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Capstone Project – spring 2011
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Title: Citizens Incident Report App

Background: Most mobile smart phones today have a GPS chip, a camera and web connectivity. These features could be used to allow citizens of a community or a city to report graffiti, health/safety hazards, traffic light issues, illegal activity or any other relevant issues to the personnel in-charge. The authorities in response can then confirm (or deny) the incident, take corrective action and close the issue.

Description: The intent of this project is to develop a smart phone app (for IPhone and Android) that allows citizens to report any relevant incident to the city/community. It will also develop a web based application for the authorities to track/close the incident.

Requirements:
- *User Requirements*
  - See appendix A
- *System Requirements*
  - The mobile app shall run on iOS 4.0+ /Android 2.1+
  - The Web app shall be Java based
  - The web system will be designed to be compatible with leading database management systems (MS SQL, Oracle, and MySQL). For purpose of this capstone the team will use MySQL 5.x as the backend database.
  - The web application will be compliant to at least XHTML Transitional DTD

Project Deliverables:
The project team will provide the following deliverable in three phases:
- *Phase 1: Design*
  The project team create a design document to elaborate on how the system will be built
- *Phase 2: Build Beta*
  The project team will implement the design
- *Phase 3: Test and Deliver GA*
  The project team will test the beta version, fix any issues and deliver the system along with source code, test scripts, deployment instructions and final report.

Required Skills
A good understanding of following technologies/concepts
- Mobile App Development
- Java
- Web technologies (XHTML, CSS)
- Object Oriented Design and Programming
- Databases

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Appendix A: User Requirements

1. The mobile app shall support reporting following kinds of incidents
   a. Graffiti
   b. Safety hazard
   c. Health hazard
   d. Eye sore
   e. Illegal activity
2. The mobile app shall allow for the user to take a photograph to be attached to the incident
   a. The photograph shall be optional
3. The mobile app shall automatically locate the position of the incident/user
   a. The position shall be located using the GPS device
   b. If GPS device is not available the position shall be determined by the cell tower triangulation or Wi-Fi triangulation
4. The mobile app shall allow the user to enter his/her name
   a. The name entry shall be optional
   b. Once a user enters his/her name it shall be saved for further use.
5. The mobile app shall allow the user to enter a short description of the incident
   a. The description shall be optional
6. The mobile app shall allow the user to send the incident information to a server via XML over http(s).
   a. The mobile app shall send the type of the incident
   b. The mobile app shall send the photograph (if available)
   c. The mobile app shall send the location information
   d. The mobile app shall send the name of the user (if available)
   e. The mobile app shall send the description of the incident (if available)
   f. The mobile app shall send a derived zip code from the location (using reverse geo-coding)
   g. Upon successful submission the mobile app shall store the information along with incident id (generated by the web app) for further use.
7. The mobile app shall allow the user to cancel the incident report (prior to submission).
8. The mobile app shall keep a history of the user's incident submissions
   a. The mobile app shall allow the user to delete 1 or more submitted incident from the history.
9. The mobile app shall show the status of each user submissions (for submissions that are saved in history).

10. The web app shall support one or more users
11. The web app shall support one or more administrators
    a. Administrator shall be able to create users
    b. Administrator shall be able to edit users
    c. Administrator shall be able to delete users
12. Web app shall support incident reporting from a mobile app via XML over http.
    a. Upon successful receipt of an incident report the web app shall create an unique incident id
    b. The web app shall return the incident id to the mobile app as an XML over http(s).
    c. The web app shall set the status of the incident to Submitted.
13. The web app shall allow the user to change status of the incident using following state transition rules
    a. Submitted -> Confirmed

      b. Submitted -> Rejected

      c. Confirmed -> In Work

      d. In Work -> Close

14. The web app shall allow the user to enter comments on the incident.

15. The web app shall allow the user to run a report of submitted incidents

    a. The web app shall allow the user to filter the reported incident

        i. By zip code

        ii. By type of incident

        iii. By incident with photographs

        iv. By status

16. The web app shall provide the status of an incident to the mobile app given an incident id via XML over http(s).

Appendix B Resources

Cross Platform Mobile app development Tools: http://www.appcelerator.com/
Web reference: http://www.w3schools.com
Java API: http://download.oracle.com/javase/6/docs/api/
iOS Reference Library: http://developer.apple.com/library/ios/navigation/
Android Reference Library: http://developer.android.com/guide/index.html