PROS & CONS OF DIFFERENT AIR QUALITY SENSORS

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CE-CERT has been using a variety of sensors working with the community over the last several years, and we. This is a summary of the pros and cons we have observed with the sensors, it is not comprehensive or to be used to compare the accuracy of the sensors; it is merely our observations and what has guided our decision making for purchasing sensors for different applications. We will be updating this sheet regularly with new information. For a quantitative assessment of the performance of the sensors, visit AQSPEC.

Low-Cost Sensors

Low cost air quality sensors are cheaper than government-used sensors, thus making them available for individual citizens and neighborhoods to purchase and use for themselves. They are generally flash memory or cloud-based and are able to record real-time data on air quality parameters. Here are some to name a few.

SENSOR	PRO	CON
PurpleAir sensor	❖ Public online cloud-based map. ❖ Connects to wi-fi ❖ Cost is around $250, one time fee ❖ Usually decently accurate for up to 2 years if calibrated	❖ Must be connected to a power source
Clarity sensor	❖ Solar rechargeable ❖ Connects to wi-fi ❖ Internal battery ❖ Usually decently accurate for up to 2 years if calibrated	❖ Private online cloud-based map. ❖ Cost can approach $1000 per year, subscription basis
DIY sensor – Raspberry Pi Sensor	❖ Learn individual parts of an air quality sensor	❖ Not calibrated (designed only for qualitative use) ❖ Requires initial coding
DIY sensor – Smart Citizen Kit	❖ Learn individual parts of an air quality sensor ❖ Very easy to assemble ❖ Low Cost, ~$100 ❖ Interactive website	❖ Not calibrated (designed only for qualitative use)