

DEVELOPMENT AND EVALUATION OF BUILDING ENERGY EFFICIENCY THROUGH THE DESIGN AND IMPLEMENTATION OF AUTOMATION AND CONTROL SYSTEMS IN MOZAMBIQUE

The global push for sustainable development and lower energy usage has prompted increased interest in using automation and control systems in building infrastructures. These systems are now being investigated in Mozambique to determine their ability to increase energy efficiency. This study focuses on the complex processes of creating, deploying, and assessing these systems, which use cutting-edge technology such as sensors, machine learning algorithms, and smart devices. The study includes case studies and experimental results that demonstrate the real-world usefulness of these methods. The capacity of automation and control systems to regulate temperature, lighting, and other energy-intensive components significantly reduces overall energy usage within buildings. Furthermore, these systems can discover and diagnose defects in a building's energy systems, allowing for fast and efficient repair—a critical factor in Mozambique, where energy supply is frequently unstable and maintenance is complex. The results of this study imply considerable energy savings, which will help to reduce the country's carbon footprint and advance sustainable development goals. The combination of advanced technologies, practical effectiveness in real-world scenarios, contextual relevance to Mozambique, a holistic approach, emphasis on timely maintenance, and promotion of sustainable development make this study unique and valuable in building energy efficiency. In conclusion, this study catalyses the creation and implementation of Building Energy Management Systems in Mozambique by providing relevant insights for policymakers, building owners, and energy managers.