



Framework for Service Composition Based on Ontologies for the Aggregation of Knowledge and Information for Intelligent Buildings (FCINT)

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Project Progress

The FCINT project, co-sponsored by the European Fund for Regional Development and Romania's Government (ID551, cod SMIS-CSNR 12038), is hosted by the Polytechnic University of Bucharest.



University Politehnica of Bucharest

During the ninth quarter of its funded activity, the FCINT project focused on: tool design (partial), scenario implementation and demonstration and

system evaluation in the lab (partial), publication on portal and maintenance of language for ontology description (partial), publication on portal of services and interface protocols (partial), and further development of wiki portal (partial).

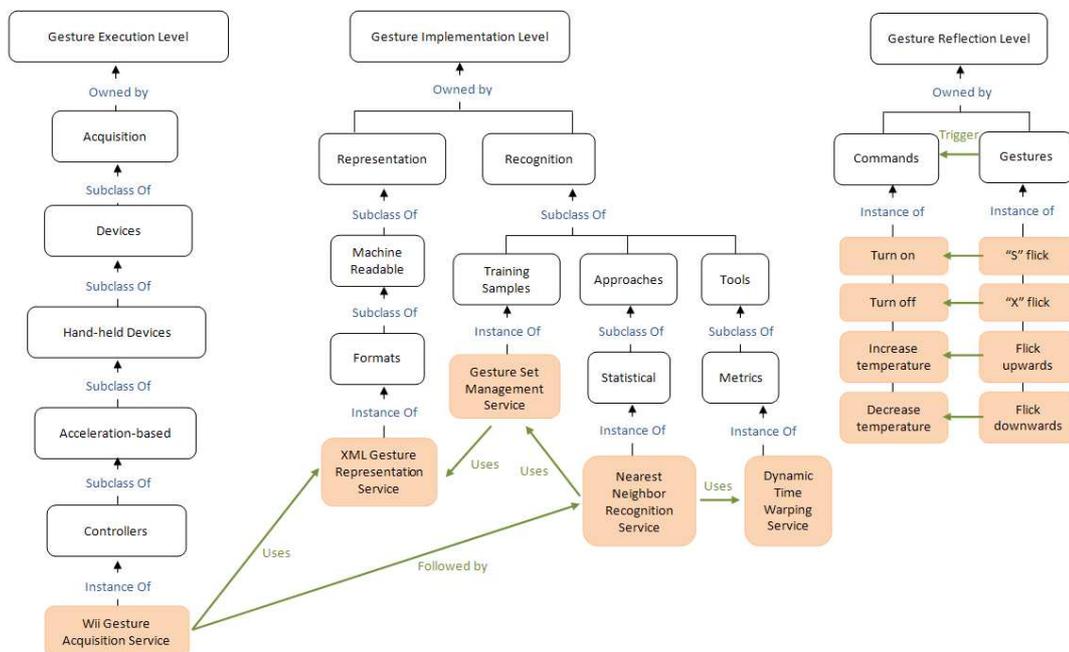
So far, the FCINT team has successfully delivered partial solutions that include multiple components such as service composition and optimization, scenario implementation and demonstration, system evaluation through simulation, ontology modelling language, service portal, and wiki portal. Future activities are geared toward completing and enhancing those features to provide customers with services for smart building management.

Development and implementation

FCINT Gesture Ontology By Radu Vatavu and Chera Catalin

Current trends in interacting with information systems employ gestures and body movements as natural means for users to enter commands. As advances in technology empowered developers to implement gestural interfaces for new gadgets and devices, it is mandatory for the community to possess a clear understanding of what a gesture command is, what are its attributes, and what relationships can be drawn between the various concepts involved in gesture execution, recognition, and interaction. This type of knowledge is needed not only in computer science and engineering but also in other communities that show interest in gestures such as psychology and social sciences.

One way to understand the concepts, attributes, and relationships of a study domain is to use ontologies. Ontology modeling can benefit researchers and practitioners by defining common vocabulary, meanings, attributes, and relationships together with hierarchical structures of the employed concepts. This representation technique is heavily used for developing the Semantic Web while practitioners of Service-oriented Computing (SOC) use ontologies as key technology. As gesture-based interfaces will become more present on the web (e.g., mouse gestures are already used by web browsers), SOC applications that employ dedicated web services for gesture recognition and processing are likely to be developed. In this context, a common understanding of the concepts, hierarchies, and relationships relating to gestures will be critical for their integration into the semantic web.



Gesture processing services and commands derived from the gesture ontology for a smart home application. Only a simplified view of the ontology is shown here. For a detailed view see <http://www.gestureontology.fcint.ro/>



We designed the gesture ontology on three dimensions that group aspects of a gesture-based control application: execution, implementation, and reflection.

The Execution level refers to aspects involved during the process of producing a gesture: users, body movements, and acquisition devices. Implementation includes gesture representation and recognition. The Reflection level models the way gestures are used as commands or companions to speech as well as their usage in the linguistics and psychology communities. The proposed ontology aims to unify concepts and relationships from multiple communities interested in the various aspects of gesture which makes it stand as the most comprehensive gesture ontology available today.

Unlike previous attempts to model gestural interfaces using ontologies, we built on the knowledge and research results from three independent communities: human-computer interaction, pattern recognition, and cognitive psychology. The result is a comprehensive gesture ontology covering aspects from user execution, system implementation, and gesture reflection.

FCINT Info

FCINT project website: <http://www.fcint.ro>

For details about the FCINT project please contact:

Professor Serban PETRESCU, PhD
E-mail: bspetrescu@gmail.com
Phone #+40 (729) 007 890

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