

A Brief Discussion of Project Constraints

Economic Constraints

Since this project is being personally funded, the budget for acquiring equipment and material for this project is rather limited. The current estimate for the project's budget is no more than \$150. As a result, hobbyist electronics will mainly be used for the project's hardware. The project's software will also use free software to help cut costs. Luckily, there are plenty of options available for both hardware and software that are affordable and extensible. Since this is a personal project, no economic development or benefit will result from this project.

Professional Constraints

This project will require that I employ almost everything I have learned in my career thus far. Since this project is rather all encompassing in nature, it will be a great resume builder.

Security Constraints

Data being sent through the MQTT topics must be authenticated and encrypted. Authentication will prevent unauthorized actors from publishing data to the topics. This helps ensure that the data pipeline operates as intended. Communication between the server and the embedded devices will occur over the relevant MQTT topic. Furthermore, encryption will ensure that the credentials used for authentication remain confidential. Lastly, having a sign-in page for the web apps would prevent unauthorized users from accessing the data. However, this is a lower priority vulnerability since these web apps can only view data.