

Localization Functionality for MCM, a Mobile Commerce Application

Kimberly Oyama, Blayne Kennedy, Daren Rodhouse, Chihiro Sasaki
Department of Computer Science, Northern Arizona University

Background and Problem

MoneyClip Mobile (MCM) is a web-based payments infrastructure providing fee-free transactions to customers and merchants through the use of mobile devices. Dr. Joshua Cross of Hermes Commerce, Inc. is planning to make this mobile payment system more robust by providing targeted advertisements, coupons, and management of customer's loyalty programs.



Our Solution

Our localization function provides the ability for MCM merchants to interact with their customer when they are in their vicinity, allowing for true **moneyless transactions**.

Directed advertisements and coupons based on the customer's location is also provided, based on the customer's location and their transaction history.



Figure 3: The left image shows an iPhone screenshot of the home page of the merchant app. The right image shows an Android screenshot of the merchant map page of the customer app.

Architecture

The localization functionalities are implemented on the Android, iOS, and website platforms.

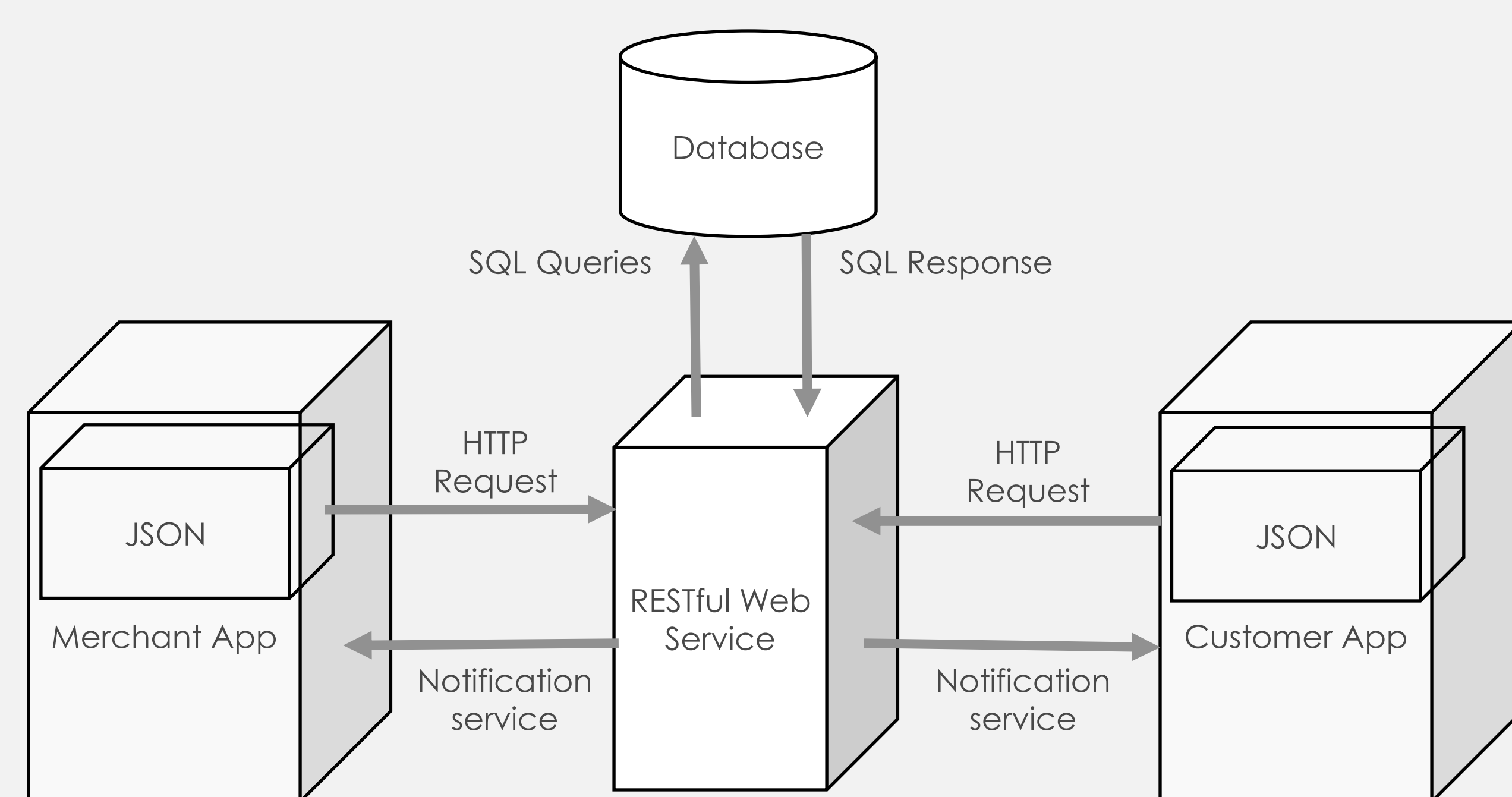


Figure 1: Architecture for the first localization functionality between customer and merchant.

