

**Requested by:**

Volunteer EMS Retirement Association



Fredrick Norton Associated Technologies <sup>TM</sup>

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**Members:**

Bryan Flynn - *Webmaster*  
Donato Lalla - *Systems Administrator*  
Courtney Murphy - *Librarian*  
Joseph Panza - *Senior Software Consultant*  
Michael St. John - *Team Leader*

**Date of Presentation:**

09/25/02

## Table of Contents

<u>Topic</u>	<u>Page</u>
<b>System Definition</b>	
Problem Definition	3
System Justification	3
Goals for the System and the Project	3
Constraints on the System and the Project	4
Functions to be Provided	4
User Characteristics	4
Development/Operating/Maintenance Environments	5
Solution Strategy	5
Priorities of System Feature	5
System Acceptance Criteria	6
Sources of Information	6
<b>Project Plan</b>	
Life Cycle Model	8
Organizational Structure	9
Preliminary Staffing/Resource Requirements	10
Tools and Techniques to be used	10
Programming Languages	10
Testing Requirements	10
Supporting Documents Required	11
Manner of Demonstration and Delivery	11
Training Schedule and Materials	11
Installation Plan	11
Maintenance Considerations	11
Method and Time of Delivery	12
Gantt Chart	13
<b>Glossary</b>	14
<b>Appendix A</b>	15

## **System Definition**

## **Problem Definition**

The Volunteer EMS Retirement Association would like to have a quality information system for tracking retirement benefits in both the ambulance and fire companies. The current system has proven to be insufficient, and therefore, a quality database and reporting system is required to make this task more easily manageable.

This information system is projected to track the different events in which individuals have participated in throughout the year. Then, through the use of a set pointing system, each person receives a certain number of points judging by the type of event they have participated in. Additionally, tracking the amount of point any member currently has, and the minimum number of points required to be eligible for retirement status.

The developed system should allow a system user to access and edit the data quickly and effortlessly, and serve as a primary source for all information of this kind within the EMS system.

## **System Justification**

The current system of tracking volunteer EMS workers is insufficient to fit the high paced needs of today's organizations. Although, the system has proven to work in the past it can be much more organized through the use of a modern data entry system. This will allow for easy search and access to particular volunteers' files without searching through old tattered filing cabinets or old database programs.

## **Goals for the System and the Project**

The goals of this system are to create a high quality data entry tool that can be operated by a user simply and easily.

Through the use of a Microsoft Access database we shall create relevant fields of entry, which will include personnel, activities, points earned, etc... Also, fields that will track the current point standing of an individual, as well as the minimum points that are required for that person to reach retirement status.

The goals of the team are to design a product that will best suit the needs of the client, while learning to work together as a team under the organizational methods of standard software engineering techniques.

## **Constraints on the System and the Project**

The constraints that are put upon developing this system should not prove to be a problem as far as hardware is concerned. This software should be able to work on most personal or business computers that are using the Microsoft Windows 98/NT 4.0 OS or higher. The only constraints that can be put upon the development of this software are those that are created by the design of the Microsoft Access program, and/or the SQL querying language.

## **Functions to be Provided**

The functions that will be provided by this system will be as follows:

### *Quick Data Entry:*

The data entry form will be simply organized to allow the system user to edit fields of the program without expending excess effort or stress.

### *Comprehensive Design:*

The design of the system will allow for the user to move freely throughout the system, allowing easy reading of all the information that is needed from the documents, without having to search through pointless garble.

### *Printable Reports:*

The software will be able to create standardized reports to be used not only by the system user but that can be used throughout the company information system.

## **User Characteristics**

The user will be person with access to a computer with Microsoft Access installed. He or she will control data to be entered and be able to view reports of the data by use of the mouse and keyboard.

## **Development/Operating/Maintenance Environments**

The development environment for this system will involve the utilization of Microsoft Access and SQL querying language. There is also the possibility of using other software development tools. This software will be compatible with Microsoft Windows 98/NT 4.0 OS or higher. Post-production maintenance will be discussed at a later time with the client.

## **Solution Strategy**

In our attempt to develop a solution to the system that we were requested to implement, we will follow the linear sequential model, also known as the “waterfall model”, for software engineering.

The first step in this model is system/information engineering and modeling phase. This involves planning the process, creating the project plan, system definition, and other activities.

