iHero Specification

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ABSTRACT

iHero is a new social media app that allows the general public to submit reports of incidents and disasters at their current location. Emergency service personnel will then be able to view the reports as submitted by the public. The idea is that an event will only be submitted once by the first user, and other users can vote up the credibility of the event and comment on the event to provide more detail.

The idea is that we are collating all the data in one place - as opposed to Emergency Services having to trawl through Twitter feeds and Facebook pages etc. It is in no way designed to replace calling the emergency services direct, but instead as a tool to aid them.

1. AIM OF APPLICATION

iHero is a web application that will allow users to upload reports of incidents that occur in the real world. The main aim of this service is to provide information about incidents in a clear and concise way that can be used by emergency services. To sort the most important reports, users can give a rating of how serious the incident is when they submit it. This combined with allowing all users to vote submissions up or down should filter the most urgent incidents to the top of the list.

The required functionality of the application is:

- Allow users to submit reports including a title/description, location and seriousness rating
- List recent incident reports and allow them to be voted up or down
- Mark the locations of the events on a map

It would also be desirable to :

- Allow users to upload photos and videos with their submissions
- If the submission is made from a mobile device, pull the GPS location from it
- "Did you mean this fire on xyz street?" feature to prevent many reports of the same incident

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It is our goal to implement all the required functionality and as much of the desired as possible. The main constraint on this project is time and resources. We have limited time to implement the system and as a team of four people we feel the functionality is reasonably complex.

The finished application should also meet a number of non functional requirements. The website should be easily usable, we will do this by making a simple, clean client interface that emphasizes recognition over recall. It must also be reliable as the data we are receiving could potentially be very important. It is our aim to optimize the website for mobile devices because this will be where most of the incident reports come from. Doing this also allows the emergency services to locate incidents close to them when they are out and about.

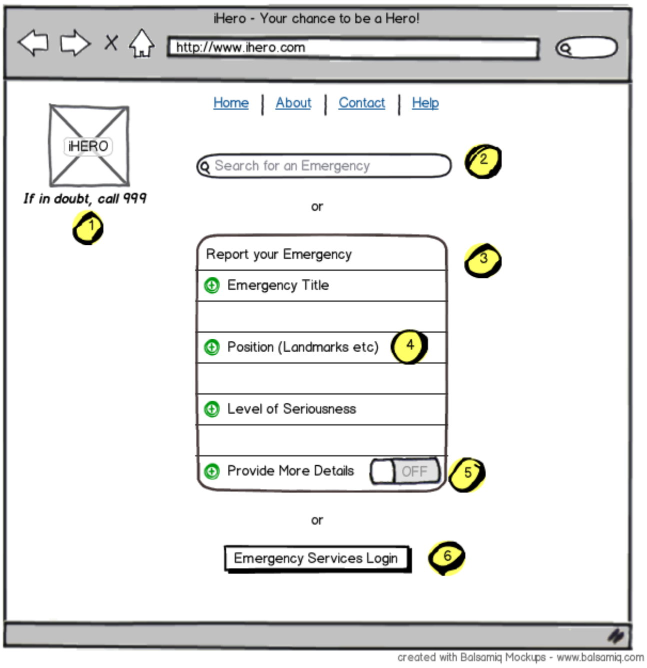
2. CLIENT INTERFACE

Our interface must be minimal and clean. We provide our brand logo in the customary top left position to provide feedback to the user that they have arrived at the correct location (Label 1). The users may be in a state of shock or distress when using our system. As can be seen, from the wireframe below of the main screen, we ask for minimal amounts of required field data (Labels 3 through 5). Simply the event or disaster title, the exact location and a judgement of the seriousness rating. If using a mobile phone we will record geolocation data about the position the user is currently at but provide the user with a section to give more precise detail. We think this is enough data to allow other users to be able to verify an event. We provide a button to allow more data to be input should the user wish to give us more if the circumstances and surroundings should permit them to.

If the user opts to input more information the form will expand and allow them to upload a picture, video, extra details including the time of the incident, a box to give more details and also a tags field to aid searches.

The emergency services have a different view, accessible by the button labelled âĂIJEmergency Services LoginâĂİ (Label 6) This will provide a listing of all the incidents and events, sortable on different categories. Emergency services will have the right to delete rogue information that they know to be untrue or exaggerated.

This easy, appealing and simple user interface allows the user to quickly fill out the emergency report and submit it to the iHero system - no complicated forms, a few select number of fields, and all in one page.



2.1 Technologies

2.2 HTML

It is anticipated we will use HTML5 or XHTML for this project. Using HTML5 brings us to the forefront of technology and provides us with the most up to date features for web based applications - however not all browsers can support this yet. This is where XHTML can be used for backwards compatibility, however this is more complex than basic HTML.