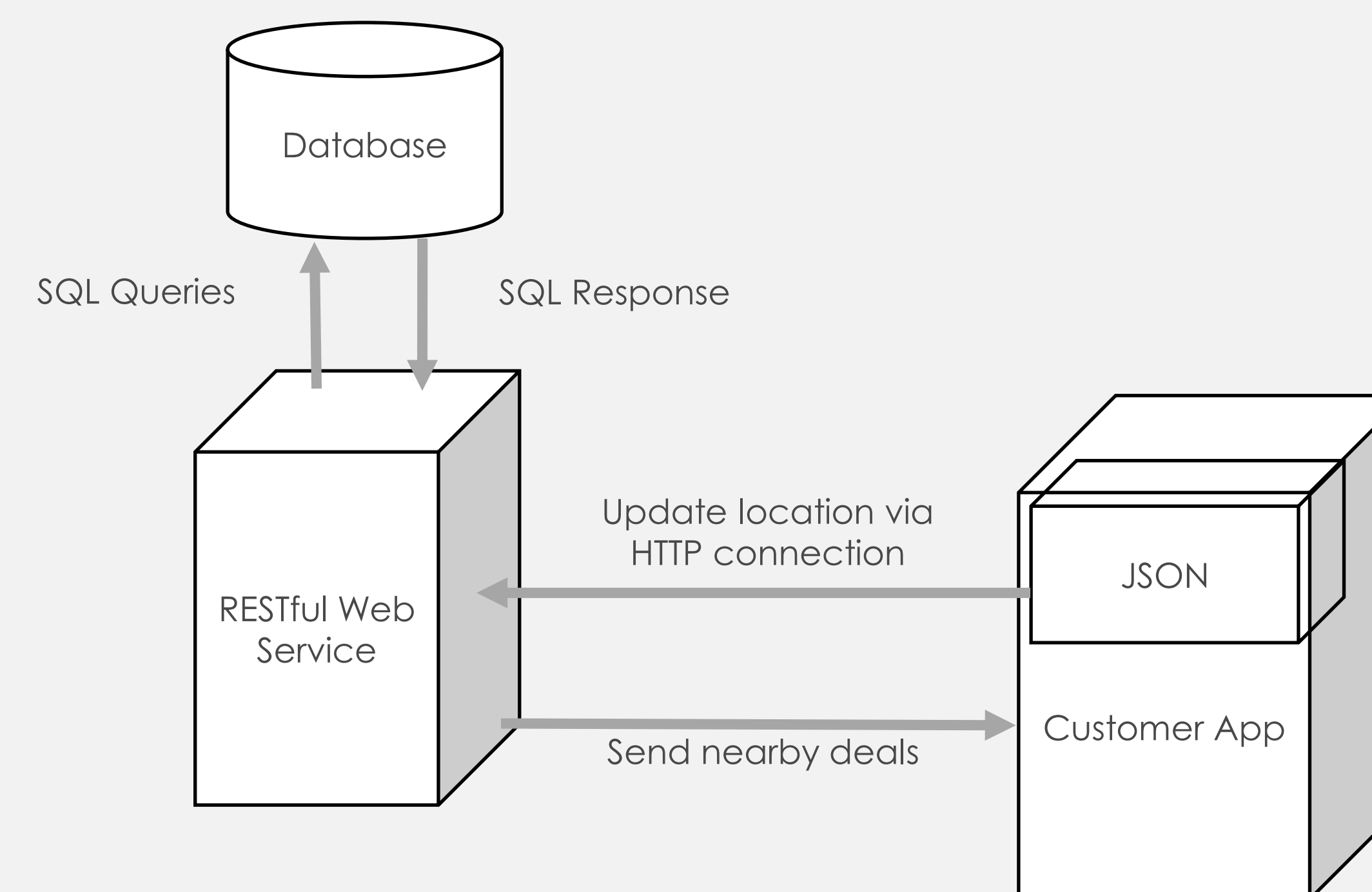


Figure 2: Architecture for the second localization functionality of directed ads and coupons.

Testing

The following was performed for the localization functions:

- Unit Testing
- User Testing

User Testing

Over 40 people from diverse groups were tested using three different versions of each app.

Common issues found were:

- Expected functionality for map page
- Shortcut/navigation
- Poor feedback for user
 - Error messages
 - Confirmation for important user actions
 - Explanation of empty lists

Unit Testing

The backend software is being unit-tested for correct functionality. As functions were developed for the app, they were manually tested.

Statistics

Table 1: Data transfer information for Android and iPhone. Data transferred depends on the length of the specific record.

Action	Android		iPhone	
	Receive	Transmit	Receive	Transmit
Log in	2322	3100	433	592
Merchant Map	1942	1912	1804	1703
Deals	3328	1002	1692	571
Pay Charge	942	1740	298	283
View History	2070	872	4226	570
Logout	0	0	0	0

Acknowledgments

Dr. Joshua Cross of Hermes Commerce, Inc.
Dr. John Georgas of Northern Arizona University
Dr. Wolf-Dieter Otte of Northern Arizona University
Test users