

Sessions: Renewable energy

Preferred presentation Type: Either

GAMIFICATION-BASED ARCHITETURE FOR ENGAGEMENT OF CLUBS CONSUMERS IN SOLAR GENERATION

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Abstract:

The present work intend to propose a technological innovation, turning clubs sun umbrellas, into solar power plants to assist energy generation/consumption.

Clubs, mostly, has a lot of space occupied by umbrellas, in order to protect visitors from sun's rays. Taking account of that characteristic, thin film solar panels were implemented above them, to assist in the energy efficiency of these spaces.

In this way, to improve the solar power plant generation, a social-centred gamification application approach was developed and proposed, which visitors(operator) while sitting under the umbrella, can interact through their cell phones, smartwatches, tablets, helping to find the better umbrella position moving it. The application provides information on umbrella electricity generation and how it can be better. The umbrella that generates more electricity, earn more points, and that points can be used by umbrella operator, exchanging for discounts in club establishments.

According to [1], Finland has developed an energy planning tool for experts and an application for consumers. The tools have been piloted in Helsinki, Nice and Vienna, with promising results. Local energy costs were reduced by 15% and carbon dioxide emissions by 30% using the optimal planning feature of the tool for experts. Using the game-like tablet application, almost 80% of the households involved managed to reduce their electricity consumption during peak times.

The employment of gamification for residential customers engagement in energy-related applications is getting increasing attention in research and development activities in Europe. A search into relevant databases reveals a significant number of projects related to this area[2][3][4][5].

The research is showing a growing interest in gamification and there are works showing the usefulness of gamification in different problem domains.

References:

- [1] G. Masson, J.I. Briano, M.J. Baez, Review and analysis of PV self-consumption policies, IEA Photovoltaic Power Systems Programme (PVPS) T1 (2016) 28.
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