Lab 1 – Strome InFusion Description

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1   INTRODUCTION

The Strome Entrepreneurial Center (SEC) at ODU exists to serve the entrepreneurial community at ODU by enabling new ventures initiated by members of the university. The center opened in 2014 after a generous $11 million donation from Mark Strome, an ODU alumni from the class of 1978 who wanted to give back to the school for them "taking a chance" on him. (Council, 2014) To support their goals, the center provides the community with regular workshops, networking events, individual advising in association with local experts in the industry, and other innovative resources that can assist entrepreneurs.

Students with a business idea can contact the center to help them fill in resource gaps in their projects in-person or by contacting the SEC online. Either way they are advised to register with Venture Hive which is a website to collect and manage this information. There are currently several problems with this process that can cause a potential signup to not make it through the registration. There is not a record of in-person visitors to the center causing them to be easily forgotten. In order to collect a visitor's information they have to register on Venture Hive, which has a very complex initial signup consisting of 20 form fields, 11 of which are required. This initial complexity makes it less likely that a visitor will sign up. Once they are registered there is not a clear online system for matching the entrepreneur with resources and instead relies upon the staff to remember what resources are currently available. The complexity and lack of clear resource availability has caused resulted in only a handful of registrations. The SEC seeks a solution that will simplify the registration process for end users, provide immediate value to new signups, and enable them establish lasting connections with users.

2   STROME INFUSION PRODUCT DESCRIPTION

2.1   Key Product Features and Capabilities

Strome InFusion is a custom management platform for entrepreneurial centers in order to help them achieve their outreach goals. It was designed by the CS 410 Black team in order to assist with the conversion of individuals into entrepreneurs by helping them find and stay connected with resources. It creates a more appealing environment by providing instant gratification to users and assists administrators through easier management of the center's users. Strome InFusion targets the relationship between the entrepreneurial center and its visitors in order to amplify the value of the center to its visitors.

2.2   Major Components

Strome InFusion fits into the current process by replacing several problematic components with customized software. See Figure 1 to see where the parts of the process that are currently problematic for users. Software will be developed to allow logged of user visits to the Strome center either by the user directly or by having staff collect and enter user's information on their behalf. The current cumbersome registration form will be replaced by a newly developed form that can be completed by a visitor in a few minutes from their phone, it'll be fast enough that they will be able to register before they leave if they happen to be visiting in person. Once the student is registered they will continue to remain engaged by being connected with resources and businesses with ties to the Strome Center.
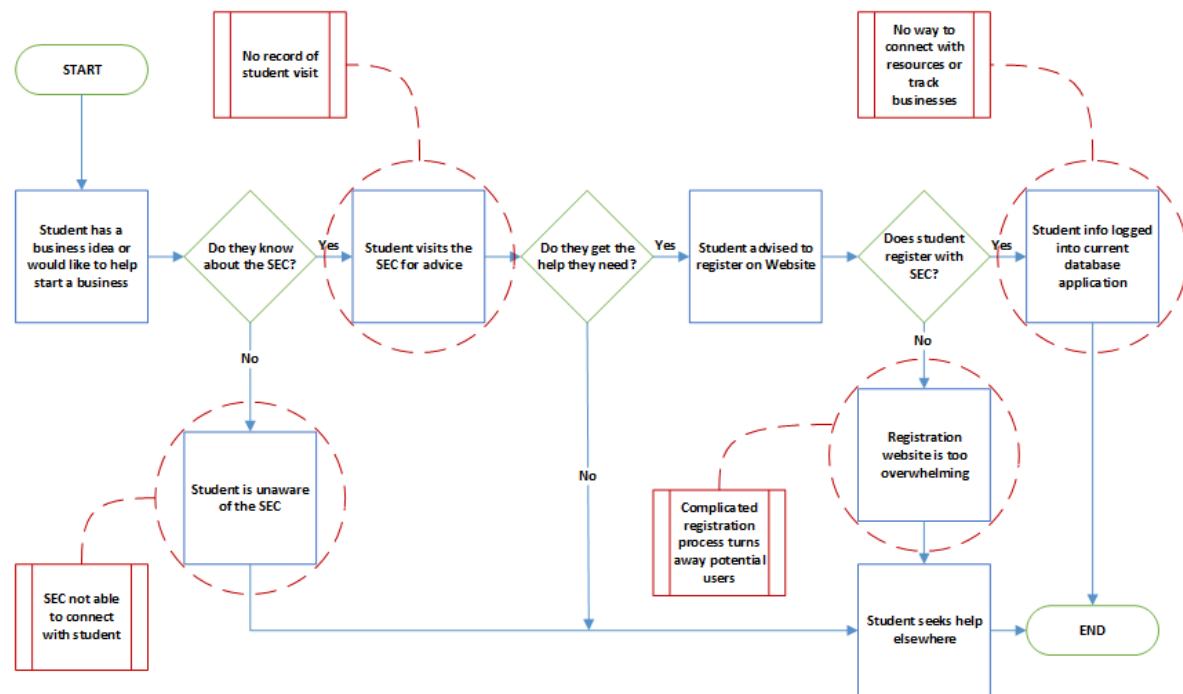
Figure 1: Current Process & Pain Points

