

Ph.D. Dissertation

A Visual Programming Environment for Real-Time Control Systems

Matthew Wayne Gertz

Submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
in Electrical and Computer Engineering

Department of Electrical and Computer Engineering
Carnegie Mellon University
Pittsburgh, Pennsylvania 15213-3890

November 22, 1994

Copyright ©1994 Carnegie Mellon University

ABB Inc.

EXHIBIT 1002

Page 1 of 108

dedicated to the memory of my grandfather

HARVEY H. GERTZ
1916-1985

who taught me that no matter how bad the weather is outside, the cows still need to be milked

Table of Contents

List of Figures	vii
List of Code	xi
List of Tables	xiii
List of Abbreviations	xv
Abstract	xvii
Acknowledgments	xix
1. Introduction	1
1.1 Overview	1
1.2 Motivation.....	1
1.3 Goals and Contributions	3
1.4 Organization of Thesis.....	5
2. Related Work	7
2.1 Introduction.....	7
2.2 Textual Languages	7
2.3 Visual Programming and Program Visualization	8
2.4 Presentation of Graphics	9
2.5 Modeling Visual Programming.....	11
2.6 Syntax and Grammar	11
2.7 Usability	13
2.8 Modularity and Hypermedia	13
2.9 Environmental Interfaces	14
2.10 Summary	14

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.