TILDA TECHNOLOGIES - CASE STUDY

CLIENT: WATTLOG

Wattlog is an energy monitoring and utility management company that facilitates the reduction in energy consumption to achieve savings. The company's focus is to monitor, manage, inform and save energy usage within the commercial and industrial sectors, giving clients control over their utilities.

THE CHALLENGE

WATTLOG had the hardware monitoring systems to collect the energy information from distribution boards, what was needed was a cloud-based interactive graphical interface to visualize this information so that WATTLOG's clients could easily review and gain control of their energy usage.

In addition, a database to store all of the relevant data needed to be created in order to store the complex detailed minute resolution energy information for easy visual access by the client to enable them to explore and analyse the complex data graphically.

The solution involved the development of both a backend database and a front end cloud based system which required the following:

1. An easy to use GRAPHICAL USER INTERFACE to:
   o Monitor energy usage to graphically view the energy data and ascertain the energy patterns and usage of industrial and commercial clients.
   o Manage energy consumption through the ability to set parameters to selectively turn devices and equipment on and off.
   o Inform about unwanted energy usage where set parameters have been exceeded or manually over-ridden and provide warning notifications.

2. A GUI that also includes an ADMINISTRATIVE MODULE which needs to:
   o Set up a company login.
   o Enable WATTLOG to set up and mange customers, users, gateways, masters, categories and control units as well as various application-wide settings.
   o Provide WATTLOG an easy method of reviewing raw data to help find where issues lie in the process.

3. A SERVER that should provide:
   o A listener that listens to the various gateways and control units to store all the raw data into a central database.
   o A Splitter to process the raw data and splits it up into various tables for easy viewing, printing and reporting.
   o Database as one central repository.
   o Notifications for hardware failures, signal failures or power outages in order for the server to perform 99.9% uptime,

THE TEAM

The project team was managed by TILDA TECHNOLOGIES Managing Director Brett Robertson and consisted of a backend and front end development team.

The front end cloud based development was managed by Senior Microsoft Certified Professional Developer, Marco Luizinho, who was responsible for the design and development as well as overseeing his colleague, Divan de Beer's efforts.

The back end server development was designed and managed by System Architect, Mike Heydon, with help from Richard Schoeman, the Product Development Manager.

THE SOLUTION

Tilda Technologies developed a cloud-based software solution along with backend services and applications for Wattlog to meet the following requirements:

THE GRAPHICAL USER INTERFACE (GUI)
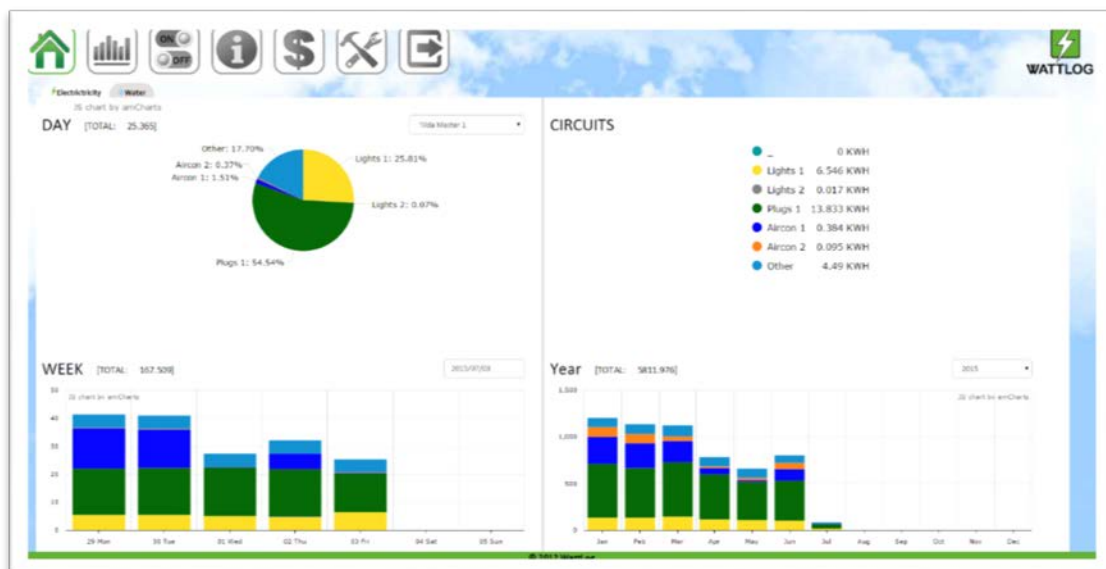
Challenge:
Monitor energy usage to graphically view the energy data and ascertain the energy patterns and usage of industrial and commercial clients was resolved by:

Solution:
In the GUI, graphs were developed to display monitor energy usage by individually monitored circuits (lights, plugs, geysers etc.). This provided easy identification of industrial and commercial clients' energy patterns and usage.