3   IDENTIFICATION OF CASE STUDY

The product is being developed for the Strome Entrepreneurial Center at Old Dominion University. Its primary users are the students who visit the center who are interested in entrepreneurship, the center's administrators, individual volunteers, and companies who provide assistance to the Strome center. The center provides many services that are not fully taken advantage of by members of the community. By making an easier registration process for students and businesses to collaborate the center will be capable of reaching more students with whom the center may have otherwise not made contact. In addition the ease of access will encourage new businesses and other students to provide student companies with new resources. The prototype will be considered a success if it achieves a higher number of registrations and interactions with students then the existing solution

provided by Venture Hive. In the future this software application suite could be provided as a white label

solution for other entrepreneurial centers in order to assist them to meet their outreach goals.

Feature	Real World Project	Prototype
Authentication	Integration with 3rd party schemes such as shibboleth	Custom authentication
Client Testing	Testing across a large variety of mobile and desktop web browsers	Mobile testing on only the devices that our team members own. Full support only for modern browsers
Customer Support	Telephone and email support for problems or questions using the application	Not simulated – Customer support is a common need for software applications.
Events	Ability to list events and add events to a calendar view for individuals and companies	Eliminated from prototype
External Resources	External investors and mentors who are willing to contribute to the success of the venture.	Test data provided by Director Grden and the Strome InFusion team
Internal Resources	Students who want to utilize their skills to work on a business venture.	Strome InFusion team members connecting as a venture to test functionality
Mobile Application	Mobile application will be available natively for all major mobile OS platforms	Will only be available natively for Android devices
SEC Staff	SEC staff and mentors who will provide guidance for the project.	Director Grden as well as Strome InFusion team members simulating Strome Entrepreneurial Center staff
Security	Audited to confirm the security of proprietary data	Not reviewed
Service	Support for scaling to multiple servers and other environments	Limited to the capabilities of a single virtual machine
Service Integrations	Integrate with existing software and services used by universities such as Microsoft Lync	Integrated with email
Students	Students at ODU who wish to collaborate on a business venture	Actual student and Strome InFusion team members using virtual machines using Strome InFusion team data along with special test functionality

Figure 2: Feature comparison of full product and prototype

4   STROME INFUSION PRODUCT PROTOTYPE DESCRIPTION

The Strome InFusion prototype website will supplement the existing Strome entrepreneurial center website with content that requires user authentication.

4.1   Prototype Architecture

The prototype consists of several components that work together to support a single cohesive service. The major components of the architecture include a website, mobile application, web service, and database. See Figure 2 below. Users can work with the application through either the website or downloadable mobile application. A mobile application is used to provide functionality that would otherwise not be available with website.

The web application is hosted on an Ubuntu Linux server. The website is a single page web application built using AngularJS (JavaScript based web application framework). The web application makes RESTful HTTP requests to a web service in order to load user specific information and other dynamic content. Because the application is built as a single page AngularJS application we will also be able to package the application using Cordova to provide a near native mobile user experience. The server includes the server software WSGI in order to serve those HTTP requests for both web pages and RESTful data. Flask (a python micro framework) is also used on the server to assist in servicing the HTTP requests. The web service interfaces with the PostgreSQL database which stores a structured copy of all of the content generated by users.
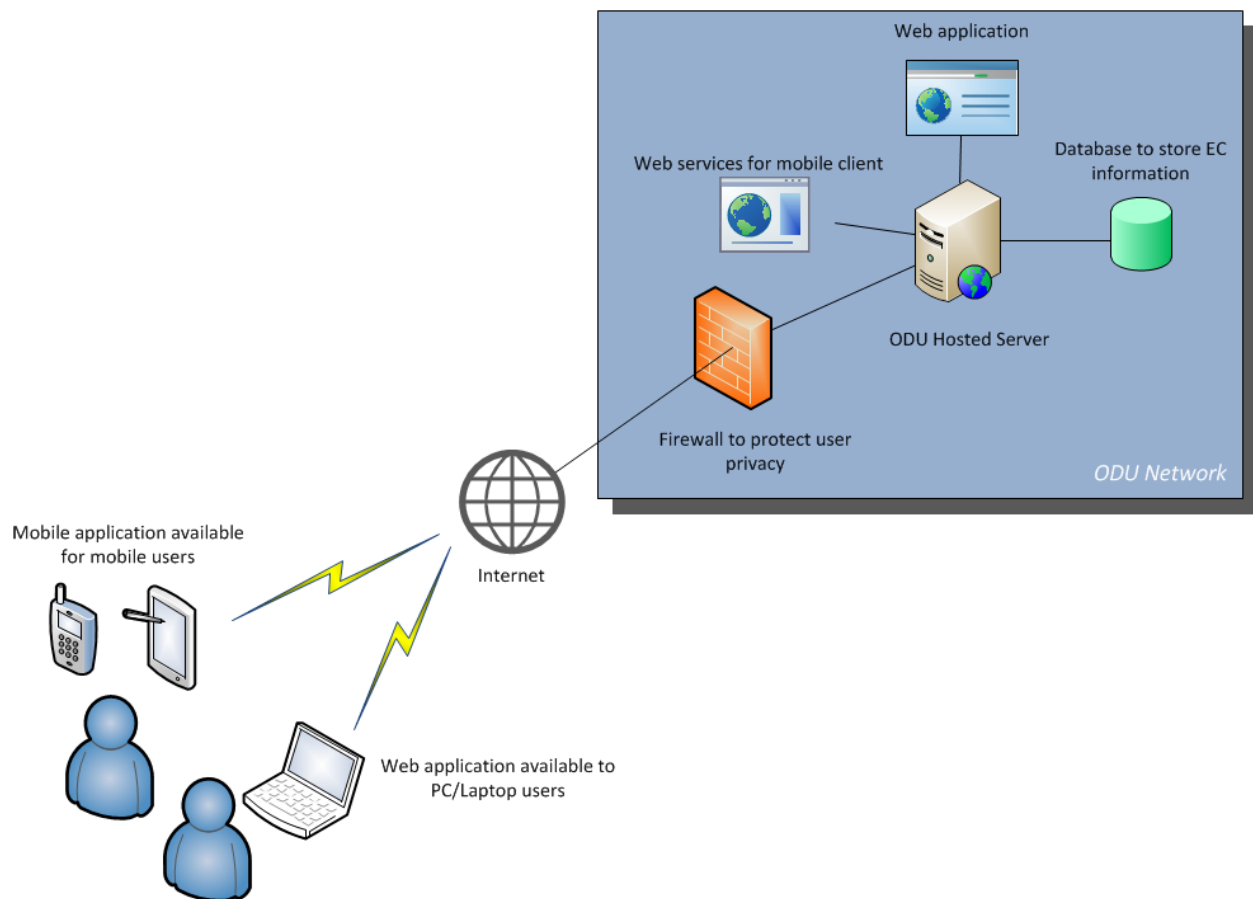
Figure 3: Application Architecture

