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**PitchHub - A Collaboration
Platform for Innovators**

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Submitted in partial fulfilment of the requirements for
ENGR489 - Bachelor of Engineering.

Abstract

The ability to connect innovative ideas to people and resources is an essential component of the innovation process. This project is concerned with empowering the innovation community with an online collaboration system that is simultaneously useful to all actors in the innovation ecosystem while ensuring that all sensitive IP shared is stored in a secure manner. The goal of this report is to detail the steps taken in designing and implementing a distributed web application that facilitates collaboration and enforces data security with threshold cryptography.

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Chapter 1

Introduction

1.1 Motivation

1.2 Project Objective and Scope

roles and rights (scope of disclosure)

1.3 Contributions

1.4 Outline

Chapter 2

Background into Collaborative Platforms for Innovation

This chapter aims to explore the related works of collaborative platforms used in the innovation space and also contextualises where in this landscape PitchHub aims to occupy. First, this chapter presents a taxonomy of the primary roles used within the collaborative innovation process. Second, this chapter describes the current collaborative platforms being used in the innovation space and establishes where each stands within the role taxonomy. Third, this chapter concludes with a discussion on the practical limitations that are introduced by being innovation-orientated.

2.1 Common Roles in Innovation

The process of driving an idea from its conceptualisation to its realisation commonly requires a variety of actors who bring together the knowledge, skills and resources required to action its fulfillment. For example, the Apple II came to being with Steve Wozniak providing the technical knowledge and skills, Steve Jobs providing the project goals and marketing drive, and Mike Markkula providing the resources to finance its production [1]. Again and again we see similar stories, where innovation is driven in a collaborative configuration rather than solely by one person. To this point Callaghan Innovation has identified four distinct roles that are embodied by the team within the innovation process:

- Challenger
- Enabler
- Solver
- Facilitator

These four roles represent the different functions required in an innovative product or service's successful execution. Challengers provide the idea or problem to be solved in order to realise a business opportunity. Enablers provide the resources required to action the innovation, this may be in terms of man-power, assets or financing. Solvers provide the answer to the idea or problem presented by the Challenger(s). Facilitators provide the connections to drive the innovation's execution, this may be in terms of connecting other people to the idea, or helping the idea gain reputation. Whether these roles are shared amongst a team or fulfilled by a single person in most cases of innovation these roles are too large for one person to embody them all. To continue with the Apple II example, we may categorise Steve Jobs

as the challenger, asking why computers can't serve the consumer market, Steve Wozniak can be seen as an enabler and sover, as he both designed the Apple][and built them, and Mike Markkula, can be regarded as an enabler and facilitator, as he financed the production and also lent his reputation to the product.

2.2 An Investigation of Collaborative Platforms

Naturally, a platform that aims to facilitate collaboration for purposes of innovation at it's empowering an idea in relation to these roles. In this section we explore the current solutions being used to facilitate collaboration and discuss how each works in relation to these roles.

IdeaForge[2] is

HunchCruncher can

Assembly is

AngelList

2.3 Practical Limitations of Online Collaboration for Innovation

Chapter 3

Background into the Web Application

3.1 Architecture

3.2 Behaviour Driven Development

Chapter 4

Implementation of the Web Application

4.1 Technology Choice

4.2 Deployment

Chapter 5

Background into the Threshold Security Scheme

5.1 Security Considerations

5.2 Shamir's Secret Sharing Scheme

5.3 Limitations of Threshold Security Schemes

Chapter 6

Implementation of the Threshold Security Scheme

6.1 Implementation of Shamir's Secret Sharing Scheme

6.2 Implementation of Secret Keeper Redundancy

Chapter 7

Experimental Methodology

7.1 Functional Testing Method

7.1.1 Testing Environment

talk about reproducible environment

7.1.2 Test Data

frequency analysis of data cleaned and given by CI's user trial
seeded given frequency analysis results

7.1.3 Automated Testing

talk about selenium and user stories

7.1.4 Performance Considerations

talk about NN threshold

7.2 Security Testing Method

7.2.1 Security Testing Scope

Our threat model consists of resisting at least one shoulder surfing attack from an observer co-located at any position around the tabletop. Camera-based attacks are feasible with most knowledge-based authentication systems; but to defeat camera attacks was not our design goal. The pervasive nature of mobile devices instrumented with cameras is of particular concern, but as with other manifestations of this same problem (e.g. at the ATM) we rely upon social conventions to deter active attempts to video record logins.

7.2.2 Threat Taxonomy

Chapter 8

Evaluation

8.1 Functionality

8.1.1 Comparison of Prototypes

8.2 Security

8.2.1 Threat Taxonomy

Chapter 9

Summary and Conclusions

9.1 A Summary of The Developed Prototypes

9.2 A Discussion of Online Innovation Collaboration and The Prototypes

9.3 Future Work

9.3.1 Recommendation Engine

9.3.2 Usability Evaluation/Improvement

9.4 Final Comments

Bibliography

- [1] J. Livingston, *Founders at work: stories of startups' early days*. Apress, 2007.
- [2] "ideaforge — the new engine of creation," <http://ideaforge.io/>, (Visited on 08/24/2015).