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This book offers all important industrial communication systems for buildings in one single book! It stimulates a basic understanding of network and bus systems for the automation of buildings. After an introduction to EIB/KNX, LON und BACnet technologies, the authors illustrate how these systems can be utilized for specific applications, like air conditioning or illumination. This book assumes only a basic knowledge of mathematics and thanks to its simple explanations and many examples is ideal for students and professional engineers who require practical solutions. Numerous practical examples explain basic concepts of industrial communication technology as well as the procedure for the transmission of digital data. All chapters have been thoroughly revised for the 2nd edition and the book includes the latest technical developments and standards.

Future buildings require not only energy efficiency but also proper building automation and control system functionalities in order to respond to the needs of occupants and energy grids. These development paths require a focus on occupant needs such as good indoor climate, easy operability, and monitoring. Another area to be tackled is energy flexibility, which is needed to make buildings responsive to the price signals of electricity grids with increasing amounts of fluctuating renewable energy generation installed both in central grids and at building sites. This Special Issue is dedicated to HVAC systems, load shifting, indoor climate, and energy and ventilation performance analyses in buildings. All these topics are important for improving the energy performance of new and renovated buildings within the roadmap of low energy and nearly zero energy buildings. To improve energy performance and, at the same time, occupant comfort and wellbeing, new technical solutions are required. Occupancy patterns and recognition, intelligent building management, demand response and performance of heating, cooling and ventilation systems are some common keywords in the articles of this Special Issue contributing to future highly performing buildings with reliable operation.

This book addresses a wide range of topics in areas of intelligent systems and artificial intelligence and their real-world applications. The 22 chapters have been selected from the 168 papers published in the proceedings of the SAI Intelligent Systems Conference 2016 (IntelliSys 2016), which received highly positive feedback in peer reviews. The IntelliSys 2016 conference was held in London on 21–22 September 2016. This fascinating book offers readers state-of-the-art intelligent methods and techniques for solving real-world problems along with a vision of future research.