AI-driven AdOPT Platform for Energy & Facility Management

Platform Overview

R&B's core product, AdOPT, is a cloud-based software platform designed specifically for IoT applications. AdOPT is driven by a set of proprietary AI algorithms, known as its AI Engine. The platform performs data analytics and delivers intelligence by acquiring and collecting live data from sensors, equipment, and systems, which enables it to run sophisticated algorithms on a cloud. In a nutshell, the AI Engine recognizes and interprets abnormal data patterns, transforming them into meaningful and actionable insights for engineers, managers, and executives. AdOPT also integrates with management procedures and drives actions to significantly enhance management and maintenance efficiency, thus increasing property value in the long term.

Features

1. The platform provides automatic FDD, which continuously and automatically commissions equipment and the overall system. With a live data feed from on-site control systems to cloud-based software, data analysis is performed automatically when algorithms are executed and conclusions are visualized.

2. The platform automatically generates periodic reports to present conclusions and suggest actionable items in a user-friendly way. The reporting period can be daily, weekly, monthly, or at any other time period programmed by the user.

3. Services are cloud-based and highly customizable with content and scope according to various equipment or systems present and management needs.

4. Services are provided on monthly subscription basis, which avoids Capex and minimizes uncertainties.

Benefits of AdOPT

1. **Cost-effective operative and energy efficiency optimization**

- Engineers normally use a considerable number of domain-expertise assumptions to design, build, and operate a system. A threshold setting, for example, is often used to trigger alarms in a particular building. These types of low-high limit settings are often created by assumptions, rules of thumb, or design codes, which may significantly deviate from real operations. However, these deviations can be difficult to detect and accurately adjust for, so unless data is tracked exactly, proper thresholds cannot be dynamically set.

- Machine learning techniques featured in AdOPT will precisely and dynamically track data trends by "learning" data patterns from history on a granular level (see attached presentation for greater information on chillers and pumps).

2. Enhances the facilitation of operational scale-ups of best practices that rely heavily on personal skills and individual expertise

- Today's facility managers often face a severe shortage of professional and experienced engineers due to budget constraints and other limitations. Daily operation & maintenance comprises a huge number of miscellaneous tasks that require a large amount of professional expertise. Significantly enhancing overall property operation relies heavily on a large aggregation of domain knowledge and expertise. The dozens or hundreds of properties and facilities within a global organization demand engineering expertise to analyze operations and optimize strategic best practices to all facilities in a consistent manner.

- Machine learning greatly benefits engineers on this matter. Once a data feed is set and algorithms are configured, machine learning can automatically learn features from live data of various equipment and systems across different plants. A set of optimal operation sequences would be locally/centrally concluded through operational analysis and comparison on a granular level across an entire portfolio. On a cloud-based platform, these analyses can be easily applied to each facility, and execution can be easily monitored with supporting functions such as digital workflow.

3. Provides decision-making support to both daily operation and long-term management strategies

- Property owners and managers badly need to form long-term management strategies and systems due to lack of management transparency and a shortage of professionals.

- The AdOPT platform automatically generates a variety of reports to satisfy different levels of users, which are based on their levels of management and pre-determined access. With AdOPT, users can access highly condensed and well-organized information based on historical operation records to facilitate the formation of long-term management strategies.

4. Significantly reduce effort to coordinate and communicate among different work groups

- Modern facility management often requires multiple but isolated steps to find and solve problems, creating a tedious and costly burden of communication and coordination for facility managers when handling dozens of such tasks in their daily jobs.

- Driven by the AI Engine, AdOPT's digital workflow automatically groups faults into different tasks and assigns them to relevant persons or parties, and it recognizes data patterns of fixed faults and pushes notifications to relevant users. AdOPT digitizes management procedures and monitors O&M efficiency in a smart way that requires little manual interference.

5. Tremendously improving the work efficiency of engineers who use traditional, spread-sheet based analysis

- IoT data on AdOPT's cloud will be pre-analyzed in ways that include data cleaning and dimension reduction for automatic application in batch analysis. With those features, engineers can more easily search and manage operating data than in massive spreadsheets. Advanced functions, such as defining a function for multiple data points, can be enabled with appropriate data pre-handling packages.