The AtmoSniffer, 2018 update on the development of a portable air quality instrument.

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The prototype of the AtmoSniffer has advanced significantly since we last reported on its status. The biggest changes are improvements in the circuitry and the addition of multiple sensors for most of the gases being tested. The multiple sensors provide system health, better range, and improved zero-point confidence. We have also improved the user interface with a tablet GUI (using the Android OS), onboard data logging, and long-range telemetry. The AtmoSniffer is an instrument designed to measure particulate matter, ozone, carbon dioxide, carbon monoxide, nitrogen dioxide, sulfur dioxide, and ammonia. It also detects temperature, % relative humidity, and pressure. As a flight optimized device, the AtmoSniffer also has a 9-axis inertial measurement system that can be used as a proxy to measure air turbulence along with a high-altitude rated GPS. The 2018 Q1 prototype is 1.2 kg (2.6 lb), an 18% reduction over the previous prototype, and has an estimated 7-hour flight time on a 5200 mAh Lipo battery, a 43% increase over the previous prototype. The current prototype has been calibrated against EPA standards and is under testing for long term stability and zero-drift. Performance and current sensor status will be presented.