

# **Traffic Monitoring System**

## **Individual Contributions**

Group #7

Matt Araneta, Kevin Hsieh, Peter Lin, Geoff Oh, John Reed, Michael Simio

April 5, 2013

# **Demo 1 Contributions**

## **Group 7**

Matt Araneta, Kevin Hsieh, Peter Lin, Geoff Oh, John Reed, Michael Simio

### **Coding:**

Use case 1 was programmed by Kevin. Kevin programmed the user interface screens shown in the website. Thorough work was done in accessing and parsing the data from the Database tables in order to display the map overlay accurately on the website. John assisted with constructing SQL queries and design of the algorithm used to accurately place the points with less processing power.

Peter created Perl Scripts to obtain Traffic and Weather information from various APIs. The scripts were required to access the websites and extract the required information from either JSON objects or XML files. Matt added database implementation to the Perl scripts. Careful work was done to match the data accesses from scripts with the Database tables created.

The mobile system involved programming an Android Application. Graphical Interface code was written to design the user interface. Additional code was written to transfer data from the application to the web system. Mike and Geoff worked together on writing the code for the main function postData() which utilizes Android's HTTPClient interface to communicate with the webservice.

### **Unit Testing:**

Kevin and John tested the input selection choices for users on the website using control flow testing and boundary testing for the zip codes, times, and weather options the user can choose.

Peter and Matt did unit testing by testing valid and invalid values in the Database tables and scripts.

Michael and Geoff's unit testing involved testing the mobile application with different zip codes to test the functionality of the system. They also did unit testing with the function that communicates with the web system (postData()).

### **Website Design:**

Kevin designed most of the website along with the coding. John assisted with design choices to be made about the website display.

### **Integration Testing:**

Kevin worked on programming a functional input form for the system so that the mobile side would have an easier time accessing the necessary values.

Michael and Geoff worked extensively on the mobile application to integrate it with the web system. They worked on writing the code that communicates with the web system, and they made sure that the data sent from the mobile application is consistent with the expected web inputs.

**Testing Algorithms:**

John came up with algorithms to group traffic incidences into certain areas. Kevin came up with an algorithm to display a line to represent traffic areas. We tested the grouping algorithm and it stood up to equivalence testing. The line algorithm did not stand up to boundary testing and was subsequently taken out of demo 1.

**Debugging:**

Kevin debugged the code as he programmed. Further debugging during unit testing was done with John's help in creating test conditions.

Peter and Matt worked on debugging any errors in the Perl scripts that gathered traffic and weather data from various websites and APIs and inserted them into databases.

Michael and Geoff did extensive debugging for the mobile program. The major debugging involved the input formats sent and the output formats received. Care had to be taken in order to parse the data received from the web system into a URL that could be read into an image. Debugging was also done to find the number of threads needed to allow the application to run on a mobile device.

**Program Documentation:**

Kevin wrote code comments and the Technical Documentation for the website. John wrote up the User Documentation for the website, Individual Contributions, and compiled all documentations from each subgroup.

Peter and Matt worked on documenting the Perl scripts. Matt wrote the Technical Documentation.

Comments in the mobile application code were written by Geoff to aid readers in following the flow of the postData() method and understanding how it communicates with the web service.

**Database Work:**

Kevin and John worked together to design the database tables to be used and implemented it.

Matt designed the databases, and wrote all scripts involving database implementation.

**Data Collection:**

Kevin wrote the script to retrieve the data from the Mapquest API.

Peter wrote other scripts involving data collection for the traffic and weather services. Sites used include Weather.com, Wunderground.com, and Bing Maps.

**Brochure and Power point Slides:**

Peter created the brochure. Each member contributed to creating the Power Point slides, with Peter creating the introduction slides and compiling the slides.

**Project Management:**

Kevin set up the website, maintained version control through github, communicated across teams for integration and oversaw the files for the website. John combined the reports and set up the meeting times. All members were responsible in coordinating activities.