

CSCI6307 – USABLE SECURITY & PRIVACY

Study on Security Issues in Online Payment Systems

Authored by
Group 6

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Introduction

In this modern era of technological advancements, the emergence of e-commerce has created new financial needs regarding e-Payment systems. [2] The number of private and corporate transactions that are done electronically is growing at a rapid speed. [1] This e-payments are financial transactions made without the use of paper documents such as cheques. E-payments include debit card, credit card, smart card, e-wallet, e-cash, electronic cheques and more. [3] Each of this payment system has advantages and disadvantages for the customers and merchants. [2] Many companies are using the third-party payment gateway for completing the online transactions. However, there are some significant issues and challenges of Electronic Payment Systems. To secure the payment gateway many third-party applications have added security parameters, yet the online frauds have been increasing rapidly. Information security is an essential requirement for an efficient and effective e-Payment system. [1]

Objectives

Owing to the progress of hybrid web applications, services such as online payment systems have become increasingly popular. The pervasiveness of this domain brings in new and unexplored security concerns. The objective of our study is to carry out a systematic inquiry into the security issues associated with electronic payment systems. [1] Furthermore, we will study about the challenges posed such as lack of usability, lack of security and lack of trust. Additionally, we aim to explore various authentication mechanisms and evaluate the levels of confidence.

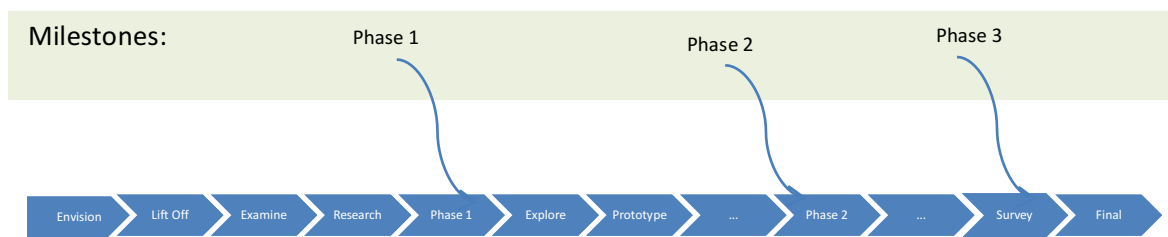
Approach

This project will investigate the privacy and security of Electronic Payments, then find a most useful method to overcome the problems and suggest any improvements in the existing solutions.

- We will first research the most widely used security mechanism, find every advantage and disadvantage, and choose a proper scheme.
- Research the unexplored security concerns, challenges of the users during E-Payment
- Analyze the security levels in a relationship with fraud vulnerability, and determine how this relationship affects or boosts the confidence of the users.
- Research the electronic payment system that involves authentication mechanisms with two or more authentication factors that secure the E-Payment system, reduces fraud vulnerability, and boost users' confidence.
- Do in-depth research on the special scheme, design a prototype, start the user study.
- Finish user study, conduct a survey and interview, collect and analyze data, and find a way to improve the security method.

To do the survey, we are going to list some advantages, a solution to each problem and simulate the real-time scene on the sheet. The questions will depend on the research we do. The participants of this survey will be people with different backgrounds and age group to make sure that the opinions are broad enough.

Work Plan



Phases	Plan
Phase 1 (September 25 – October 15)	Examine all the different security concerns and authentication mechanisms available
	Research and Study all the drawbacks of Electronic payment systems
	Analyse and Choose specific areas of study based on the research done
Phase 2 (October 16 – November 19)	Explore the areas to find out different challenges and ways to increase the usability and security. Create an Overview of how the problem will resolve based on the research performed.
	Develop a prototype for demo based on the design requirement overview performed
	Changes in the prototype to be done based on the feedback provided and getting ready for user study.
Phase 3 (November 20 – December 3)	Pilot testing the user study protocol with our classmates acting as users. The user will be asked to give their opinion on the various security measures provided.
	Results from the pilot study will be analysed, and a questionnaire or survey form will be prepared
	Analysing the survey form and preparing the results based on it.
Final (December 3 – December 5)	Preparing Final Written Project Report

References

[1] *Oaji.net*, 2018. [Online].

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[2] *Pdfs.semanticscholar.org*, 2018. [Online].

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[3] *Raijmronlineresearch.files.wordpress.com*, 2018. [Online].

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