**Quality Data System**

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March 11th, 2022

Url: https://github.com/ekreider14/QualityDataSystem.git

This project is meant to assist in quality control for a hypothetical factory or business that requires strict monitoring of temperature and humidity for the safety of their products. For this reason, most of the project is based around the storing, querying, and display of data points associated with temperature and humidity. The system consists of three primary parts: a web server, a database server, and sensor modules. All three components exist on separate, cheap, and easily purchasable single board computers called Raspberry Pis. This reduces the total cost of implementing the project and makes it easy to swap hardware components if needed.

Application features:

* User based rights and access levels
  + The system will have different access levels for different users. Not every user should have access to all the functions of the application. The function access should be limited to least privilege for each user.
* Look at current sensor data for all sensors
  + This function brings up the most recent records for all data sources in a dashboard. This use case would be for someone in quality assurance who is responsible for maintaining the day-to-day operations and storage of the product. For this user, current records are the focus.
* Look at sensor data over time
  + This function would be reserved for a quality manager or analyst who is more interested in how the data looks over time. This presents a dashboard with metrics based on each data source, such as minimum, maximum, and average values.
* User authentication and password changing
  + The system will use username and password-based authentication. A user should be able to manage their own password, and an application support user should be able to change the passwords of other users.
* View additional information about individual sensors
  + Certain users should be able to view additional information about sensor modules, including their last record submitted to the system, notes on where the sensor is located, and the hostname of the module itself so it can be identified on the network.
* Create comments
  + All users should be able to create comments on a comment system. These comments can be useful for different users to communicate quality issues to one another or sign off that they validated temperatures at a current time.
* Export data
  + The system should have a method of exporting data outside the system. If a user wishes to use a separate data analyst solution, like Power BI, they should be able to connect to the database as a data source and have read-only access in order to build reports.

System Requirements to access:

A computer with a modern web browser connected to the same network as the system. The operating system and individual system specifications should not matter as the system does all of its processing server side. Currently, the web pages are not optimized for mobile or tablet devices.

Diagram

Description automatically generated