The second step is the software requirements analysis. The software, required function, behavior, performance, and interface are presented and reviewed with the client.

The third step is design. This step translates the requirements into a representation of the software that can be used as a model for coding.

## **Priorities of System Feature**

Our top priorities during these early development stages are to develop a complete system that fully utilizes the capabilities of Microsoft Access to provide quick data entry, printable reports, and user-friendly working environment. FNA will satisfy our client by creating a product that will provide years of service and reliability, along with hopes of creating a precedent within the organization.

## **System Acceptance Criteria**

Our product will provide for the Volunteer EMS Retirement Association the ability to keep track of credits acquired per person, search by event to see who attended, for how long, and to produce the required documents.

## **Sources of Information**

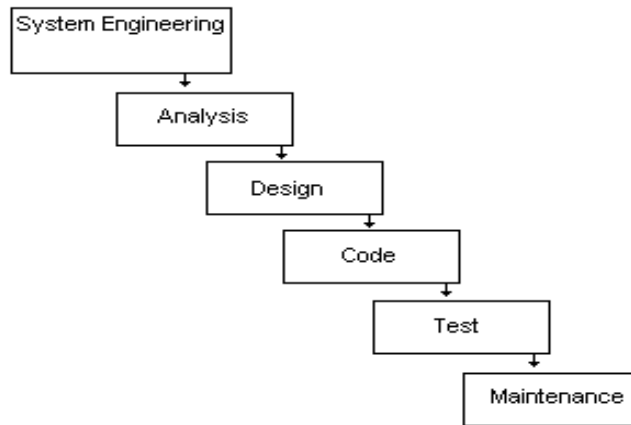
The following sources will act as guide to FNA Technologies and its associates:

1. Dr. Timothy Lederman
2. Prof. Kenneth Swarner
3. Odyssey Team: Eric Crossman, Jeffrey Fisher, Timothy Hoffman, Kurt Lunde, Merideth Marshall, Paul Mulligan
4. Previous Software Engineering Team's Documents
5. Software Engineering: "A Practitioner's Approach" by Roger S. Pressman

## **Project Plan**



# Life-Cycle Model



We have chosen to use the “classic” waterfall model. An example of this is demonstrated above. It is broken up into 6 different steps these steps go as follows:

## System Engineering

This step is an overall outline of the use and specifications for the project. Touching on the database, hardware, and use of the software.

## Analysis

This step takes an overall look at behavior, function, and GUI requirements for finishing the project.

## Design

The design step has multiple sub steps with in it. These steps include, Data structures to be used, software architecture, interface representation and procedural detail. This is the last step in modeling the program before the coding.

## Code

This step includes the actual coding of the project and creating a testable model.

## Testing

After the program is all coded, testing is done to verify the code meets all client requirements.

## Maintenance

This step constantly re-evaluates and re-applies changes that need to be made.



## **Preliminary Staffing and Resource Requirements**

FNA Technologies is comprised of five Siena College computer science majors all in their senior year. As listed on the previous page, our team is lead by Michael St. John, with democratic assistance from all other team members. Dr. Lederman will provide outside project information and software requirements. Other possible outside consulting sources may include Siena College faculty, or student body members. Physical resource requirements such as hardware and software will be provided by the Siena College Computer Science Department.

## **Tools and Techniques to be used**

Due to the renovation recently completed in the Roger Bacon building of Siena College, our team has access to the most up to date facilities for completion of this project. Siena College has provided access to its library of licensed software, as well as its well-equipped computer lab, and a secure computer solely accessible to the FNA Technologies team. FNA Technologies will utilize techniques discussed within Siena College's Software Engineering Class and class materials, as well as employing previous classes examples as guidelines.

## **Programming Languages**

The programming languages that will be most functional for this specific project are currently unknown, but we will use whatever language is most fitting for your precise software needs. Although we will consider any realistic programming language for a project, our team has existing knowledge of C++, SQL, Perl, HTML, Scheme and MIPS Assembly Language.

## **Testing Requirements**

Every aspect of a project developed by FNA Technologies will be thoroughly tested before the product is released to the client. Each stage of the development process shall include thorough testing; including verification by the client that the project is following set specifications and requirements. More will be discussed about specific software testing at a later date in the projects development.

