iPad/iPhone Applications in Assisting Hurricane Tracking and Evacuation

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Abstract: We propose to develop iPad/iPhone applications [1] that would assist people in minimizing the danger posed by hurricanes through relevant, up-to-date information. The features will include hurricane tracking, viewing forecasts of the hurricane's path, information and alerts about evacuations, and other essential safety-related information. The information is customized based on the ZIP code entered by the user or the sensed GPS location of the iPad.

1. Introduction

The best defense against the dangers posed by hurricanes to millions of people every year is being alert, informed, and prepared. Distributing relevant information in an emergency situation is crucial to everyone's safety. We propose to design and develop an iPad Application (app) to aid the distribution of information about hurricane emergencies in an effective manner.

Existing hurricane tracking applications only allow one to view hurricane tracks and forecasts, without focusing on keeping the user informed about safety procedures and advisories/evacuation orders issued by the local/state/federal government.

The iPad/iPhone platform was chosen because of its popularity. Other mobile platforms can be potentially supported. The platform is very versatile in obtaining a data connection − even after local power outages. The iPad/iPhone devices may be able to get a data connection if an operational cell phone tower is in range.

2. Description of Software

We are currently prototyping an iPad/iPhone application (app). The prototype app is interesting to use in general. Moreover, it focuses much more on safety and evacuation aspects than any currently available apps. The app will gather data from many sites, including the NOAA website [2] for weather data, and state and county sites for evacuation information.

Figure 1 shows the app's the ability to track the path which the hurricane has taken, based on data from the NOAA website. The app will also show the hurricane's predicted path based on several popular computer models.

One unique feature of this app is the ability to view a convenient compilation of weather alerts and evacuation-related information, specific to the "home zip code" the user enters in the settings tab, or the GPS sensed location of the device, based on the user's choice. This feature is also available offline because the app generates and stores a compilation of the last set of data retrieved. The app will display the stored version if it is unable to access the internet for an update. A screenshot of the prototype information tab is shown in Figure 2. Any local government related evacuation information can potentially be accessed here. In the case of an evacuation, the user can receive local hurricane evacuation information along the evacuation route based on the location obtained via GPS.
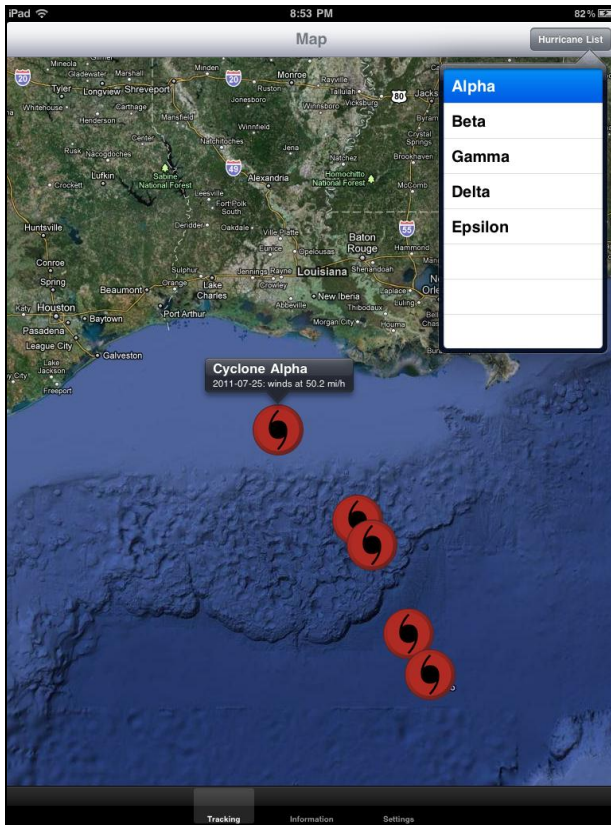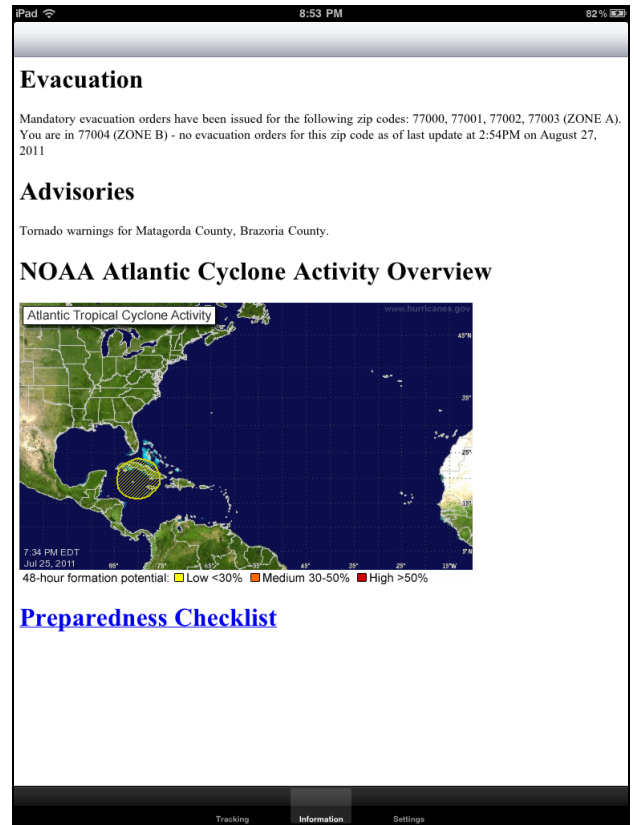
Figure 1 – The storm tracking feature.

Figure 2 – A screenshot of the information tab.

The prototyping development is planned for possible upcoming features such as historical data about previous storms, tracking multiple storms, a detailed map of evacuation routes, and access to a database that helps separated family members to find each other.

3. Conclusion

We have completed the general design of the iPad application and prototyped basic features such as the hurricane tracking screen, a list of active storms, and a settings dialog. Further development has been planned for this application. The proposed iPad/iPhone Application should be very useful in keeping its user safe and informed while facing the threat of a hurricane. Our goal is to add more features that organize and analyze data from NOAA and local authorities in a helpful and meaningful way. Local/State/Federal government support will help to incorporate more features that are crucial to our citizens.

4. References

[1] Apple, Inc., "iOS Development Guide" in *iOS Developer Library* [Online]. Available:
http://developer.apple.com/library/ios/documentation/Xcode/Conceptual/iphone_development/iOS_Development_Guide.pdf

[2] NOAA National Weather Service, *National Hurricane Center GIS Data and Products* [Online].
Available: http://www.nhc.noaa.gov/gis/