



GLEETECH.

CASE STUDY

70% increase in customer engagement rate for a utility company

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OVERVIEW

A utility company with more than 500k customers requires a continuous innovation in order to understand their customers energy consumption in a better way and make better business decisions.

The client wanted to understand customer energy consumption pattern and the appliance that they are running without installing any additional hardware for their customers in order to provide suggestions to their customer about how they can save money by efficiently using the energy.

GleeTech provided AI solution which uses half hourly data to order to address the challenges of the client. The solution had **80% accuracy** in ideal condition to predict the appliances which is better than **73% accuracy** of widely used technique called FHMM. Overall the solution helped the clients to increase the **customer engagement to 70%** and the customer were able to reduce their energy bills **upto 20%**.

CHALLENGES

1. Investigating alternative low cost solution to get detailed information about customer energy consumption.
2. Predicting the client appliances and their energy consumption pattern.
3. Offering recommendations to customers about how they can reduce their power bills by using electricity efficiently.



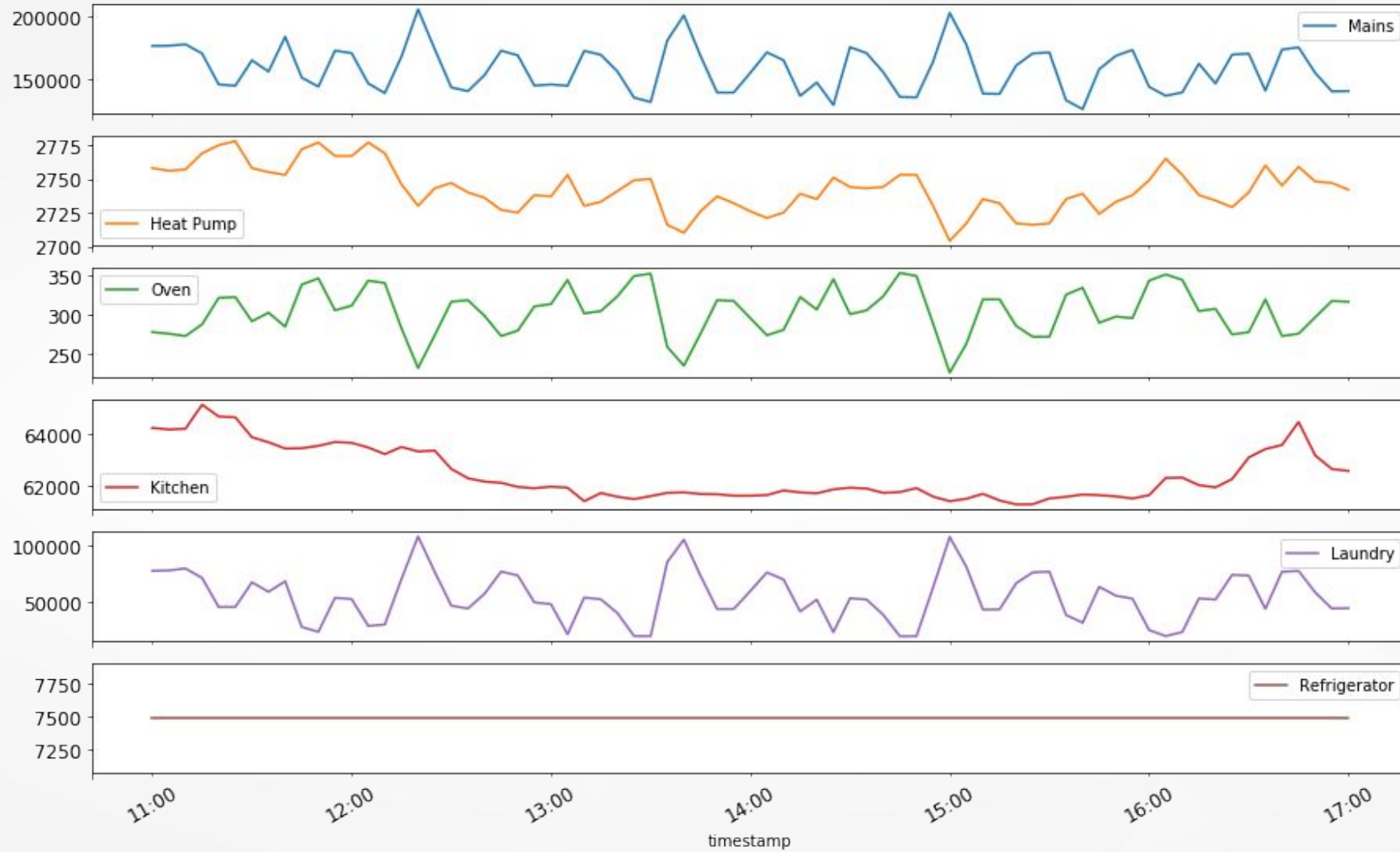
SOLUTION

GleeTech worked with the client to establish the objectives and possible models during the project. In order to avoid huge hardware cost, we used Non Intrusive Load Monitoring (NILM) methods (and disaggregation algorithms) on the energy consumption data to detect multiple electronic devices. There are many challenges associated with this method and requires a special set of skill set in order to develop a custom solutions to detect home appliances just by looking into the energy consumption data.

In the initial phase of the project. We used NILMTK toolkit and public dataset (REDD) to provide the proof of concept. Then developed a custom AI model based on decision trees and retrained the model on the client proprietary dataset.

The public dataset had 1 minute data, but the client had 5 minute data with only few appliances. Therefore, our solution was fine tuned for only specific appliances.

Predicted



The above figure shows the electricity consumed at a particular timestamp for one user.

RESULTS

1. The solution was able to detect the appliances with **80% accuracy** as compare to standard FHMM model which had **73% accuracy**.
2. The customer engagement for the client was **increased to 70%**.
3. The clients customers were able to reduce their energy bills **upto 20%**.





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