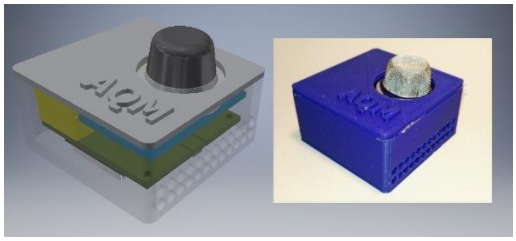
Air Quality Map

The real-time monitoring of the particulate matter (PM) and smoke concentration in the air is currently an unsolved problem, however, the protection of our health should be really important for us. There are some air quality monitoring companies, but they are focusing on long-term measurements, and they can't provide real-time information. Also, they only use a few sensors in a large city, so the resolution of their data is quite low. The average processing time of the data is around 24 hours, but a more accurate analysis can take up to 3 months. Particulate matter contains microscopic solids or liquid droplets that are so small that they can be inhaled and cause serious health problems. Some particles less than 10 micrometers in diameter can get deep into our lungs and some may even get into our bloodstream. These particles come in many sizes and shapes and can be made up of hundreds of different chemicals. The currently used sensors are placed too high above the ground, so they do not reflect the pollution levels in the height of the people.

Our goal was to develop a real-time air quality monitoring system, to protect the health of both young and old people and everyone, with some kind of respiratory disease. This system can help families with small babies, runners and dog walkers to choose a cleaner location for their outside activities, or any of us to find the healthiest path to go to work or school.

This monitoring system is expandable and easy to use, and can solve the problem explained above. Our smartphone is with us wherever we go, so we developed some applications to help the users finding the best path for traveling. The real-time measurements are done by our selfdeveloped small and lightweight devices. These can send their data to the user's phone over Bluetooth, or it can upload it directly to our servers using a WiFi connection. In our monitoring network, we use some permanently installed sensors, and lots of portable devices to make a real-time high-density air quality map. This map can be synchronized with the traffic information provided by any companies, and with our information, it can help the local government to optimize traffic lights and reach the long term goals of settlement development. It can also help the local health organizations, to organize medical checkups.



A few of our future goals:

- Based on our data, making some short and long term forecasts of the pollution level.
- Providing real-time data to do traffic light optimization
- Sending notifications to our users about the pollution in their area, before it reaches them
- Organizing medical checkups for those, who live in highly polluted areas

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