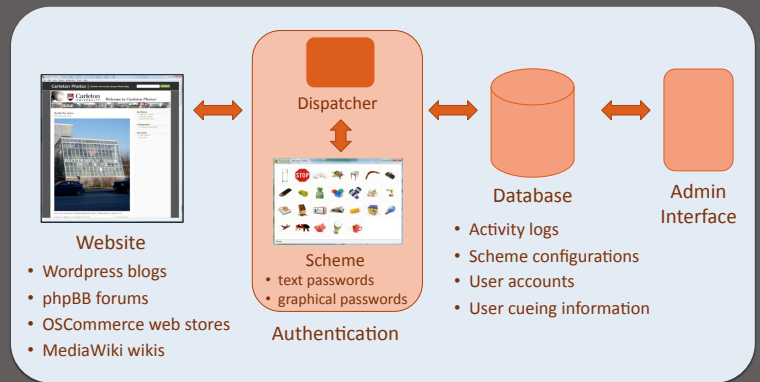# The MVP web-based framework for user studies in authentication

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Website
- Wordpress blogs
- phpBB forums
- OSCommerce web stores
- MediaWiki wikis

Dispatcher

Scheme
- text passwords
- graphical passwords

Authentication

Database
- Activity logs
- Scheme configurations
- User accounts
- User cueing information

Admin Interface

The MVP framework

MVP (Multiple Versatile Passwords) is a new framework for conducting user studies of authentication schemes that can easily be deployed in both lab and field environments. It addresses ecological validity issues by using real websites with real content, making authentication a secondary task. MVP differs from systems such as OpenID or single sign-on; its goal is specifically to serve as an instrumented platform for testing and comparing multiple authentication schemes.

Features:

Web-based usage
Functions with most browsers and operating systems, so participants can complete tasks from any web-enabled computer.

Easy addition of new schemes
Each website invokes the MVP dispatcher that opens a new window with the authentication scheme. Each module takes the userid from the website and returns an encoded authentication string. The websites themselves remain responsible for authentication, using the encoded string as they would use an entered text password.

Ecological validity
Participants complete primary tasks on real websites that are fully populated with real content and that require users to log in as part of the process. Several popular open-source systems have been modified to use MVP.

Instrumented for analysis
MVP records all user interactions with the system. MVP allows for testing different authentication schemes under identical conditions while recording the same performance measures.

Password reset without admin intervention
Password resets are triggered by clicking on the ``forgot password'' link on the given website. A temporary single-use text password is emailed to the user. The user can then use this password to access the reset area of the website and create a new password using the assigned authentication scheme.

Training for new authentication schemes
MVP provides an interface for users to practice using new schemes and receive immediate feedback about whether they are entering passwords correctly.
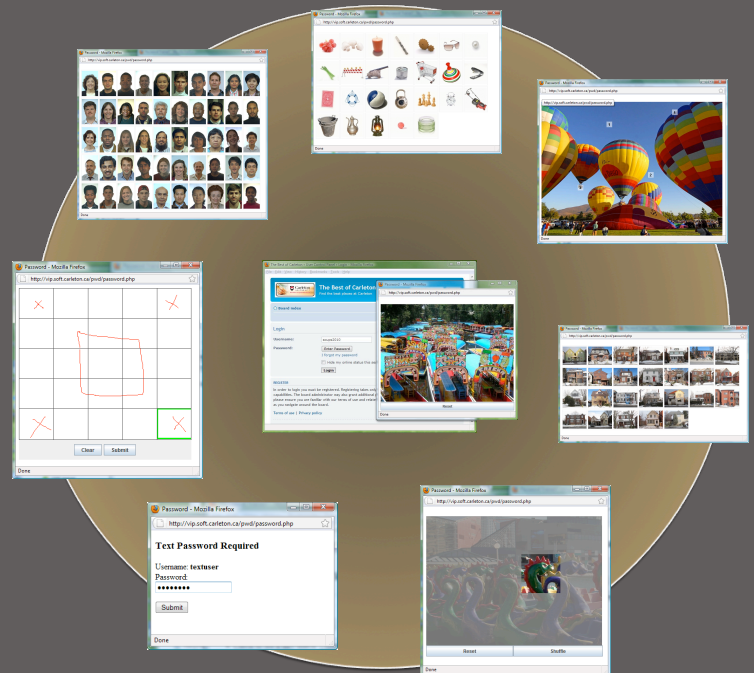
Initial User Studies:

Study 1: 24 participants tested PCCP.

Study 2: 60 participants tested recognition- schemes (houses, faces, or objects).

Participants completed a lab session and a 1-week at-home component, receiving tasks by email on Days 1, 3, and 6. The participation rate was high during the at-home tasks.

Several participants mentioned enjoying the websites and inquired whether they would be available beyond the study. Participants could use the system from a variety of locations and platforms without difficulty and engaged with the web content as their primary tasks. When users forgot their passwords, they reset them without difficulty. Finally, our instrumentation allowed us to recover detailed information about usage, enabling later analysis.

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