Challenge:
Manage energy consumption through the ability to set parameters to selectively turn devices and equipment on and off was resolved by:

Solution:
Using a very simple online form to enable the user to manage time events that are set to turn devices and equipment on and off at exact times and at specific intervals.
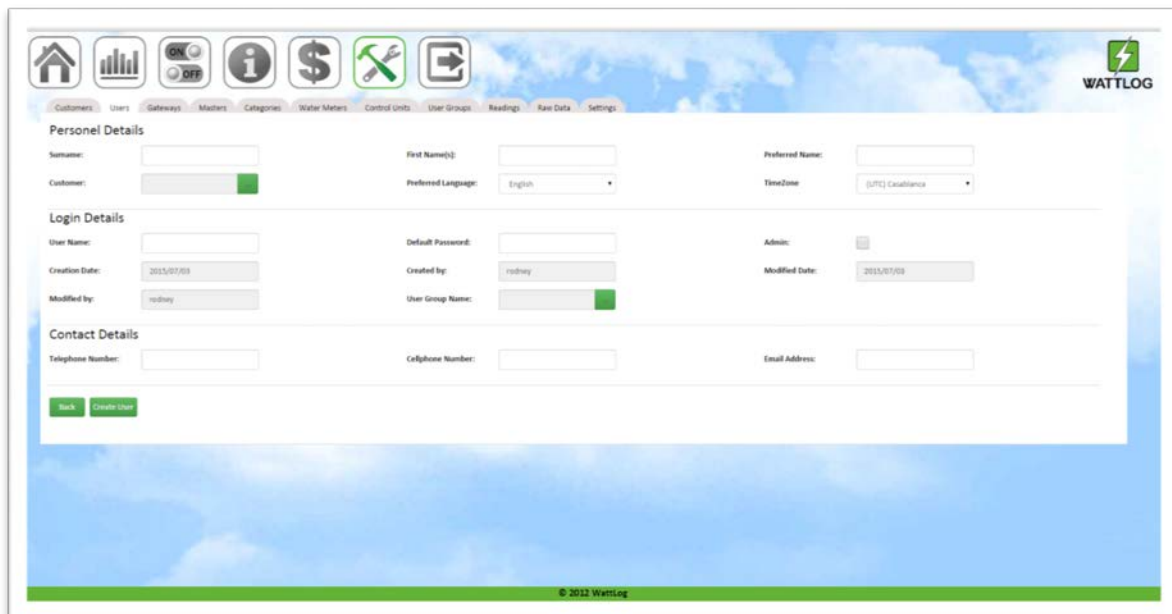
Challenge:
Inform provides warning notifications about unwanted energy where set parameters have been exceeded or manually over-ridden was resolved by:

Solution:
Once again, a user-friendly form was created whereby the user inputs parameters of a monitored circuit which then provides warning notifications when those parameters are exceeded on that circuit. An SMS or email is sent to the relevant parties so they can take action.

THE ADMINISTRATIVE MODULE

Challenge:
The company login set up, resolved by:

Solution:
Using setup forms so that Wattlog can easily set up and manage customers or users login credentials.

Challenge:
Enable Wattlog to set up and mange customers, users, gateways, masters, categories and control units as well as various application-wide settings, resolved by:

>Solution:
>In the admin module, there are intuitive pages with forms that allow Wattlog to manage their customers, monitoring equipment, control units, gateways and backend systems to provide customer setup, user setup and user permissions.

Challenge:
Provide Wattlog an easy method of reviewing raw data to help detect any issues in the entire process.

>Solution:
>A page was added to provide a list of raw data and processed raw data, which can be viewed and filtered or exported to excel.

THE SERVER SYSTEM

Challenge:
The requirement for a listener that listens to the various gateways and control units to store all the raw data into a SQL database was resolved by:

>Solution:
>A Windows service that was written to monitor the required ports capturing any incoming data into the SQL database.

Challenge:
A Splitter to process the raw data and split it up into various tables for easy viewing, printing and reporting was resolved by:

>Solution:
>A Windows service which was developed to format the raw data into a readable format and insert it into relevant tables for viewing, printing and reporting purposes.

Challenge:
Database as one central repository, resolved by:

>Solution:
>A SQL Server 2012 database was created to ensure that all information had a central storage point.

Challenge:
Notifications for hardware failures, signal failures or power outages in order for the server to perform 99.9% uptime, resolved by:

>Solution:
>A window service was created that checks the central database at certain intervals to monitor all devices and services and ensure that they remain online. An external Global Micro Server which hosts all the Windows services offsite ensures 99.9% uptime by not being subject to power failures.

OUTCOMES

Wattlog, obtained a locally developed cloud based 24/7 monitoring system that also manages and informs on energy usage, offering control to achieve long-term savings with the ability to maintain their raw data from a central database into easy to view and printable reports.

CLIENT TESTIMONIALS

"Our overall experience with Tilda Technologies has been very satisfactory. They have developed a complete functional system from scratch, including the development of custom TCP services and database to collect our minute resolution captured data. All this captured information is easily viewed by our clients via the graphical user interface (GUI)."

Rodney Farrow
Managing Director of Wattlog

"Tildatech has developed exactly what we required for our clients; an incredibly informative and user-friendly GUI that provides clear-cut graphs and reports."

Jann Robertson
PR & Marketing for Wattlog