

## **Development of an Online Database for Teaching and Learning of Ornamental Plants**

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### **Abstract**

Learning and teaching are challenged by the complex and competitive world, so the need of creative and flexible methods are essential in education. For that reason, innovative educational methods should be introduced. With the revolution of computer technology, web-based learning and portable devices are emerging as teaching and learning aids in education, which can be efficient and effective tools.

Students and scientists are learning to recognize plants and they are joining fields of horticulture, forestry and botany in the undergraduate programs, graduate programs, research, and extension education. Identification of ornamental plants and trees, study of the plants in depth, taxonomic classification and structure of the tree, favorable growth conditions, plant/tree problems (past, present and future), pest and disease attacks, and landscape gardening are major areas of concentration for the students in their horticulture learning programs.

With the advent of computer technology, learning patterns have changed in the classroom. Traditionally, permanent specimens were prepared with photographs and slide libraries and presented using computers. After introduction of the internet, teaching and learning methods have been changed and been applied to learning plant information and testing. Conceptually, computer based teaching and learning using class websites, the Web, videodisc technology, and CD libraries for plant identification is easy and students can access information.

Increased number of students in the universities and reduction of resources available affect the education of university students. Moreover, traditional methods of teaching and learning enhance this problem. However, Information Communication Technology (ICT) can be incorporated with teaching and learning processes empowering education activities. It can be used for education purposes at various levels ranging from small to fully automated systems. Technology can aid the

learning process by allowing teachers to incorporate flashy and exciting classroom and field activities and hands-on learning to keep students engaged and interested in the learning material. Wayamba University of Sri Lanka increases the intake of students annually creating problems when they are conducting lectures and practical studies. Since the lecturers and instructors use traditional methods mostly, they consume the time for teaching and learning with less accuracy and efficiency. This university has a plant nursery and garden managed by the university itself. It aids students' education by involving the various fields of horticulture in the undergraduate programs, graduate programs, research, and extension education. The teachers and students must visit each and every plant species to identify and get the details, which is time consuming and costly. If the required plants are not available in the university garden they need to visit other botanical gardens or another existing place. If this plant information was in one place, it would be more practical and effective for teachers, students and staff time management. Once more, the university could provide innovative teaching methods and knowledgeable graduates to the society to meet the demands of the fast moving technological world.

The Wayamba University garden maintains an extensive collection of living plants. When the garden details are integrated with ICT, it will facilitate learning and teaching of horticultural courses as well as management. This project was designed to develop a learning tool for intensive education on garden for undergraduate and graduate students at Wayamba University of Sri Lanka. This tool provides thorough knowledge on ornamental plants including trees and benefits those who are in the fields of agriculture, science and particularly those who are specializing in Horticulture and Landscape Gardening. The purpose of study was to enhance the quality of Landscape Horticulture course and to convert the existing teaching learning process in to more student centered approach. To accomplish this objectives first an electronic web based system was created to store, receive and manage information of the ornamental plants including trees in the garden of the university which was named as the *Ornamental Plant Information System (OPIS)*. Apache, MySQL, PHP, JavaScript, Dreamweaver, and Photoshop software were used to develop this application in the Windows environment and information about each plant was entered into the database. Plant locations were given by longitude and latitude coordinates and linked to the Google maps. It enables students and public to find information about ornamental plants and their locations.

**Keywords:** Database; Electronic; Information Communication Technology; Innovative; Learning Tool

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