BUEngineering

Boston University
Electrical & Computer Engineering
EC463 Capstone Senior Design Project

First Prototype Testing Plan

by

Team #18
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Required Material

Software:
- InfluxDB set-up
  - Store data into database

- Visualize with Grafana
  - Display data onto dashboard
  - Customize time-scale

- Web Application
  - Implement Grafana dashboards
  - HTML and CSS website implementation

Set Up

        Currently, hardware setup is unavailable due to order and shipment issues. The software is separated by the database and the web application. The database being used is a time-series database called InfluxDB, which will add timestamps to all data inputted and store it within its database. Data will be organized by measurements within the database. Then a third party visualization program called Grafana will connect with the database to allow Grafana access to the data. Dashboard settings and variables will be adjusted to display desired information. By changing Grafana's server settings and permissions, it will allow the website to use and display dashboards from Grafana. The web application is coded in simple HTML and CSS code. It is expected that Javascript will be useful for later website design implementations. Currently, the website consists of images and text that are needed for the final design implementation.

Pre-testing Setup Procedure:

1. Enable the local instance of influxDB
   a. Influxdb in one window (which shows the logging) on port 8086
   b. Influx in second window to show access to influxCLI for database
2. Enable the local instance of Grafana
   a. The login tab will be in port 3000 as default, or change port to 8080 or similar to avoid extra Windows permissions
3. Open the local instance of the Greener Living website

Testing Procedure:

1. Show how the sample data is part of the influxDB databases
   a. SHOW measurements
   b. SHOW users
   c. HOW databases
   d. SELECT * FROM h2o_feet LIMIT 5
   e. Explain the sample data set
2. Access Grafana's interface which the user/password would be admin
3. Show the integration of the local database and Grafana (data sources tab)
4. Show the creation of a new dashboard
5. Show the creation of a panel (graph within the dashboard)
6. Show customization of the panels and all the options it allows
   a. The tagset location
   b. Axis and graph manipulations
   c. Time range manipulations (something the customer requested)
      i. Sample dataset is a bit constricted because this was recorded in 2019, so we would not be able to show the latest data (real time), such as the last 10 minutes, hour, day…

      d. The user can take a link,snapshot, or embed a iFrame onto their own website (in this case our own website)

      e. Show a pre-made dashboard of different timeframes

7. Show website designs
8. Show website implementation (in progress)
9. Show overall design of the functionality of device and website

Measurable Criteria

- Grafana is able to integrate with InfluxDB
- Grafana is able to create dashboard or panels that satisfies customer's needs
- Embedded graphs are shown correctly on web application
- Website is set up and needs graph input and general design edits