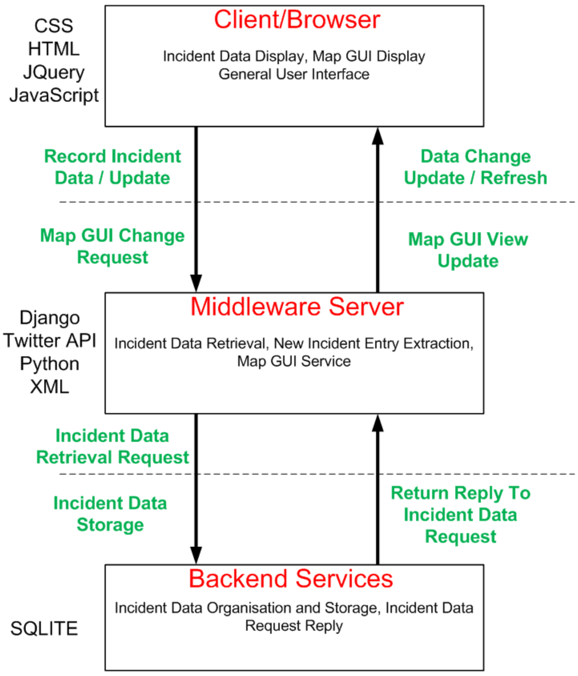
2.3 CSS (Twitter Bootstrap)

We plan to make use of the Twitter Bootstrap CSS framework to give a clean, familiar styling to our user interface. Using CSS (Cascading Style Sheets) is good programming practice as it removes all styling from the HTML code. This means that the style can change without having to edit the content, and vice versa. This seperates out concerns, as the style and content are independent of each other.

2.4 jQuery and JavaScript

We will also use jQuery to provide active content to our site, such as expanding the more details field if the user wishes to do so.

3. APPLICATION ARCHITECTURE



3.1 Client/Browser

- Provides the interface for users to report an incident.
- Presents already reported incidents to the user.
  - Time.
  - Location.
  - Also presented in a map view.
  - Description.
- Presents data in a structured and organised way using CSS.

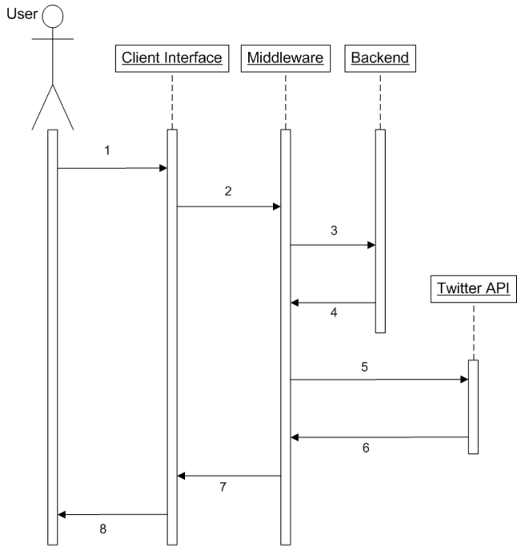
3.2 Middleware

- Acts as a receiver of user incident data entries from the Client Tier.
  - Passes this data on to the Backend Server (Database).
- Receives queries from the Client tier.
  - Extracts required data from the Backend server in response to these queries.

3.3 Backend

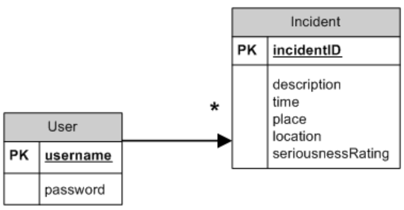
- Provides the storage of incident data using the SQLITE database.
- Replies to data queries passed on by the Middleware Server.

3.4 Data Flow



1. User reports an incident, entering the time, location and description of the incident.
2. Client Tier sends data of reported incident, or request for user to view another incident.
3. Middleware Server communicates this query to the database in the Backend services and awaits a reply, or requests for new incident data to be stored in the database.
4. Backend Services records new data and updates the database. Returns a refreshed state for the Middleware to provide to the Client Tier.
5. Middleware provides new data to Twitter in the form of a tweet.
6. Twitter API returns results of any queries from the Client Tier via Middleware.
7. Middleware returns refreshed data back to the Client.
8. Client displays up-to-date reflection of incident data.

3.5 Data Model



- User profiles can be obtained from the Twitter service provided
- Users have their username and passwords stored
- Users have 0-many incidents
- Incidents have only one user, and have the following attributes: description, time, location, seriousness rating.

4. MESSAGE PARSING

- On the architecture diagram, Identify and label the main messages that will be parsed through the application.
- or alternatively (and preferably) include sequence diagrams to denote the sequence of communications parse between clients and servers.
- Describe the messages that are parsed back and forth through the application.
- For the main transactions - describe the payload of the messages
- i.e. What are the contents of the messages? i.e. include sample XML, XHTML, JSON, etc of one or two messages.
- What is the format of the messages?
- Why this format?
- What other formats could be used, what are the advantages and disadvantages of these other formats?

5. DESIGN REVISION / FEEDBACK

For the Implementation Report Only:

- include a summary of the feedback given (or refer to specific comments from the feedback)
- comment on how you have revised the design (if at all) according to the comments received
- how has the feedback helped, and has this process been helpful.

6. IMPLEMENTATION NOTES

For the Implementation Report Only:

- Views - What are the main views that you have implemented and what do they do?
- URL Mapping Schema - what is your URL mapping and schema?
- External Services - what external services does your application include and what handlers did you include?
- Functionality Checklist (which functionality is completed)
- Known Issues (what kind of works, what kind of errors to do you get)
- What technologies have been used and are required for the application. Include a list or table of all the technologies, standards, and protocols that will be required.

7. REFLECTIVE SUMMARY

For the Implementation Report Only:

- What have you learnt through the process of development?
- How did the application of frameworks help or hinder your progress?
- What problems did you encounter?
- What were your major achievements?

8. SUMMARY AND FUTURE WORK

- Summary of application and its current state.
- Include a list or table of all the technologies, standards, and protocols that will be required.
- What are the limitations?
- Plans for future development

9. ACKNOWLEDGEMENTS

Our thanks to the lecturers and demonstrators for their comments and suggestions. And our thanks to the peer reviewers for their feedback. Be sincere and be specific about how others have helped your group.