A Micro Grid Energy Management System Based on Non-Intrusive Load Monitoring Via Multitask Learning

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Abstract:
Energy Management is the process of reducing the wastage of energy resources. The project is to analyze and predict the budget price and total usage of the electricity power so that we can make a budget out of it. For Every Appliances, we have taken a reading through the smart meter. The Dataset of appliances gathered from each set of flats consists of their respective appliances with their quantities and how much each data’s used. There are also two other datasets in which billing dataset consists of customer’s billing data. The third dataset is about the Customer details like Gender, Age and Phone Number etc… Hence, the analysis of datasets can be used by Big Data technology to capture several datasets and also undergoing a future proposal of dealing with real-time datasets using Spark technology. Additionally, to compare and discuss the performance of comparative study with finding the best accuracy apply in various supervised machine learning technique from the given dataset with GUI based application by given dataset attributes.

I. INTRODUCTION

OBJECTIVE:
In this paper we are isolating Appliance data by utilizing Hadoop instrument adjacent some Hadoop common systems like hdfs, map reduce, sqoop, and hive. By utilizing these devices preparing of information with no confinement is conceivable, no information lost issue, we can get high throughput, upkeep cost comparatively incredibly less and it is an open source programming, it is extraordinary on the majority of the stages since it is Java based. In Appliance data, you’ll be having an entire list of all appliance and their usage values. It is paired with usages per month for user and their prices. We are using the Random forest algorithm to test and train the data so that we can make a prediction.

II. LITERATURE SURVEY

Title: Intelligent Modeling and Optimization for Smart Energy Hub
Author: Tianhao Liu, Dongdong Zhang, Hang Dai and Thomas Wu
Description: At present, the worldwide energy consumption mainly depends on fossil fuels, which cause significant pollution and at the border of running out. Therefore, countries all over the world are trying to promote a revolution in energy industry by exploring alternative ways of energy supply, consumption and storage. Recently, many researchers from different countries focus on the multi-energy planning, and gradually form a consensus on the development of multiple energy system (MES). In the MES analysis, there are three main aspects: planning scheme, optimal strategy for the energy management system (EMS), and energy trading mechanisms. Because of its complex structure, a unified optimization calculation of MES is difficult to carry out. Therefore, fast and accurate formation of the mathematical model and calculating optimal dispatch of MES become vital issues in the MES study.

III. EXISTING SYSTEM:
Existing idea supervises giving backend by utilizing MySQL which contains heap of disadvantages i.e.information prerequisite is that preparing time is high when the information is tremendous and once information is lost we can't recoup so accordingly we proposing thought by utilizing Hadoop structure.

IV. PROPOSED SYSTEM:
Proposed concept deals with providing database by using Hadoop tool we can analyze no limitation of data and simple add number of machines to the cluster and we get results with less time, high throughput and maintenance cost is very less and we are using partitions and bucketing techniques in Hadoop.

ADVANTAGES IN PROPOSED SYSTEM:
✔ No data loss problem
✔ Efficient data processing.

V. SYSTEM ARCHITECTURE:
This architecture explains the process or flow of the project. First we should import csv file into hdfs to processing that huge
data in Hadoop open source framework. And we can process that data with the help of three tools namely hive and finally we get output what we want result from the dataset, what we have in this project.

VI. MODULES:

Pre processing Energy Database

In this module, analyzing the data with different kinds of fields in Microsoft Excel then it converted into comma delimited format which is said to be csv(comma separator value) file and moved to mysql backup through Database.

VII. STORAGE:

In this module we are getting all those backup data which we have stored in MYSQL and importing all those data by use of sqoop commands to HDFS (Hadoop Distributed File System), now all the data are stored in HDFS were it is ready to get processed by use of hive.

Analyze Query:

In this module we are getting all those data from HDFS to HIVE by use of sqoop import command, were hive is ready to analyze. Here in HIVE we can process only structured data to analyze. by extracting only the meaningful data and neglecting unclenched data we can analyze the data in more effective manner by use of hive.

VIII. CONCLUSION:

In this paper, we presented a study on Power Distribution to Datacenters data is help to give awareness to how much power consumption in different datacenters. By analyzing on these datasets and by using the random forest algorithm we are predicting the values that are going to come for the future.

IX. REFERENCES:


