

Team 4

Joe Nathan, Stephen Motherwell, Dhruv Subramanian,
Paul Heldring, Misha Malik, Austin Dewey, Akshit Kandi

Hello Project Councilors,

We have talked to Professor Dunsmore who told us to write this to you, we are currently waiting on the conformation of our approval for the “3D Geometric Search within a Database” by Boeing we are interested to make it as our 307 Project. If we do not get approved for it we will finalize our project on either the “Fault-Tolerant Encryptable File System” project by Northrop Grumman for which we have already got confirmation on by the representatives of the company or, else we will do a news based application which adapts to a person's likes.

The following are the Project charters for each of our Prospected Ideas

Project Title: Fault-Tolerant Encryptable File System

Problem Statement:

According Northrop Grumman, many embedded devices use Flash storage for persistent storage. In situations where power fluctuates the integrity of these Flash-based file systems can be compromised, and further rendering the embedded device degraded or useless.

Northrop Grumman wants us to make a transaction-based file system, in which write operations are atomic. This kind of file system is nonexistent.

Project Objectives:

These are the given objectives by Northrop Grumman:

Design and implement an atomic C-based embedded file system easily

adaptable for projects with unique encryption needs.

The solution:

SHALL be written in ANSI C

SHALL be suitable for running on an embedded system

SHOULD be suitable to run on low-resourced systems (CPU, RAM)

SHOULD offer efficient storage in file system

SHOULD have small file system code size

SHALL be optimized for Flash storage (or SSD)

SHOULD be optimized for NOR and NAND Flash

SHALL wrap a currently maintained, mature, open-source file system

SHALL be transaction-based (i.e. atomic write operations)

SHALL present an interface for using user-defined file encryption

SHALL present an interface for using user-defined filename obfuscation

SHALL make minimal modifications to the open-source file system, to enable easy upgrade file system to integrate upstream bugfixes

SHOULD be adaptable for use on hard disk

Stakeholders:

Project Owner: Jonathan Elchison, Senior Software Engineer, Northrop Grumman, Cincinnati, OH, 513-881-3411, Jonathan.Elchison@ngc.com

Developers: Joe Nathan, Stephen Motherwell, Dhruv Subramanian, Paul Heldring, Misha Malik, Austin Dewey, Akshit Kandi

Users: anyone who uses an embedded system or a modern device, which has storage.

Deliverables:

- Learn about the problem space. Understand/clarify all requirements.

- Write system-level tests for each of the requirements.
- Conduct a Preliminary Design Review (PDR), to include the professor and Northrop advisor.
- Perform unit testing throughout (and at the conclusion of) your implementation phase
- Use source control management (SCM) for all source code throughout the project
- Apply revision control to documentation.

Project Title: 3D Geometric Search within a Database

Project Statement

This project is about creating a software utility that can scan a 3D model or assembly, and perform a search within a database to identify if the geometry already exists within a specific database. Over time, standard parts and components can have many instances within the same database, depending on how many times they're used on an aircraft, and where they are being used. This project is about 3D design reuse, inventory clean-up, part count reduction and part substitution.

Project Objectives

Investigate the possibility of performing a geometric search based off of a CATIA 3D CAD model within an ENOVIA database. Allow an end user to search a database for a specific part, using 3D data instead of a text based

search.

Stakeholders

Charles Chen, Associate Technical Fellow, charles.chen@boeing.com, 818-657-9617

Deliverables

The results of the project will be to create a utility that will identify instances of a 3D geometric set that already exists within a database. The utility should be able to read in a 3D CAD Model or Assembly, and search an Enovia database, and list all duplicate instances of that 3D part in the database, or be able to identify if no instances exist. Software requirements will include a client side CATIA environment, and a server side ENOVIA environment.

Project Title: Filterable News App

Project Statement

This project would entail creating an app that gives the user access to a news feed which is adjustable according to set interests and recorded likes and dislikes about stories as they are presented.

Project Objectives

The project objectives are to investigate possible correlations between interests and news stories. We want to provide an interactive GUI presenting a news feed with “swipe-left” and “swipe-right” options to designate the like or dislike of a user.

Stakeholders

People interested in news who want to avoid the cluster of information that is

currently presented in most news sources.

Deliverables

The result of the project will be to create an application that a user could access to view a news feed in a forum like fashion allowing the user to dislike and like certain news topics in order to inform the app what news stories to show more or less often. The app will also have a settings menu which will allow the user to select certain topics or interests so that we can pair proper news stories to the user.

General Overall Organization :

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Stephen Motherwell

Akshit Kandi

Misha Malik

Dhruv Subramaniam

Joe Nathan

Austin Dewey

Paul Heldring