4.2   Prototype Features and Capabilities

Users of the website have the capability to register or login to an account. There are three primary roles with different abilities, users can have one or more of these roles. A user's rolls are approved by the center's staff in order to grant them access to specific components of the system. Prior to a roll being approved the user can see an immediate preview of the resources affiliated with members of the center.

Students are new or previous students who are interested in either offerings a resource to current companies or can request resources for their company as a company spokesperson. Approved students can advertise their skillsets as resources for companies, request meetings with SEC mentors, or can request the creation of a company profile. Students who are creating a new venture by establishing

a company profile are then able to also request resources, update information about their company, and collaborate with resources through chat and file sharing.

External companies frequently work with the Strome entrepreneurial center in order to provide their resources to new student companies. An external company will have the ability to post about their resources to indicate how they can help student companies. An external company can also maintain a listing of its own profile with information to provide supplemental information to students who might seek their assistance.

The entrepreneurial center staff role is specifically for employees of the Strome Entrepreneurial center and has some administrative capabilities. Staff members can send out notifications to members. They are also granted the ability to approve or deny new signups, and maintain current lists of external mentors. They can manage key words associated with the search for resources provided by both students and companies. Lastly they are able to approve and provide additional information about meetings between students and the center's team of mentors. An overall administrator role also exists to allow the center to send general system notifications to all users. They are also empowered to add, delete, enable or disable user accounts, companies, change signup requirements of roles, and has all of the other abilities of staff members.

4.3   Prototype Development Challenges Features

There are a number of challenges and risks that must be overcome during development of the Strome InFusion prototype. The greatest challenge is certainly the development of the application which requires a broad set of disciplines to be fully executed. In order to remedy that the languages and frameworks being used have been chosen for their low barriers to entry and the development team is able to lean on many established existing skills. Another challenge is the timeframe for completion of the development which will be mitigated by careful time management and equal distribution of work to

a relatively large team of seven developers. A risk to the success of the prototype is whether or not the

customer likes the solution since if they do not it will not be used. By working closely with the customer

throughout the development process this can be mitigated during development.

GLOSSARY

Company: Any business that is owned or operated outside of ODU.

Cordova: An open source project that provides a set of device APIs that allow a mobile application to utilize native device functions from JavaScript.

Entrepreneur: A person who organizes and operates a business or businesses, taking on greater than normal financial risks in order to do so.

Flask: A python based micro framework that handles routing of http requests.

JavaScript: A lightweight, interpreted, object oriented language most well-known for its utilization for client side applications running in a web browser.

PostgreSQL: An open source database system

Python: An object oriented programming language.

Resource: Any student with a skillset.

REST: Representational State Transfer is an architectural style.

Skillset: Any skill that a resource offers.

Startup: Any student owned company, product, venture that has a dedicated profile within Strome InFusion.

Ubuntu: A freely available and well supported Linux distribution.

uWSGI: A full stack for building hosted services supporting multiple languages including python.

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