Covid Room Monitor

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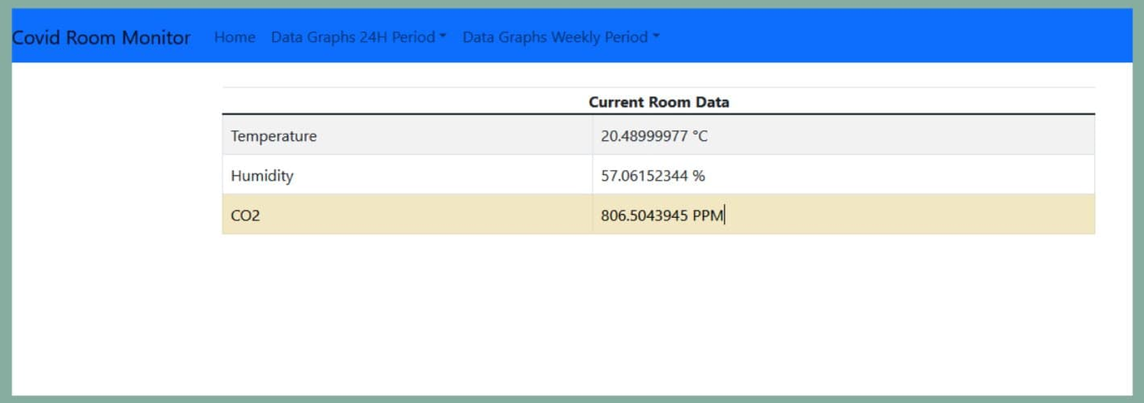
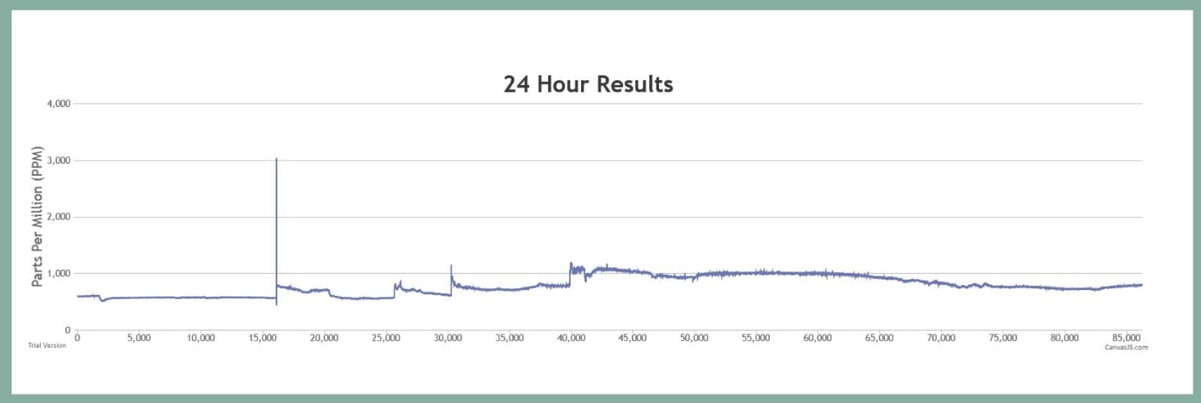
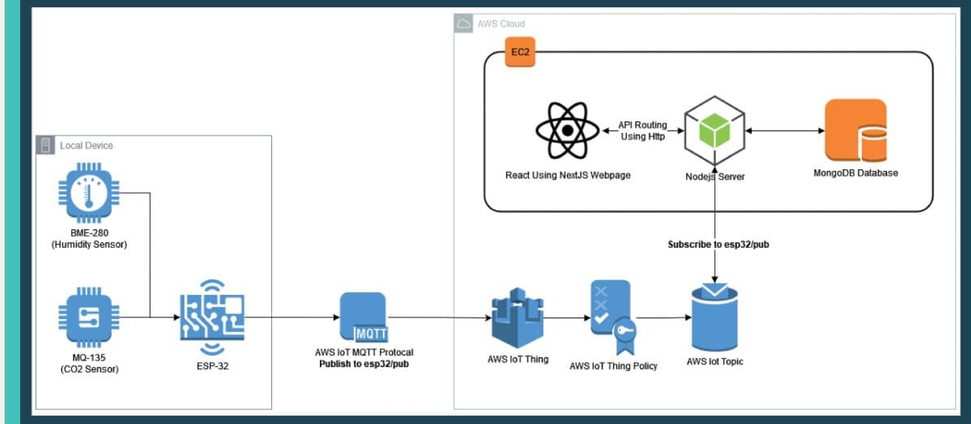




Project Introduction

This project was inspired by the recent covid-19 outbreak. During this time, we have seen many regulations in Ireland and around the globe, such as having to wear masks indoors and keeping gatherings with people to a minimum.

That last part is what this project will focus on, particular regulations around rooms such as offices and classrooms. I hoped to create a system that can track the movement of people in and out of a room and continuously monitor that room and store that information to be displayed on a webpage for any user to see.



Technologies

Project Description

This project would monitor one primary variable in the room, the CO2 level. This data can help determine the likely hood of covid transmission in a room as research points to the spread of covid correlates with high levels of CO2 in a room. Monitoring this data in real-time can help us catch when spaces become more transmissible areas for Covid-19 to spread, which can help cut down on the risk of transmission in the long term.

Project Overview

For this project, I decided to use the ESP-32 as my development board because of its Wi-Fi capabilities and, on a lesser note, its use of freeRTOS, which we were studying this year which I thought might be a nice touch to add to the project if I got a chance. Still, the main reason for ESP-32 was its speed, compact nature and built-in Wi-Fi module, which made it reliable and easy to use. This board would receive data from BME/280 and an MQ-135 CO2 Sensor, which relay data back to the ESP-32. This data would then be sent via MQTT using AWS IoT Core to a NodeJS server hosted on a virtual EC2 server and a NextJS web server which would display information received from the ESP-32 and this data would be stored MongoDB database by the NodeJS server