



A Knowledge-Based System For Analysis, Intervention Planning and Prevention of Defects in Immovable Cultural Heritage Objects and Monuments

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The paper presents a project aiming to develop a knowledge-based system for documentation and analysis of defects of cultural heritage objects and monuments. The MONDIS information system concentrates knowledge on damage of immovable structures due to various causes, and preventive/remedial actions performed to protect/repair them, where possible. The currently built system is to provide for understanding of causal relationships between a defect, materials, external load, and environment of built object. Foundation for the knowledge-based system will be the systemized and formalized knowledge on defects and their mitigation acquired in the process of analysis of a representative set of cases documented in the past. On the basis of design comparability, used technologies, materials and the nature of the external forces and surroundings, the developed software system has the capacity to indicate the most likely risks of new defect occurrence or the extension of the existing ones. The system will also allow for a comparison of the actual failure with similar cases documented and will propose a suitable technical intervention plan. The system will provide conservationists, administrators and owners of historical objects with a toolkit for defect documentation for their objects. Also, advanced artificial intelligence methods will offer accumulated knowledge to users and will also enable them to get oriented in relevant techniques of preventive interventions and reconstructions based on similarity with their case.