2 General Description

2.1 Prototype Architecture Description

ResearchLink’s prototype is comprised of the following major components:

- Web interface - The only method of accessing Research Link.
  - Account creation
    - Three distinct account types: Administrator, Faculty, and Student.
  - User Profile & Profile Settings
    - A web interface where users have the ability to edit their profile and display information such as major, minor, research interests, and previous experience.
  - Research Opportunity Creation
    - A form that faculty members and administrators can fill out to create a research opportunity and post it on ResearchLink's website.
  - Newsfeed
    - A looping newsfeed located in two locations:
      - Landing page of ResearchLink
      - Home page after user login
  - Search Engine
    - Faculty users can search student profiles
    - All users can search through current and expired opportunities

- Notification system
  - The notification system provides web and email messages to users.

2.2 Prototype Functional Description

- Update User Profile
  - Web page form that provides an authenticated user to edit profile information based on user type
  - Form is pre-populated with saved user information from database upon navigation

- Research Opportunity Creation
  - A form entry that inserts research opportunity records created by Faculty and Administrator accounts.
○ Each record is stored in the database as an active opportunity until the deadline/expiration date has passed.
○ A calendar based feature will assist in the designation of an opportunity being marked as expired and removed from being accessible by active searches.

● Opportunity Search
  ○ A web page that provides registered users with a display of filtered/ordered research opportunities.
  ○ The user will be able to filter opportunities using keywords as well as arrange them in a desired order.
  ○ All research opportunities will be retrieved from the database.

● User Profile Search
  ○ A web page form that provides a registered faculty user the capability to perform profile searches.
  ○ User accounts only exist for users who have registered within the ResearchLink product.
  ○ The web form will allow the faculty user to sort the results by available numerical fields such as user id.

● Website Notification System
  ○ A notification system that is a web-based message system which sends notifications to registered users.
  ○ Notifications include messages related to research opportunity creation, account status changes, and information related to a user’s department.
  ○ Received messages may be marked as read and deleted by the user.

● Email Notification System
  ○ A notification system that is an email-based message system which sends emails to registered users.
  ○ All notifications sent to a user’s email are the same notifications displayed on the website.
  ○ Users may turn off email notifications at any time.

● News Highlighting
  ○ A looping feed that displays news/highlight records created by Faculty and Administrator accounts on web pages.
  ○ A calendar based feature will assist in archival of news/highlight records that have been active for 60 days. There will be two versions of feeds: public and internal.
2.3 External Interfaces

- ResearchLink will require an internet browser that adheres to the standards as set by the World Wide Web Consortium (W3C). The browser may be used from any device that supports the previously mentioned W3C requirement.

2.3.1 Hardware Interfaces

- ResearchLink will be hosted on an ODU virtual machine.
- Apache web server and relational database will connect with ResearchLink through Laravel programs to facilitate a modern dynamic web application.

2.3.2 Software Interfaces

- MySQL database
- Interface will be written in HTML, PHP, and CSS
- PHP component implemented within the Laravel framework

2.3.3 User Interfaces

- Personal desktop or laptop computer
- Mouse: used to select links and buttons
- Keyboard: Used for input during login, entry or profile information, and search parameters

2.3.4 Communications Protocols and Interfaces

- Hypertext Transfer Protocol (HTTP) facilitates user access via web browsers.
- Transfer Control Protocol and Internet Protocol (TCP/IP) allows the user to connect to the web server and engage the HTTP protocol across IEEE 802.3/802.11