INTISARI

Konsumsi energi listrik pada gedung menyumbang sebagian besar dari total konsumsi energi listrik di Indonesia. Gedung DTETI Fakultas Teknik Universitas Gadjah Mada merupakan gedung pendidikan dengan tingkat konsumsi energi listrik yang tinggi. Untuk menjaga ketersediaan energi listrik, perlu dilakukan upaya efisiensi energi. Maka dari itu, perlu dikembangkan sistem pemantauan konsumsi energi di gedung DTETI untuk mengelola dan memonitor pemakaian energi listrik dalam bentuk *smart building* sehingga dapat mendukung upaya efisiensi energi di DTETI. Dengan demikian, diperlukan pula pengembangan antarmuka sistem pemantauan konsumsi energi listrik, karena antarmuka merupakan aspek penting dalam pengembangan suatu sistem. Dalam berbagai penelitian sebelumnya, belum terdapat penelitian yang mengembangkan sistem pemantauan energi listrik dengan didasari aspek *user experience*. Sehingga, dalam penelitian ini dikembangkan antarmuka *website* sistem pemantauan konsumsi energi listrik yang memenuhi aspek *user experience* dengan membandingkan 2 versi antarmuka yang didasarkan pada 2 pendekatan berbeda.

Dalam penelitian ini, akan dikembangkan 2 versi antarmuka *website*. Pengembangan versi 1 didasarkan pada asumsi peneliti dan pengembangan versi 2 didasarkan pada metode *The Elements of User Experience*. Setelah melalui proses pengembangan, dilakukan pengujian aspek *user experience* menggunakan *User Experience Questionnaire* (UEQ) untuk kedua versi.

Hasil pengujian UEQ menunjukkan bahwa kedua versi antarmuka yang dikembangkan memiliki nilai *user experience* yang baik. Namun, berdasarkan hasil perbandingan, terdapat perbedaan nilai *user experience* yang signifikan antara kedua versi antarmuka. Dimana, antarmuka versi 2 memiliki nilai *user experience* yang lebih baik. Dapat disimpulkan bahwa antarmuka yang dikembangkan menggunakan metode *The Elements Of User Experience* memiliki nilai *user experience* yang lebih baik dan memenuhi keenam aspek *user experience*. Sehingga antarmuka versi 2 dapat direkomendasikan sebagai antarmuka sistem pemantauan konsumsi energi listrik di gedung DTETI FT UGM.

Kata kunci : *Building Energy Management System, user experience, the elements of user experience, User Experience Questionnaire*

ABSTRACT

The consumption of electrical energy in buildings contributes most of the total consumption of electrical energy in Indonesia. Department of Electrical Engineering and Information Technology (DTETI) Faculty of Engineering Universitas Gadjah Mada is an educational building that has high level of electrical energy consumption. While electrical energy is one of the vital needs in today's world, it's availability needs to be maintained. Therefore to solve this problem, it is necessary to develop electrical energy monitoring system at DTETI building to manage electricity consumption. Since interface is an important aspects of the smart building development, it is important to also develop an interface for the electrical energy monitoring system that will be developed. In previous studies, there has not been any research that develops energy monitoring system focusing on user experience. So, in this research the interface for energy monitoring website that meets the user experience aspects is developed by comparing 2 versions of interfaces based on 2 different development approaches.

In this research, 2 versions of interface will be developed in the form of website. The development of version 1 is based on the researchers' assumptions and the development of version 2 is based on The Elements of User Experience method. After going through the development process, both versions of the interface is tested using User Experience Questionnaire (UEQ) to assess the user experience aspect from both versions.

The UEQ test result show that both interfaces that have been developed has good user experience value. However, based on the comparison results, there is a significant difference between the two versions of the interface. Where, version 2 has a better user experience value compared to version 1. Based on that result, it can be concluded that the interface developed using The Elements of User Experience (version 2) has a better user experience compared to the interface based on researcher's assumptions. So version 2 can be implemented as an interface for electrical energy monitoring system that will be applied in DTETI Building Faculty of Engineering UGM.

Keywords : *Building Energy Management System, user experience, the elements of user experience, User Experience Questionnaire*