

## **Introduction:**

We are assigned with the task of designing an AI model for measuring energy consumption. The purpose of this model is to Optimize the energy usage in various sector with accurate insight.

## **Problem Description:**

Energy consumption is an important attribute for an organization to reduce cost in terms of energy. There are some famous AI tools which helps organizations to make this cost reductions. They're

- IBM Watson energy insights
- Schneider Electric Eco structure
- Siemens Navigator
- C3.ai energy Management
- EnerNoc (Enel X)

These tools are used by many industries to make a predictive analysis on the Energy Consumption and so on.

The result from this Ai tools helps the industries to get an accurate insight on energy consumption and with that they make strategies to reduce the cost in terms of energy. But there're some drawbacks and limitations in these tools. They are

- Cost
- Data Integration
- Complexity
- Maintenance and Updates

- Data Privacy and Security
- Accuracy and false positives
- Scalability

These factors make the tools as a non useable tool for small scale business and common people. Thus, creating an AI model to overcome the above drawbacks and limitations is the task assigned to our team. In Simple words we are assigned to develop an AI model for energy consumption which is accessible for all kind of small-scale business.

## **Design Thinking:**

Before developing our model, we have divided our implementation into 3 parts to make our model more efficient and user friendly. They are

- Dataset
- Training our model
- User interface for efficient usage

Let us discuss about each in detail.

### **Dataset:**

Creating a dataset for energy consumption requires careful selection of attributes (features) that are relevant to the task. Here's a list of attributes that should be consider including in our dataset:

- Date and time
- Energy consumption

- Building information
- Appliance data
- Energy sources
- Utility data

### **Training our model:**

Training an AI model for energy consumption involves several steps. Here's a general outline of the process.

- Data Collection
- Data Cleaning
- Choose the Right Model
- Split Data
- Model Training
- Model Validation
- Interpret Results
- Model Refinement
- Making Predictions

Thus the above mentioned process will be followed by the team to implement our model.

### **User Interface and Efficient Usage:**

Creating a user interface (UI) for an AI model of energy consumption is a crucial step to make the tool accessible and user-friendly.

The prediction of user-defined input in the context of AI model for energy consumption holds significant importance for various reasons:

- Personalization and Customization
- Real-Time Decision Support
- Scenario Analysis
- Risk Assessment
- Resource Allocation
- Operational Efficiency
- Strategic Planning
- Policy Formulation
- Data-Driven Insights
- Competitive Advantage
- Reduced Uncertainty
- Resource Optimization.

allowing users to input their parameters for predictions in the context of company registration trends provides a valuable tool for personalized decision-making, scenario analysis, and strategic planning. It transforms data into actionable insights that can drive economic growth and operational efficiency.