Intelligent Climate Control System in Office Space

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Employees' working capacity, speed of their fatigue, desire to work for the benefit of the company depend on the environment and above all on the quality of the indoor air. A suffocating office, uncomfortable temperature due to the work of office equipment lead to low rates of work efficiency, which has the effect of reducing the firm's revenues. To correct the situation are called engineering solutions for the office, so the prerequisite is the installation of air conditioning systems.

In order to build a climate control system, it is very demanding to approach the design of the system itself, the selection of equipment and the determination of optimal power, since insufficient power of the equipment or incompatible devices may not allow to achieve the desired result. In the context of office-based climate control, the systems developed must include temperature and relative humidity measurements, enable observation, collection, processing, transmission, storage and analysis of environmental information, display measurement results, and alert office staff of these results. range and change behavior according to the control system.

The current market for climate control systems is represented mainly by control systems based on type AND, OR, NOT logic elements. However, neural network algorithms and controls that can be used in the field of climate control are also developing rapidly.

The rapid development and continuous implementation of neural network methods and algorithms in commercial and scientific applications is contributing to the growing interest in the creation of hardware for the implementation of neurocomputer technology. Analyzing the existing developments in neural network technologies, we can identify the main perspective directions of modern development of neuro information technologies: neural network expert systems, DBMS with the inclusion of neural network algorithms, image and signal processing, control of dynamic systems and including network communications, financial management. Today, more than 300 foreign companies are engaged in development in this area, and their number is constantly increasing. Among them are giants such as Intel, DEC, IBM and Motorolla. At the same time, intellectualization of computer systems, giving them the properties of human thinking and perception are the main ones in the development of neuroinformation technologies. Many domestic and foreign experts suggest that neurocomputers will become the main platform for the development of 21st century computing.

With the use of neural networks, you can create personal comfort models with minimal energy consumption. The study is substantiated by extensive real-world experiments on humans in a controlled thermal environment.

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As a result of the conducted research, it can be argued that the use of neural network technologies in creating climate control systems for a control system has several advantages over existing methods. In neural network methods, there is no limit to the linearity of the system, they are effective in noise conditions and provide real-time control upon completion of training. Neural networks control systems are more flexible to real-world conditions, forming models that are fully adequate to the task, without the constraints associated with the construction of formal systems. In addition, neural network control systems not only implement standard adaptive control methods, but also offer their algorithmic approaches to a number of problems, the solutions of which are difficult due to the impossibility of formalization.

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