filtering techniques will need to be studied to remove any unacceptable data that may reduce the quality of data collected.

**Collecting Data**

A portable microcontroller will be needed to collect data for both GPS location and air quality. As distance is eventually limited on online map providers (e.g. you can’t measure centimetres) a few readings every m^2 would create an accurate averaged reading.

**Storing Data**

Storing the data from an SD card Is

**References**

[1] – The Royal College of Physicians (Published 2016) - [*Every breath we take: the lifelong impact of air pollution*](https://www.rcplondon.ac.uk/file/2914/download?token=qjVXtDGo)*, Accessed – 01/02/2018* [*https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution*](https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution)