DISTRIBUTED STORAGE SYSTEM

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Overview

To monitor and display the current inventory levels of two warehouse components vis GUI. The inventory data which is fetched from the scaling device needs to be displayed in real time. Furthermore, it should be able to store the log history of inventory data in a database and should be able to scale up flexibly with the increase in the number of warehouse components.The analysis of inventory data is also a major concern which can result in future order and stock replenishment forecasting.

Goals

- Interfacing the scaling device with the Raspberry pi.
- Establishment of real time communication via MQTT protocol.
- Fetching the real time inventory levels of two types of warehouse components.
- GUI Dashboard development to display the current inventory levels.
- Storing the inventory data to a database on time interval basis or demand basis.
- Leveraging the inventory data for exploratory data analysis.

Specifications

- Scaling device : PCE-BSH-6000/PCE-BSH 10000
- Microprocessor : Raspberry pi
- Communication : MQTT

Planned Milestones (Tentative Timelines)

- **30/09 : Week 40** : Understanding the scaling device interface details and explore the different ways to interface it with Raspberry Pi.
- **Week 40** : Understanding the warehouse component’s features like unit weight,storage location,type etc.
- **07/10 :Week 41&42** : Interfacing the scaling device with raspberry pi and parsing the data in specific data formats.
- **21/10 :Week 43** : Development of database containing the feature information of warehouse components (name, type, unit weight)
- **28/10 :Week 44&45** : Developing the logic to identify the counts of warehouse components accurately based on weight comparison.

- **11/11 :Week 46** : Developing the QR code/Bar code scanning functionality to identify the warehouse component (feature information).
- **18/11 :Week 47** : Setting up MQTT client on local machine and MQTT broker on pi.
- **25/11 :Week 48** : Implementing the dashboard to view the inventory data levels of each warehouse component.and also the provision to store/save it's inventory history
- **02/12 :Week 49 2019 & Week 7 2020** : Incorporating a functionality for exploratory data analysis to forecast the future order for timely stock replenishment.
- **17/02 :Week 8&9** : Testing and Refactoring the system.
- **02/03 :Week 10&11** : Documentation & User manual preparation.

Block Diagram