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Service Delivery Architecture; 2.4 Prototype System Implementation; 2.5 Development of the Project Repository; 2.6 OntoWise; 2.7 Deployment Case Studies; 2.7.1 Construction site environment; 2.7.2 Construction education setting; 2.7.3 Train station; 2.8 Summary and Conclusions; References; 3 Communication Technology in Mobile and Pervasive Computing; 3.1 Introduction; 3.2 Mobile and Pervasive Devices; 3.3 Communication Basics; 3.3.1 Radio standards and available technologies; 3.3.2 IEEE 802.15.4 (Low Rate WPAN); 3.3.3 Zigbee 3.3.4 IEEE 802.113.4 Communication Protocols; 3.4.1 Open protocols; 3.5 Service Protocols; 3.6 Proprietary Buses and Protocols; 3.7 Summary; References; 4 A Framework for Designing Mobile Virtual Training Systems through Virtual Modeling Technology; 4.1 Introduction; 4.2 Taxonomy for Defining Virtual Training Systems; 4.2.1 Controllable components for equipment or special operation training; 4.2.2 Extent (level) of training scenario modeling; 4.2.3 Distinguishing properties of training task scenario; 4.3 Relating Virtual Technologies to Training Skills; 4.3.1 Reasoning and planning 4.3.2 Spatial skills 4.3.3 Memory and procedure learning; 4.3.4 Complex sensorimotor skills; 4.3.5 Simple sensorimotor skills; 4.3.6 Hybrid approach; 4.4 Conclusions and Future Work; References; 5 Mobile and Pervasive Construction Visualization Using Outdoor Augmented Reality; 5.1 Introduction; 5.1.1 Overview of augmented reality visualization; 5.1.2 Augmented reality vs. virtual reality; 5.2 Prior Related Work in Construction Visualization; 5.3 Main Contributions; 5.4 Technical Approach to Create AR Animations; 5.5 ARVISCOPE Animation Authoring Language; 5.5.1 Scene construction statements 5.5.2 Dynamic statements 5.5.3 Control statements; 5.6 Creating an AR Animation Trace File from a DES Model; 5.7 ARVISCOPE Language Design Issues; 5.7.1 On-site positional measurement problems; 5.7.2 Disassembling a virtual construction meta-object; 5.8 Examples of Pervasive Outdoor AR Visualization; 5.8.1 Offshore concrete delivery operation; 5.8.2 Earthmoving operation; 5.8.3 Structural steel erection operation; 5.9 Summary and Conclusions; Acknowledgments; References; 6 Ubiquitous User Localization for Pervasive Context-Aware Construction Applications; 6.1 Introduction 6.2 Current State of Knowledge

Sommario/riassunto

Construction researchers and industry practitioners have begun to explore the possibilities offered by mobile and pervasive computing in architecture, engineering and construction (AEC). It is expected that the construction industry will be keen to apply these technologies as they promise significant benefits in areas such as materials management, project management, distributed collaboration and information management, all leading to improvements in productivity. This book offers a comprehensive reference volume to the use of mobile and pervasive computing in construction. Based on contribu
