

# A Robust Authentication Scheme using Smart Mobile Devices

Your  
global  
future  
**begins**  
here

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# Outlines

- Introduction
- Objective
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# Introduction

Introduction

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- User authentication is the first layer toward securing an Internet service and computer system.



# Introduction

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Objective

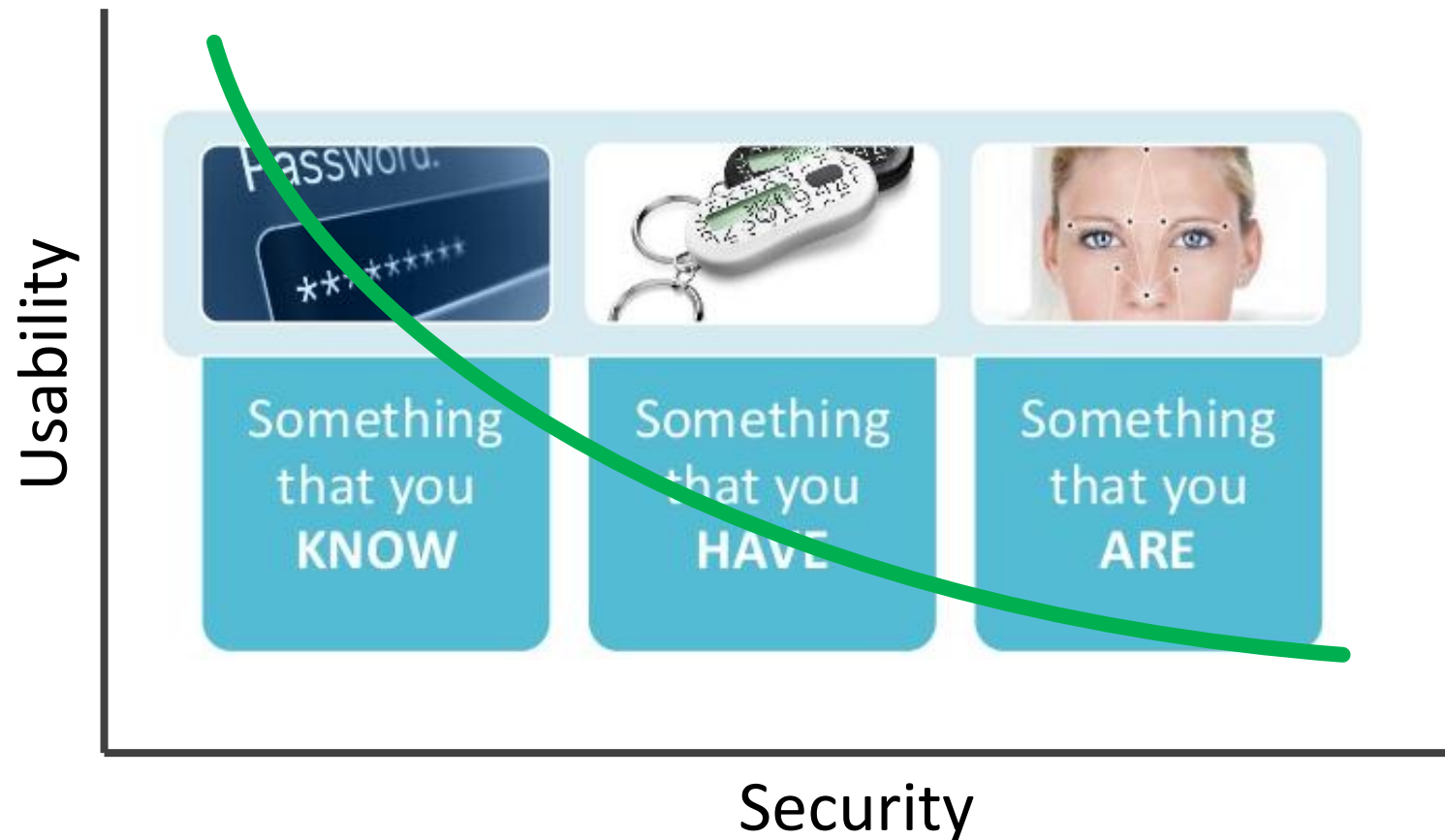
Related Work

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- Authentication Factors



# Introduction

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- Text password is the most widely adopted method of authentication in most modern computing services.
  - Easy to learn and to use
  - Easy to implement
  - Easy to change when password is compromised /forgotten
  - Provide with certain degree of security
- Text passwords do nothing to protect online users from password stealing attacks such as *phishing*, *keylogger*, *guessing* and *brute-force* attacks.

