The GARDEN Framework:
a general application realisation and distribution environment

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Colin Parrott* and Peter Ward**
*CleverWare
78 Bentley Lane
Leeds LS6 4AJ UK
**Information Modelling Programme (IMP)
University of Leeds
Leeds LS2 9JT UK

**contact person
peter@uk.ac.leeds.geog

Extended Abstract
This paper describes an object-oriented prototype software system
called 'GARDEN Framework' (a general application realisation and
distribution environment & framework). 'GARDEN Framework',
provides multiple users with precisely controlled and monitored access
to large-scale textual and graphical resources on networks. It is a modular
framework for the development : the authoring, management
and evolution of large-scale multi-user hypermedia applications requiring
sophisticated graphical user interfaces which are simple and easy to use and
simple and easy to configure and customise.

'GARDEN Framework' Version 1.0 employs Open Systems and Object-
Oriented technology in the form of (SVR4 compliant) UNIX, C, X11
Windows and Eiffel to provide high levels of performance,
portability, expandability and reliability. Three generic class
libraries, based on the Eiffel programming environment are at the
core of the system. These are Eiffel-Unix, Eiffel-X and Eiffel-GUI.

'GARDEN Framework' has been developed in a programme of research
and development concerned with generic object-oriented information
modelling and communication tools.

It has evolved from the experience of two previous experimental authoring
tools - the 'GPE', for the quick construction of simple graphical applications
and the 'Media Language', a simple programming language enabling the
description of multimedia "browser" applications.

The run-time system consists of multiple processes communicating via
local or network links. A server process provides concurrency
control, logging and security. A single GARDEN SERVER process can
normally provide for an entire site/network - including a number of
applications and users. Administration and security is controlled
from the SERVER which acts as the host machine with an encrypted code
enforcing licensing terms based on a maximum number of simultaneous
clients.

Within a framework of practical experience in the construction of a number of working applications in a point-of-information and an educational context, the current system has been prototyped in response to end-user needs - in particular the requirement for practical and pragmatic construction and delivery of multimedia documents and courseware.

This work will be discussed in relation to theoretical issues relating to strategies for the construction of object-oriented class libraries and practical issues relating to implementation of working applications fulfilling real user needs and problems of the provision of coherence in presentation in multimedia systems. Material from several examples of the working system will be shown, including from an Environment Foundations Course which is in use in the University of Leeds.

A technical documentation for 'GARDEN Framework' version 1 release 4 – is included on the website in a List of Papers along with this (on the 'Magic Browser: Selection of Papers).

Some discussion of the practical issues relating to implementation of working applications fulfilling real user needs is included on the website in a List of Papers along with this (on the 'Magic Browser: Selection of Papers). These issues include evaluation with users and distinction between wants and needs so as to inform progressive iterations (versions; the *evolution* of software and functionality) and supporting interactivity so as to provide optimum cognitive effect e.g. in learning applications and orientation and discovery applications.

Problems of the provision of coherence in presentation in multimedia systems include the support of the user as s/he browses through menus (lists of buttons; simple directed hierarchical graphs) and with some provision of a 'history' of browsing and representations of knowledge and partial meaning; and screen display design e.g. partitioning of the visual display surface and the relative display of text, images (real and graphical) and abstract symbolic representations of knowledge and meaning.

PAPER

1. Introduction
2. Automation Policy
3. Runtime Processes
(i) Garden Server
(ii) X-11 Server
(iii) 'run'
4. Development Tools
(i) 'edit&compile'
(ii) 'pictrans'
(iii) 'picscale'
5. The Development Process
(i) Content Preparation
(ii) Organisation and Interface/Communication Design
(iii) Content Markup Symbols
6. Screen Dumps from Example Applications eg EFC
7. Discussion

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