## **Supporting Documents Required**

During the development process FNA Technologies will provide useful documentation on how the software is being engineered, and will show all progress to date. The final project will come with source code, a glossary of terms, and information on the software's files and directory structure.

## **Manner of Demonstration and Delivery**

Throughout the projects development, current progress will be demonstrated through presentations given with the use of Microsoft Power Point. The manner of delivery of the product is currently unknown, however, FNA Technologies will take any manner of delivery that the client requests.

## **Training Schedule and Materials**

Training schedules and materials will be discussed at a date nearing the completion of the project. Any client training specifics will be acknowledged.

## **Installation Plan**

Installation of the product will be discussed at a date closer to the completion of the software, and will attempt to fulfill every specification the client requires.

## **Maintenance Considerations**

FNA Technologies will thoroughly test any product it produces; however, future corrections or modifications in software may be necessary. This is why FNA Technologies does not believe client interaction is complete with delivery of software. The client is our team's first priority, and that includes keeping a close relationship with the client in the post development phase. All maintenance problems will be solved as quickly and efficiently as possible for any project FNA Technologies engineers.

## **Method and Time of Delivery**

The exact time and method of delivery can not be determined at this time, although referring to the Gantt Chart included in this documentation will illustrate a time schedule for the initial development stages. Delivery will be discussed more thoroughly, at a date nearing the completion of the software.

September 25, 2002  
Project Definition/Project Plan Presentation

October 28, 2002  
Software Requirements Specifications Delivered

October 30, 2002  
Software Requirements Specifications Presentation

November 25, 2002  
Preliminary Design Delivered

December 4, 2002  
Preliminary Design Presentation



## Glossary

**Gantt Chart** – A timeline chart that shows the schedule of tasks to be completed during the development of a project.

**Linear Sequential Model** – A systematic, sequential approach to software development that begins at the system level and progresses through analysis, design, coding, testing, and support.

**Microsoft Access** – Software that provides a user-friendly environment for managing databases.

**Microsoft Power Point** – Software that creates visual slide presentations.

**Operating System (OS)** - Software that controls the operation of a computer and directs the processing of programs (as by assigning storage space in memory and controlling input and output functions).

**SQL** – A querying language used to access data in databases.

## **Appendix A**



## Michael W. St. John III

### Temporary Address

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Siena College  
Loudonville, NY 12211  
(518) 782-6492  
mike@mikestjohn.com

### Permanent Address

10 Dorwood Drive  
Loudonville, NY 12211  
(518) 783 5371

### Education

Siena College, Loudonville, NY 12211  
B.S. Computer Science, Minor in Philosophy, with anticipated graduation, May 2003  
GPA (A=4.00) in major 3.5; overall 3.2

### Relevant Coursework

Introduction to Computer Science, Procedural Design and Programming, Data Structures, Assembly Language, Object Oriented Design and Programming, Analysis of Algorithms, Computer Graphics, Web Site Design and Programming, Computer Systems Administration, Calculus I and II, Introductory Electronics, Digital Electronics, Artificial Intelligence.

### Computer Skills

C/C++ ( OpenGL ), HTML, XML, XHTML, Perl, Javascript, Java, Prolog, Macromedia Dreamweaver UltraDev 4, Flash 5, Fireworks 4; Adobe Photoshop 6, Illustrator; Poser, Lightwave, 3D Studio Max 4, Microsoft Visual C++, Office Suite, Windows 3.x/9x/Me/NT/2000/DOS; Unix, Linux, Visual Prolog, Maya.

### Relevant Experience

Webmaster, Siena College Environmental Studies Website, Spring 2002

Webmaster, Poorboyz Car Club, June 2001-Present

- Created club website with flash introduction
- Responsible for maintenance of site and new updates

Intern, Wadsworth Laboratories, Summer 1998

- Digitized cross section of spinal cords

Personal website

- Awarded as best in Web Design, Fall 2001

### Activities

Resident Assistant, Siena College, 2000 to present

- Supervised and provided support to on campus residents

Chaplain's Advisory Committee, 2000 to present

- Engaged in activities to further promote Siena's Franciscan Tradition

2003 Class President, 1999-Present

- Plan and executed class wide events on campus

References, College Transcript, and Examples of Work furnished upon request

Donato P. Lalla

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Email: Donato.Lalla@students.siena.edu