# Objective

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- To propose an Authentication Scheme:
  - Usable (Internet, ATM, Point of Sales ...)
    - No changes on the terminal side
  - Secure against different text password attacks
    - Detects any tries for unauthorized access by attackers
  - Cost effective
    - No additional devices
    - Not rely on a third party

# Related Work

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- Security researchers have proposed some novel authentication schemes to either replace or improve the text password authentication scheme
- Focus more on security but less on practical and usability issues related to deployment.
  - Require changes on the terminal side
  - Additional Cost
  - Requires some amount of user training
  - .....

# MINHO Authentication

Introduction

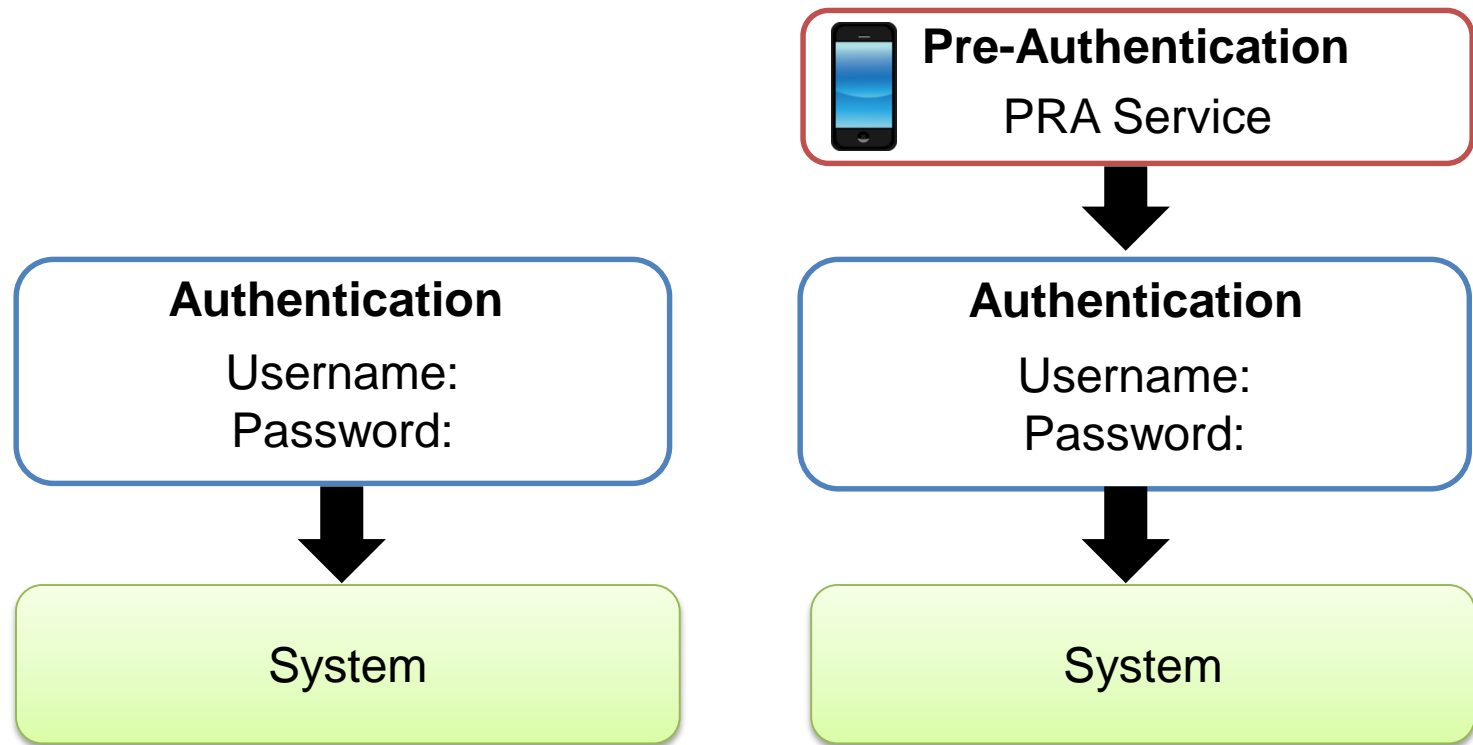
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(a) Traditional Authentication

