# One day at the Botanical Garden: a work in progress

C. Maraschin, C. Menezes, P. Gavillon, B. Sperb, F. Teles, R. Kroeff, C. Baum, E. Raniere, G. Costa, R. Andreolla, Universidade Federal do Rio Grande do Sul
cleci.maraschin@gmail.com, credine@gmail.com, poti_gavillon@yahoo.com.br, brunosperb10@gmail.com, nandotelles@gmail.com, kroeff.re@gmail.com, baum.psico@gmail.com, edioraniere@gmail.com, guilhermescosta@gmail.com, rebeca.andreolla@gmail.com

**Abstract:** This work aims at presenting the initial development of a mobile game supported by the ARIS platform, to be located at the Botanical Garden, Porto Alegre / Brazil. The main assumption of this work is that the hybrid character of location-based media can increase the learning power of educational projects at the Botanical Garden's context. The game is proposed to be played by 9-12 year-old children that visit the garden. Some game developing choices and difficulties in planning the game are presented. The research group consists of researchers of the Federal University of Rio Grande do Sul and the Zoo botanic Estate Foundation.

## Increasing exploration and learning in an educational context

In 2012, the research group *Oficinando em Rede* received funding for developing a location-based game. The Botanical Garden of Porto Alegre/Brazil was chosen as a research field due to its characteristics and the interest of the Botanical Garden's staff in conducting educational project in partnership with the university. Schoolchildren can have a very fun time visiting the botanical gardens. They can enjoy the shade of the trees, the wide spaces to run around and play outdoor games, the amazing and interesting facts about the flora etc. But, most of the time, the work process and philosophy of a botanical garden are not very accessible to visitors, mainly when they are very young. Maps and guided tours can help, but they are not fun and interactive enough.

The use of location-based games supported by mobile devices can be a tool for increasing exploration and meaningful learning, adding content to visit in a playful way. Location-based games present a new form of interaction that takes place within the digital as well as the concrete context. The hybrid character of location-based media can increase the learning power of educational projects.

In this project, we use ARIS (short for Augmented Reality and Interactive Storytelling) platform, "an open source tool for rapidly producing locative, interactive, narrative-centric, educational experiences" (Gagnon, 2010).

## The Botanical Garden of Porto Alegre/Brazil

The Botanical Garden of Porto Alegre (http://www.fzb.rs.gov.br/jardimbotanico/) was inaugurated in 1958 with the exhibition of the earliest collections of palms, conifers, cacti, and agaváceas Liliaceae. Since 1974, it has been breeding botanical collections of trees (arboretum) organized by forest formations, botanical families and thematic groups. It has an area of 39 ha. Currently, it is considered one of the top five botanical gardens in Brazil due to the diversity of plant collections, structural qualification and training of its technical and operational staff. Its mission is to conduct integrated conservation of native flora and regional ecosystems, establishing itself as a center of reference in education, research, entertainment and culture, contributing to improving citizen's life quality.

## Press start: first steps in game development

We started the game conception by making marks over a garden larger map. The marks were related to the location for the growing regions, items, hidden tips, characters and traps as they appear on the map at the start of the game.

Games simulations have been made over the enlarged map, using the previous marks. After that, some new questions could be formulated. What will be the characteristic of the game: competitive, cooperative or both? In this sense, it was possible to consider different directions to the main objective of the game: (1) each player will have to plant seeds in all growing regions to win, or (2) a group of players will have to plant seeds in all regions to win. Another related factor was how to keep the scores in the game. Could players trade items with each other during the game? Could this action receive different scores (in order to reinforce the cooperative experience)?

These issues have shown us that beyond the technical problems for planning and programming a game, it is also necessary to consider the consequences of the options and their political directions.

**Figure 1: The work with the map**

## Game Overview

In the game the players must collect seeds and plant them - in areas corresponding to each species – to save the botanical garden. To sow it is necessary that the player also collect and attach to the inventory a watering bucket, water and a shovel. These items are scattered in different locations in park.The player can plant seeds in any of the regions available and earn a point. Planting in the specific region that matches the area of the park to plant species will award two points. Receives five bonus points each player is able to plant a seed in every region correlated. The player who gets the most points throughout the game wins the match. As the player explores the garden he can choose to cooperate or not with the other participants, exchanging items or information, while he look for the items, he can find hidden tips, items and missions, as well as new characters and traps.





## References

Brown, A. (1992). Design experiments: Theoretical and methodological challenges in creating complex interventions in classroom settings. *The Journal of Learning Sciences*, *2*(2), 141-178.

Gagnon, D.J. (2010).An open source platform for developing mobile learning experiences. Available in http://aris-games.org/wp-content/uploads/2011/04/ARIS-Gagnon-MS-Project.pdf