

T3 Lesson 15: Air Quality Sensors

INTRODUCTION

Air quality is one of those topics that connects all of us. It's not difficult to find someone in your community who is sensitive to variations in air quality and is willing to share their story as a seed for an air quality monitoring project.

As I describe above, our project with air quality sensors came out of the problem that our community in Hawaii faced during the 2018 volcanic eruption.

[Slides](#)

Setting up for this day depends on the resources that you have available to you. In the story presented about Hawaii, we had students split up into teams of 3 to build air quality sensors for various areas around our region. If you just have one, then you will want to emphasize more about the data that is collected and what it means than the building process. Building the kit is pretty straightforward if you follow the tutorials below.

The connection with what the data means is the exciting part. I would find someone in your community who is interested in talking with your students about Air Quality. Once the students know how to manipulate the LCD screen, this can turn into a way for the Air Quality information (and other info) to be displayed.

APPLICATION

Here are the building steps:

<https://t3alliance.org/rpi-airquality-station-indepth-assembly/>

Here are the programming steps:

<https://t3alliance.org/rpi-airquality-station-setting-up-the-default-flow/>

Here are the steps associated with programming the LCD screen:
<https://t3alliance.org/rpi-airquality-station-creating-an-animated-nyancat-wallpaper/>

REVIEW

You will know this is working on the specific level if students or you can notice changes in air quality after tweaking the environment slightly. An open or closed door, any sort of dust and you should be able to detect changes. On the larger level, if students feel comfortable applying this technology to a community issue then you have opened a huge door. There are 3 sensors connected, nothing is stopping a student from identifying and setting this device up with more sensors that can send information to the cloud. This basic sensor is like the gateway project to more remote monitoring projects.