Ensayo: A Distributed, Web-based Virtual Emergency Operations Center for Training and Research

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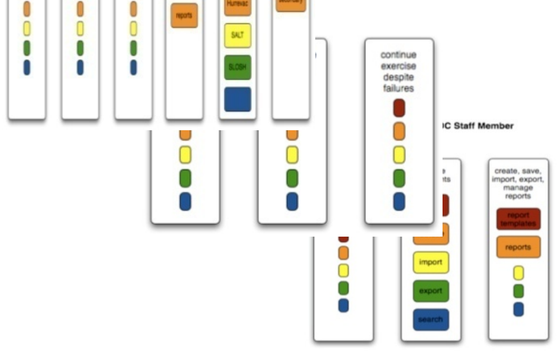
An Emergency Operations Center (EOC) is a secure location in which upper-level emergency managers gather together to prepare for, manage, and coordinate recovery activities in response to an emergency situation (e.g. hurricane, earthquake, tsunami).

In our research, we are designing and developing a virtual Emergency Operations Center (vEOC) in which emergency managers can collaborate and train. It also serves as a research tool for cognitive scientists to study the decision-making process under emergency conditions.

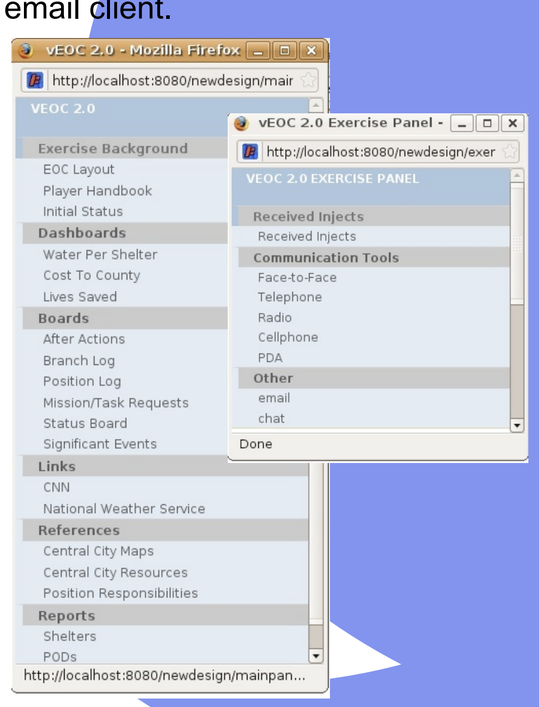
design methodologies

There are three main design methodologies that we employ in creating this system. The basic software design methodology is the agile development model. This is a set of software engineering methodologies based on iterative design, in which we incorporate feedback from the previous design cycle into the current cycle. Another design methodology we employ is the use of mental models. Mental models are a tool to aid in user-centered design and a way to ensure that all functionality in our system maps to a genuine user need. Finally, we also use content, functionality, aesthetics, and usability design methodologies in our application design.



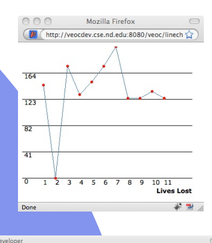
training and collaboration

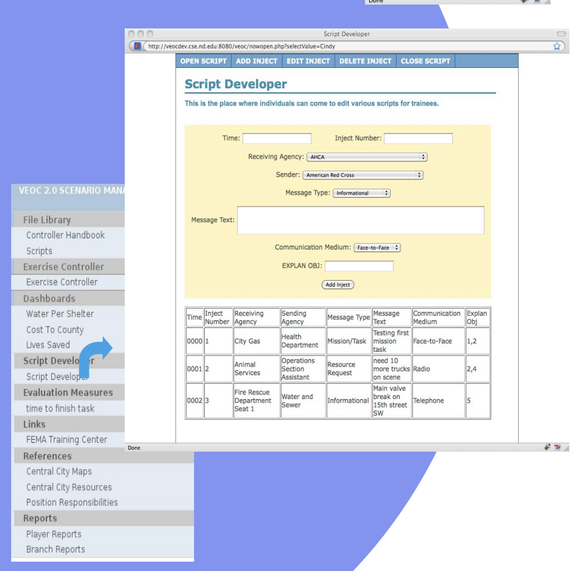
This virtual infrastructure has several key elements. First, it offers a secure environment in which upper-level emergency managers can train. Next, it offers many collaboration tools for emergency managers to simulate the software and practices of an actual EOC. These include various status boards, position logs, reports, links to external websites that are of use, status indicators, an artificially intelligent interactive advisor, a chat client, and an email client.



research

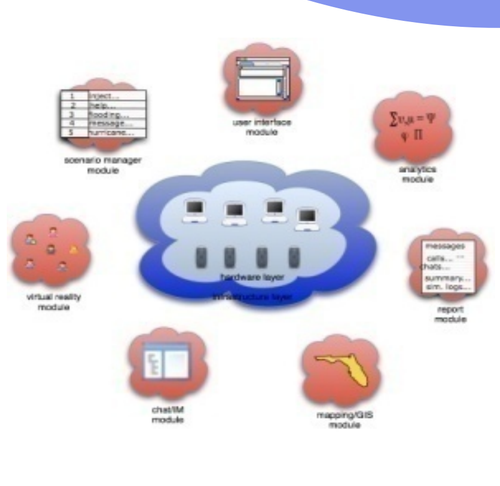
The research environment includes interfaces which allow the researcher to track user interactions, collaborations, impacts of critical decisions, and various additional measurements





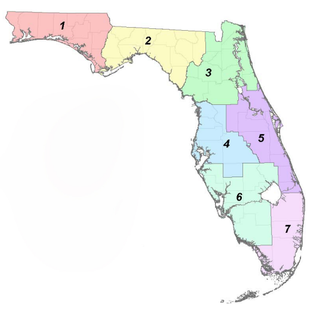
technologies employed

We have employed a variety of technologies. On the client side, technologies include XHTML, CSS, Dynamic HTML, AJAX, Reverse AJAX, and JavaScript. On the server side, technologies employed are PHP, MySQL, DOJO and the Jetty server.



expert validation

In order to validate the system and obtain an expert subject matter knowledge base, we are working with one of the foremost emergency operations centers in the country – the Miami-Dade EOC.



modified from http://www.deep.med.miami.edu/x439.xml

acknowledgements

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