**Permanent Address**

68 Rolling Hills Rd.  
Thornwood, NY 10594  
(914) 747-0772  
Dn3553@aol.com

## EDUCATION

**Siena College**, Loudonville, NY  
*B.S. in Computer Science, Business Minor*, May 2003

## COMPUTER SKILLS

- Programming in C++, Assembly, Scheme, and OpenGL
- Knowledge of Microsoft Word, Excel, PowerPoint, Rational Rose, and Unix

## RELEVANT COURSE WORK

Procedural Programming and Design, Data Structures, Computer Architecture, Assembly Language, Object-Oriented Design and Programming, Discrete Structures I & II, Analysis of Algorithms, Communications and Networks, Computer Graphics, Business & Organizational Communication.

## COMPUTER EXPERIENCE

**Systems Administration Intern**, Super Turbine, White Plains, NY, Summer 2001

- Worked along side the company system administrator in assisting in such projects as, creating and removing accounts, installation/removal of software, and performing system repairs.

**Networking**, Atlantic Irrigation Inc. , White Plains, NY, Summer 2002

- Worked on building both an inter-office network, as well as a company wide network allowing all 8 stores in the tri-state area to access and edit data regarding inventory. Included travel to multiple locations and onsite repairs when needed.

## ADDITIONAL EXPERIENCE

- **Cashier, Stock, Assistant to Scanning Administrator, Seafood Dept.**, Atlantic & Pacific Tea Co., Thornwood, NY, 1997-2002
- **Contracting**, Vadella Lawn Irrigation Inc., Valhalla, NY, Summer 2000
- **Product Distribution**, Atlantic Irrigation Inc., Watervliet, NY, Sept 2001-present

Joseph M. Panza  
Joseph.Panza@students.siena.edu

### **Present Address**

Siena College, SPOB 2129  
515 Loudon Road  
Loudonville, NY 12211  
Cell: (518) 852-4706

### **Permanent Address**

497 Wilbur Ave  
Greenwich, NY 12834  
(518) 692-9320

### **EDUCATION**

Siena College, Loudonville, NY  
B.S. in Computer Science, Business Minor, Math Minor, May 2003  
Cumulative GPA: 3.25/4.0  
• Dean's List Fall 1999, Spring 2000, Fall 2001, Fall 2002  
Study Abroad: Sydney University, Sydney, Australia, Spring 2002

### **RELEVANT COURSE WORK**

Procedural Programming and Design, Data Structures, Assembly Language, Object-Oriented Design and Programming, Analysis of Algorithms, Graphics, Software Engineering I, Database, Electronic Physics, Calculus I, II, Discrete Mathematics I, II.

### **COMPUTER SKILLS**

- Proficient in: Microsoft Access, Excel, FrontPage, PowerPoint and Word.
  - Programming in: C++, Scheme, MIPS Assembly Language
- Knowledge of: Mathematica, Rational Rose, UNIX

### **EXPERIENCE**

**Day Care**, Greenwich Elementary School, Greenwich, NY, Fall 1998-Summer 1999

**Deli Worker**, IGA Grocery, Greenwich, NY, Summer 1999, Winter 1999, Summer 2000, Winter 2000

- Showed proficient customer service skills

**Manager of Furniture Movers**, for Jennifer Flynn, Saratoga, NY, Summer 2000, Summer 2001

- Managed groups of 3-5 people
- Organized groups with little notice

**Construction**, Saratoga Shoe Depot, Saratoga, NY, Summer 2001

**Tutor**, Private High School Tutor, Saratoga, NY, Summer 2000, Summer 2001, Summer 2002

**Tutor**, Siena College Group and Private Tutor, Loudonville, NY, Fall 2002

Courtney A. Murphy  
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**Permanent Address**

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East Lyme, CT 06333  
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**EDUCATION**

Siena College, Loudonville, NY  
B.S. in Computer Science, Business Minor, May 2003  
Cumulative GPA: 3.24/4.0

- Dean's List Spring 2000, Fall 2001
- President's List, Spring 2002

Study Abroad: Bond University, Gold Coast, Australia, Fall 2001

**RELEVANT COURSE WORK**

Procedural Programming and Design, Data Structures, Assembly Language, Object-Oriented Design and Programming, Analysis of Algorithms, Web Site Design and Management, Computer Networking, Software Engineering I, Database, Electronic Physics, Calculus I, II, Discrete Mathematics I, II.

