

Case study

Software solution for managing public lighting of an entire municipality

Industry: Public Services

Tools: Microsoft .NET technologies, Android, iOS



Idea

The idea behind the effort is to create a solution that will keep track of the street lighting within the municipality (the main city and its suburbs) implemented to increase citizen's safety. The goal is to have real-time updated information about the current condition of the lighting equipment and to decrease the energy consumption and maintenance costs associated with outdated and inefficient street lighting facilities. In addition, the city administration needs to have solid data about the functionality of the street lighting, its electrical parameters, and performance to optimize the city's costs, processes, and operations.

SOLUTION

The solution is a full package of software and hardware, designed and configured appropriately, which will tackle the requests as needed. It is a Web-based application that is accessible from every location via the Internet. The web application is connected to a mobile application, and the people responsible for the infrastructure can input data directly from the place where the equipment is located. Since the solution is partially automated, the data is automatically transferred to the central database. In this way, both the employees working outdoors and, in the office, have access to updated data about the entire equipment, which facilitates operational efficiency.

Additionally, its database contains each of the objects used in the electrical infrastructure with their appropriate numbers and information about location and condition, which are visualized on the municipality map. The documenting, visualization, and analysis of the gathered data allows easier maintenance of the already existing infrastructure, adding new objects to the infrastructure and information what to change to reduce costs and how to improve the entire infrastructure.

Once the data is entered, it will be immediately accessible for analysis and reports generating. The generated reports are smart reports which provide info about the efficiency of the light bulbs, calculate costs per region and light bulbs, give recommendations about reducing costs, along with predictions. Having this kind of information, enables the Municipality to decrease/increase the power used, forecast the bill, the life expectancy of the bulbs, and to optimize the costs based on the lamp posts. To say it in other words, the application allows tracking of the lighting performance, its status, energy consumption and savings over time and different locations. This, in turn, allows cost optimization and CO2 reduction based on adequate information.

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Picture no.1 Solution Design

RESULTS

The proposed and delivered solution provides thorough and up-to-date information about the condition of every object which is part of the public lighting equipment. This, in turn, enables fast reaction whenever a problem appears as there are immediate notifications about the location of the problem. The analysis and reports provided by the solution allow the municipality to take measures to prevent possible power outages and broken light bulbs.

In addition, with the exponential growth of the cities, the increase of the population, the costs increase as well, and the platform that has been created optimizes not only costs, but it also:

- Automatically adjusts the brightness of the streetlights cutting the energy wastage and use
- Lowers CO2 emission by reducing the energy use
- Healthier and more sustainable living environment by reducing light pollution

Finally, the solution is accessible from Web and mobile, providing flexibility and availability regardless of the place and time.