(b) MINHO Authentication



# Pre-Authentication Service

Introduction

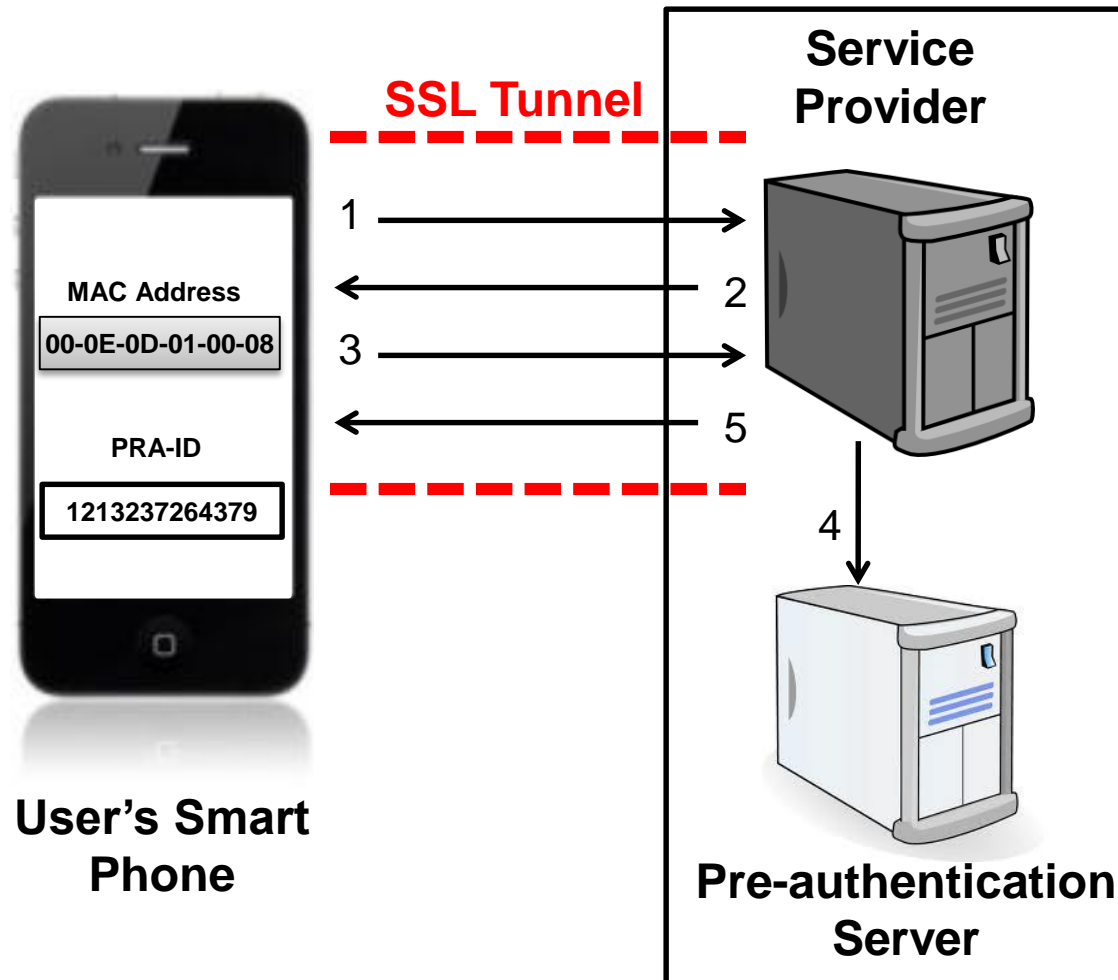
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# Pre-Authentication Service

Introduction

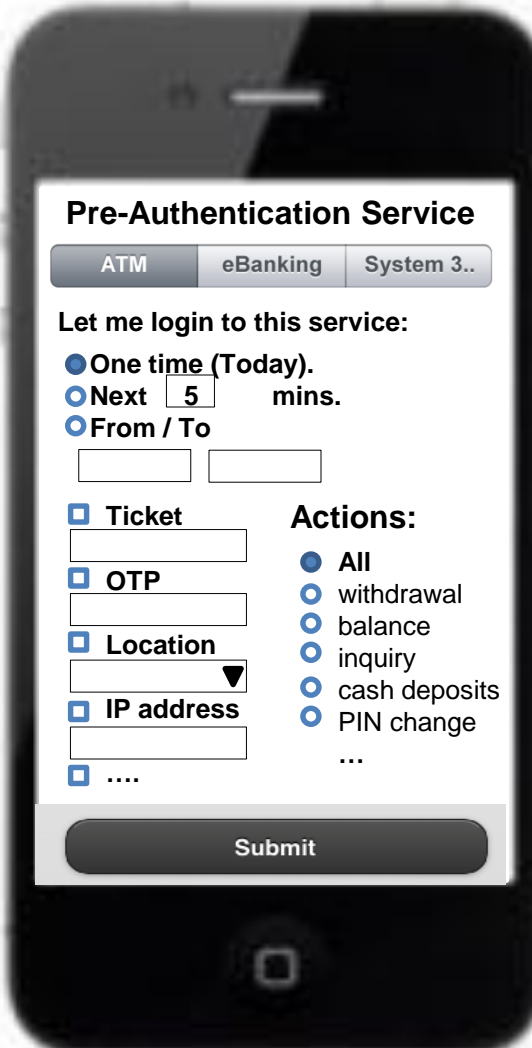
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**Pre-Authentication Service**

ATM eBanking System 3..

