

Cross-Platform Mobile Development for Spatial Biological Databases*

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Abstract

The OpenBioMaps project provides an open and free infrastructure and services for biological databases. Several institutions such as national parks, universities, organizations on wildlife conservation, and even individuals such as biologists, ornithologists, etc., use OpenBioMaps database services.

Biological data collection on field is a tedious and error-prone task therefore the IoT Research Institute at the Eszterhazy Karoly University developed a dedicated mobile application for field data collection. This application runs on Android and provides a general user interface for collecting field data such as text notes, GPS coordinates, photos, sound recordings, position on a map, date and time. The app does not require internet connection on field, therefore data can be collected offline and will be automatically uploaded to the server.

As being the first OpenBioMaps mobile app, our Android client is tested by several biologists on field. During this period, numerous new user demands arised. Most importantly, since OpenBioMaps databases are heterogeneous, the user interface of the mobile app should be convertible on demand, with form elements bound to different database columns. In order to simplify data collection, some form fields such as GPS coordinates, position, etc., can be set to be automatically filled. Furthermore, the mobile app should be accessible on different mobile platforms such as Android, iOS, and Windows Phone. We are developing a cross-platform mobile application which is independent of platforms and browsers, and can render forms dynamically.

Keywords: mobile, cross-platform, database, biology, web development

MSC: 68M11, 68M12, 68N19, 62P10

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