Overarching Research Questions

1) In what way can an ontology-based fire evacuation simulation provide meaningful feedback to the design process stage?
2) What are the factors which influence the feedback results and how can they be captured by the proposed system?
3) How are the monitored factors considered and in what way can they provide relevant information to designers?

Key Facts and Research gap

- Building simulations can be time consuming and conclusions are often made on observations (Tang and Ren 2012)
- Human behaviour in fire emergency is hard to predict (Schatz et al. 2014)
- Integration with the BIM concept does not provide relevant or automatic feedback to the BIM design stage

Research Aim

- Develop a system which captures data about fire simulation
- Use the data for ontology reasoning and design analysis
- Provide automatic relevant feedback information to aid the decision making process in design stages

Research Approach (Methodology)

- Using the developed virtual game environment to run and monitor simulations
- Certain factors/events are monitored during scenario simulation which is to be used for analysis
- A methodology is being developed for using the gathered data in order to provide relevant feedback about fire human behaviour simulations into design stage
- System testing based on a simulation scenario in a design context for validation

Research outputs

- Automatic feedback to design stage for decision making
- Help designers quantify and measure factors which are out of their area of expertise

Human behavior knowledge processing based on large scale computer games simulation for holistic design

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