Let me login to this service:

☒ One time (Today).  
☐ Next  mins.  
☐ From / To

☐ Ticket   
☐ OTP   
☐ Location   
☐ IP address   
☐ ....

**Actions:**

☒ All  
☐ withdrawal  
☐ balance  
☐ inquiry  
☐ cash deposits  
☐ PIN change  
 ...

Submit

# Authentication Steps

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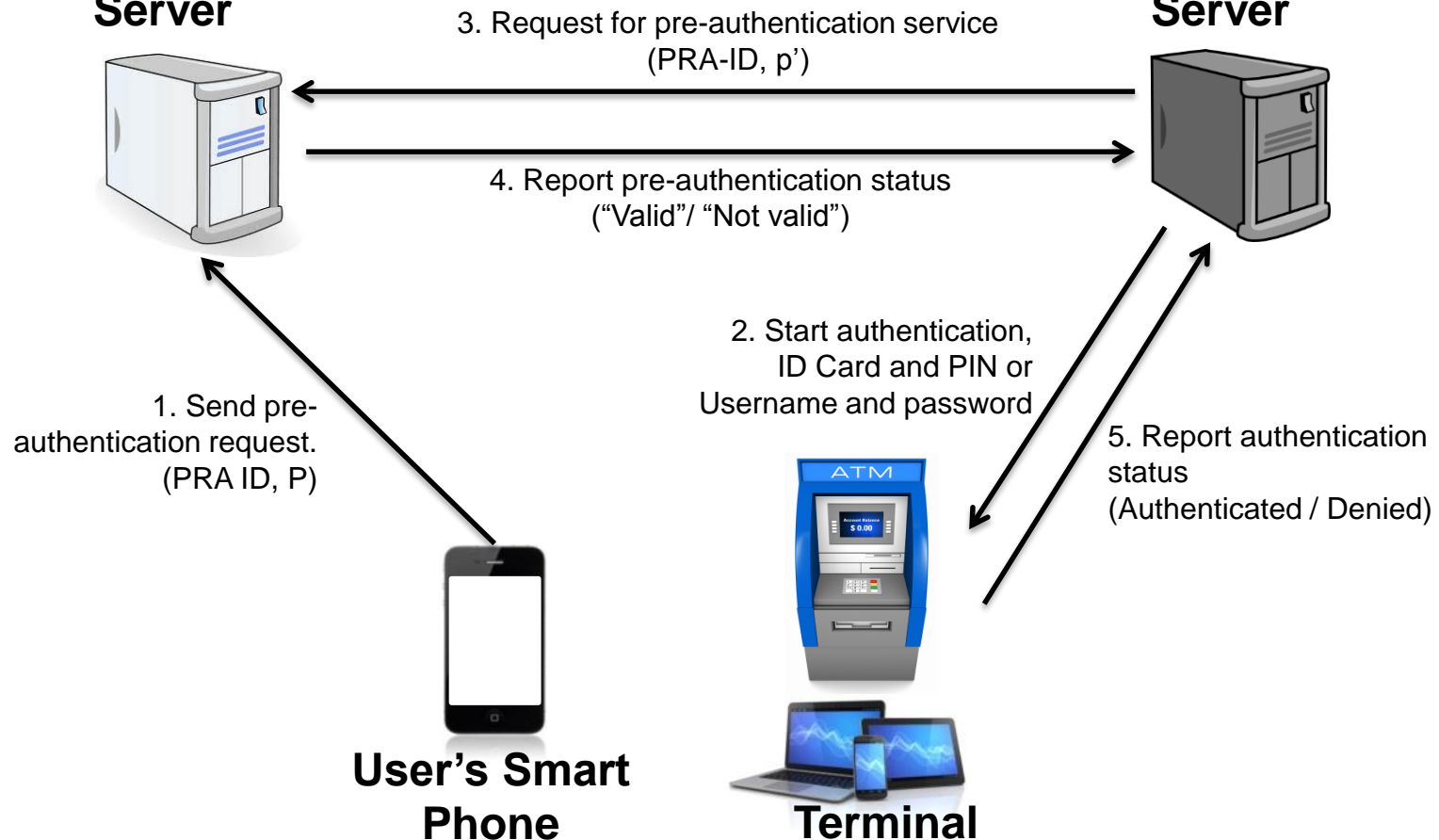
MINHO

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## Pre-authentication Server

## Authentication Server



# Conclusion & Future Work

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- We present a novel mobile based authentication scheme (MINHO) that protect users from unauthorized access even when their passwords have been stolen.
- MINHO is a practical solution as it does not require any modifications on the terminal side.
- In the future, we will implement a prototype and conduct a details security and usability study.

# Q & A

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