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Aero Engine Cloud

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Problem

General Problem Statement:

International Aircraft Engine Association was formed as a global collaboration platform for manufacturers, operators, lessors, and maintenance providers. IAEA's main focus is to integrate the industry on a single global e-commerce cloud platform in order to share information about every aspect of the business.

My Problem Space:

- I am in charge of implementing the Membership Section which must:
- Provide a Secure Login System.
- Provide a way to obtain Payment from Users.
- Provide Access Control for different types of users.
- Provide a way for users to register and create/edit their profile.
- Provide a Member search in order for members to network with each other.
- Provide a way for Administrators to view Activity, Manage Users, as well as change membership prices.

Current System

What TurbineEngine.org offers:

- Registration Page which provides the Administrator with information a guest inputs.

What AeroEngineCloud introduces:

- A registration system which allows for payment through credit card.
- Secure Login and Access Control.
- Ability for members to search for other members and obtain profile information.
- Administrator Section, allowing the management of users and prices, and the viewing of member activity.

Requirements

As a guest, I want to:

- Register
- Pay with Credit Card

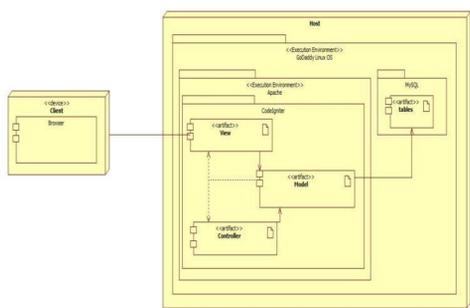
As a member, I want to:

- Securely Login to the System
- Create and Edit a Profile
- Search for Members
- View Other Member's Profile
- Change Password
- Retrieve Lost Password

As an admin, I want to:

- View User Activity
- Enable/Disable Members
- Create User
- Edit Membership Prices
- Alter User Listing Status

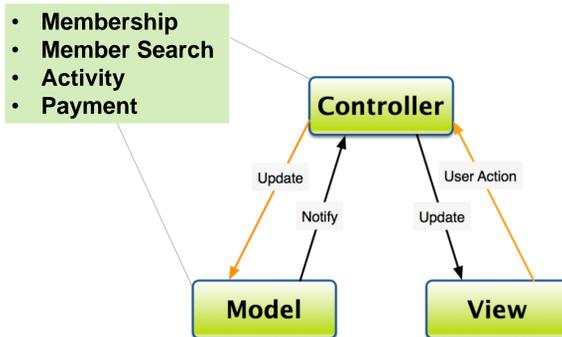
System Design



Deployment Diagram

- As a goal in development the Three-Tier architecture was used in order for the application to be flexible. This will allow future students to be able to add new features with ease.
- The Model/View/Controller software pattern was used for the implementation of the user interface.

Object Design



- The Membership System contains four models, four controllers, and a plethora of different views. Each Model, View and Controller are used to develop the different unique aspects of the system.

Implementation

The Aero Engine Cloud E-Commerce Platform was built with PHP using the Code Igniter Framework. The Framework is based on the MVC development pattern. The authentication system was created by tailoring the Ion-Auth Library for Code Igniter to meet the needs of the system.

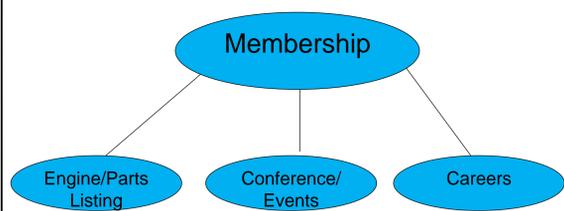
The Graphical User Interface was created using Bootstrap. Bootstrap is a front end design framework containing HTML and CSS design templates for font, forms, buttons, and navigation. Bootstrap was a perfect tool to use for the reason that it supports responsive design, dynamically adjusting its components depending on the device viewing the website.

Due to the fact that our full system is composed of various subsystems, the team decided to breakdown the work into one subsystem per group member. This would allow each member to have full knowledge of their independent system. I developed the membership subsystem and took into consideration that my team mates would rely heavily on it for integration.

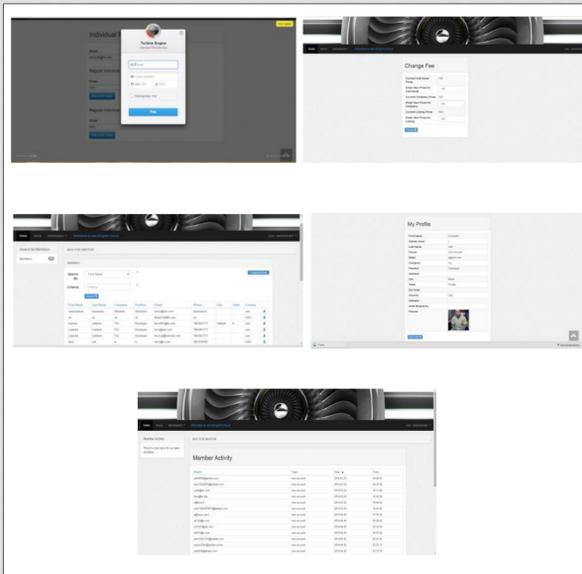


Verification

- Testing of the Membership Subsystem was completed mainly by manual testing performed by the mentor as well as team members. Various Sunny and Rainy Day test Cases were run, to check their effect.
- We used the Big Bang Method in order to test our integrated system. The Engine/Parts Listing, Conference/Events, and Careers subsystems only relied on the Membership subsystem, making the integration testing process very optimistic. The Big Bang method was very effective in saving time. This was a must due to the limited time available and the size of the project.



Screenshots



Summary

Aero Engine Cloud provides many functionalities which were not present in the current system:

- A membership system which will allow a user to register, make a payment, search for other users, create/edit their profile.
- A career section which will allow registered users to search and apply to posted positions as well as create new ones.
- Registered users will be able to create new events such as conferences and keep the public informed of those events.
- A market place allowing for the purchase, trade, sale, and lease of aircraft engines and parts.
- Administrator section that will allow for the administrator to manage users, manage payment prices, and view user activity.

Acknowledgement

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