**COMPUTER SKILLS**

- Proficient in: Microsoft Access, Excel, FrontPage, PowerPoint and Word.
- Programming in: C++, HTML, JavaScript, Scheme, Perl, MIPS Assembly Language
- Knowledge of: CATIA, Mathematica, Rational Rose, UNIX

**EXPERIENCE**

**Software Engineer Intern**, General Dynamics/Electric Boat, Groton, CT, Summer 2002

- Developed a detailed design of a paperless workflow system for a class of submarines. This included writing use cases, providing input toward design, making activity diagrams of specific units and screen mock-ups.
- Modified the CM website previously worked on during prior summers. Developed new features based on user feedback.

**Software Engineer Intern**, General Dynamics/Electric Boat, Groton, CT, January 2002

- Modified the Web Site previously worked on during prior summer. Developed new features based on user feedback.
- Developed file code, which allowed for the expansion of project files. This resulted in simplifying the programming process.

**Software Engineer Intern**, General Dynamics/Electric Boat, Groton, CT, Summer 2001

- Redesigned and rebuilt the Configuration Management (CM) Web Site. This included integrating a database into the site, developing a form to query information from the database and influencing the design and layout of the site.

**Engineer Intern**, Electric Boat, Groton, CT, January 2001

- Established a procedure for the handling/transfer of data to foreign countries in accordance with International Traffic and Arms Regulations/Importing, Exporting (ITAR/IMEX) Standards.

**Engineer Intern**, Electric Boat, Groton, CT, Summer 2000

- Tasked to develop a database in Microsoft Access to keep a log of outgoing engineering transmittals cross-referenced by various categories. This resulted in the immediate electronic access to documents and data, reducing the requirement of a manual search.
- Created an operations manual to teach engineering staff how to use the database and conducted a training presentation to the department.
- Acted in a project management role by directing the relocation of an entire engineering department, which included attending meetings and the set up of telecomm, computer and networking systems installations.

#### **ADDITIONAL EXPERIENCE**

- **Cashier**, Smith's Pharmacy, August 1996-December 1999  
Trained new employees, Pharmaceutical Technician, Liaison with Customers
- **Waitress**, Bickford's Restaurant, November 1997 – August 1999

#### **ACTIVITIES/AWARDS**

- **Member**, McGuire Society, Siena College, 2002-2003
- **Recipient**, Presidential Scholarship, Siena College, 1999- Present
- **Member**, Siena College Softball Team, 1999-2000
- **Volunteer**, Special Olympics
- **Volunteer**, Soup Kitchen/Food Pantry

## Bryan K. Flynn

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### Permanent Address

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### Education

Siena College, Loudonville, NY 12211  
B.S. Computer Science, anticipated graduation, May 2003  
GPA (A=4.00) in major 3.2

### Relevant Coursework

Introduction to Computer Science, Procedural Design and Programming, Data Structures, Assembly Language, Object Oriented Design and Programming, Analysis of Algorithms, Computer Graphics, Computer Systems Administration, Artificial Intelligence, Database Management Systems, Advanced Database, Calculus I and II, Discrete Structures I and II, Introductory Electronics, Digital Electronics.

### Computer Skills

C\C++ (openGL), SQL, OQL, Perl, MIPS Assembly Language, Oracle, 02, 3D Studio Max 4, Microsoft Visual C++, Microsoft Office Suite, Microsoft Windows 3.x/9x/Me/NT/2000/DOS, Unix, Red Hat Linux.

### Relevant Experience

Computer Systems Technician, Creative Kitchens; 1997-Present

- Installed software and hardware upgrades
- Responsible for network maintenance
- Trained employees in use of software
- Performed repairs on computers

### Experience

Four C's Construction, References, Wappingers Falls, NY; 1999 to present

- Installed cabinetry and ceramic tile
- Skilled in carpentry, wood refinishing, and drywall
- Residential electrical and plumbing installation and repair

Lifeguard, 1998 to 2002

- Healthcare provider (CPR/AED)
- First and safety
- Lifeguard certification

References, College Transcript, and Examples of Work furnished upon request