

Implementasi Pendeteksi Tidur Menggunakan Histogram of Oriented Gradients dan Support Vector Machine Untuk Penghematan Listrik Pada Alat Elektronik Rumah Tangga

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Abstract

Users of electronic devices often leave their electronic equipment still on when sleeping or when it's not really in use, letting the electricity go to waste. Whereas, the effort to save electricity on electronic equipment are needed to reduce excessive electricity consumption for the sake of saving natural resources and reducing the cost of electricity bills. Therefore, the author designed a system that can estimate the user's sleep state when using electronic devices. The system estimates the user's condition when he is awake, asleep or has left the device using the Histogram of Oriented Gradients (HOG) and Support Vector Machine (SVM) methods on a sleep detection system algorithm by using a camera. This system will actively estimate the user's condition and automatically turn off the electronic device if some treshold is reached. This study contributes to the analysis of the effectiveness of the HOG and SVM methods in their implementation in a sleep detection system. With the evaluation results, the system can detect user conditions in real time with an accuracy of 90% against real-world test conditions and has been integrated with a system that can turn off electronic devices such as televisions, lights and fans automatically so as to reduce the electric power consumption on the use of electricity that is usually wasted.

Keywords : Sleep Detection, Histogram of Oriented Gradients (HOG), Support Vector Machine (SVM), Dlib, Electricity Savings.