FIU | Computing & Information Sciences

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BOLO Flier Creator—Version 6.0

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PROBLEM

The distribution of "Be On the Look Out" (BOLO) flyers can take up to 48 hours to reach officers in a given police department. This system is antiquated by today's standards, however, a fax machine, a bulletin board and paper flyers is currently the only way to distribute the flyers. When it comes to pursuing leads and solving crimes, time is of the essence. The BOLO system aims to be a scalable, secure, and efficient way to create BOLO posters while immediately disseminating them to officers in the field & neighboring jurisdictions.

CURRENT SYSTEM

BOLO 5.0, fulfills functional requirements but the product owner wanted to add a little more functionality to the system before its release. The currently employed system uses BOLO creation and dissemination strategies such as: alerts over police radio, computer-aided dispatch that is dependent on antiquated hardware, and paper printed posters displayed on a bulletin board where every officer entering or exiting their precinct can view them as well as for manual distribution.

REQUIREMENTS

The main requirements for this version were to add more functionality and enhance usability from the perspective of the user. Per security protocols released by the Department of Justice, the BOLO system also needed to be migrated away from IBM proprietary technologies and use only open source technologies such as MongoDB that can be managed in-house.

SYSTEM DESIGN

The system uses a traditional Model-View-Controller architecture. With the transition away from the IBM Cloudant persistence, we used a more cohesive approach that still allowed for flexibility as well as scalability. As the user interacts with the model, the controller behaves accordingly to perform the action the user is trying to accomplish and then pushes the information to Express and Pug which update the view.

IMPLEMENTATION

⇒ BOLO v6.0 is built on top of version v5.0 and adds functionality and also addresses security concerns

⇒ The system has added the ability to make several user interface features customizable by the root user of the application

⇒ MongoDB, an open source NoSQL database, fulfils the secure persistent storage requirements

⇒ Javascript, Pug (previously known as Jade), and CSVtoJSON fulfil the client side requirements

⇒ Open Source technologies fulfil the server side requirements

USER INTERFACE

OBJECT DESIGN

The system objects are conceived using ideas from the Domain Driven Design approach by Eric Evans. The Agency, User, Bolo, and Category entities make up the domain layer with concrete MongoDB objects handling persistence of such entities. Not only do services realize features like email notifications, PDF generation, and image compression, but they also interact with adapters connecting with external systems.

VERIFCATION

In order to verify the accuracy and competency of our web application we used a test-first development and pair programming approach. Unit tests were written for all system core classes and modules. Integration tests were also written for our application to ensure that we had an appropriate amount of cohesion between classes.

SUMMARY

The BOLO system is the first system that aims to revolutionize the way the police departments alert their officers about new threats in their precinct. With the added functionality that was added during this iteration of the application, the system will be more intuitive to use, as well as flexible and customizable. We hope that the system continues to grow and assists police departments all over the country to better serve our communities.