International Journal of Advanced Research in Science, Communication and Technology



International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal



Volume 5, Issue 11, April 2025

PassGuard: Multilayer Password Generator

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Abstract: Security is a major problem in our daily lives, with data breaches and cyber-attacks becoming more regular. Authentication is one of the most critical security services supplied to the system by various authentication systems. To protect any system, authentication must be established so that only authorized individuals have the authority to use or handle the system and its associated data safely. Keeping this as a main concern, we are developing a multi-level security system that increases password confidentiality to a greater extent. At each session, users must be authenticated in order to progress to the next level. The first level is authenticated using alphanumeric text, the second by color scheme password encryption lock, and the third by OTP creation. After being authorized at all levels, the user can utilize the system. If the user fails to authenticate at any level, he or she will be unable to further. According to the final result evaluation, three-degree authentication provides a more reliable level of safety than current systems

Keywords: Authentication, Security, Confidentiality, Password, OTP generation

I. INTRODUCTION

Authentication is the correct validation and administration of a user's permissions to access resources in any information system. User authentication is now widely recognized as the most crucial component of information security. The study focuses on a user authentication system that requires users to provide the correct password in order to access the system. The project has three levels of user login details verification. There are several password systems, many of which have failed due to bot assaults, while others have been tested to their limits. In short, practically all current passwords can be broken to some extent. As a result, the goal of this project is to provide the highest level of security for user authentication.

The project has three levels of user authentication. It is possible to partially crack almost any password that is currently in use. Therefore, the goal of this project is to give user authentication the best level of security possible. It contains three different password methods for each of its three logins. The password becomes more difficult with each step. Users must input the right password in order to log in successfully. For each of the three categories, the project contains text-based alphanumeric passwords, color scheme passwords, and OTP-based passwords.

II. LITERATURE SURVEY

[I] M. Aparna , S.Gopalakrishnan , C.M.Anjusree (2018) Published Research Article on Three Level Security System using Image Based Authentication at International Journal of Advanced Research in Computer and Communication Engineering.

As a second step, they suggested employing picture choice authentication, in which users can choose a specific image from the available options. The author has suggested an alternative, extremely secure authentication technique.

[II] Raghini Sharma , Dr. Umarani Chellapandy (2022) has conducted Research on Three Level Password Authentication System Mechanism at International Journal for Research in Applied Science & Engineering Technology (IJRASET)

The methodology of User Authentication for Verification and Validation serves as the foundation for this paper. They suggested a technique in which the system uses three-level password verification to confirm that the user is who they say they are.

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DOI: 10.48175/IJARSCT-25843





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Volume 5, Issue 11, April 2025



[III] N Chaitra, Pratibha, Dr. Rajashree V Biradar (2022) has published article on THREE LEVEL PASSWORD AUTHENTICATION SYSTEM at International Research Journal of Modernization in Engineering Technology and Science.

With the help of graphical passwords, which are easier for people to remember and use, this article suggested changing textual content passwords. Furthermore, the graphical password offers higher protection.

III. PROPOSED METHODOLOGY

This innovative and straightforward 3-Level Security System has three security levels. where passing the previous level is necessary to advance to the next. It offers a more efficient method of protecting different online services by generating a color by encrypting the password. In a subsequent stage, the color password encryption scheme will increase the level of security. With this method, users will be able to build a three-layered password system, and the OTP will verify that the information entered is correct.



Fig: System Architecture of Multi-level password generator

Security at first level has been forced by utilizing Text based secret phrase (with unique alphanumeri characters), which is a standard and now a chronologically erroneous methodology. At second level the security has been imposed using Color Combination password, basically there is shades of different colors where user can set different combination of colors by clicking on those colors. After the successful clearance of the above two levels, the 3-Level security system will be OTP Generation for final cross verifying the user.

Registering

The user must log in before completing the registration form.

Setting Up Your Password

The user must input all three-level passwords in accordance with their requirements while enrolling.

Following are the steps to create a password.

Initial Phase: The initial stage is a standard text-based password system.

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Second Phase: A password based on an image is used at this level.

Third Phase: This level uses a password system that is based on graphics.

Sign in

Users can check all three security levels after registering, and they must keep in mind all three security levels when logging in later.

Verification

As users begin entering their passwords for the first level, they proceed to the second level after the first level has been verified, and so on for the second and third levels.

Textual Authentication: The first phase is typical text-based authentication, where users check in using their username and password. Passwords can be any combination of letters and symbols, with a minimum of 11 characters.

Colour Scheme Pattern Authentication: This authentication system uses color selection combinations, where the user must choose a combination and remember it while signing in.

OTP Verification: OTPs are typically time-sensitive and random, meaning they are valid for a short time, offering dynamic security. In this level, the user will receive a one-time password (OTP) sent to their registered phone number or email, which they must input to complete the authentication.

IV. RESULT

SecureAuth		Features	Login	Register
	Secure Your Account with 3-Way Authenticatio	m		
	Advanced security using Password, OTP, and Recovery Key.			
	Login Register			
	Fig 1: Home Page			
	Register			
	Email			
	Password			
	Confirm Password			
	A			
	Choose Color:			
	#FFFFF			
	Register			

Fig 2.1 : Registration Page (Level 1)

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Fig 2.2 : Registration Page (Level 2)

Email Verit	cation
Registration successful! Verify your sent.	email using the OTP
inter OTP	

Fig 2.3 : Registration Page (Level 3)



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	Death	harred.	Melez	
Dashboard	Dasn	poard	weico	me, Admin
Users	User	Management		
Settings				Add User
	ID	Email	Favorite Color	Actions
	1	rautnilima394@gmail.com	#ffffff	Edit Delete
	2	dvraut143@gmail.com	#ffffff	Edit Delete

Fig 4 : Admin Panel

V. CONCLUSION

The three-level authentication system has been designed for providing high security features with user friendly interface. The user need to register and only after confirmation via email OTP the user can login and use this authentication system. This security system is a time-consuming approach since the user needs to enter details carefully for all three security levels. Therefore, this system is not suitable for the general purpose of security since it takes time to fill in all three security level details. But it will definitely be helpful in high-security levels where the security of data is a primary concern and time complexity is secondary. The main objective of this project is to improve the security level of the systems with respect to which research finds that a three-level authentication system helps to provide more security compared to one-level and two-level authentication systems as the user needs to enter critical details and login with three different levels of authentication.

VI. ACKNOWLEDGMENT

A substantial activity can only be successfully and satisfactorily completed with the involvement of diverse personal effort from all angles, both explicit and implicit. Wide-ranging, worthwhile reading activities result in significant knowledge gains from books and other informational sources, but real competence comes through related learning tasks

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Volume 5, Issue 11, April 2025



and experience. We ardently with extent, both modestly our heartfelt gratitude to all those who provided timely and honest assistance in making this project a success.

We sincerely thank and express our gratitude to our project guide, Prof. ARTI VIRUTKAR for their expert guidance in achieving the objectives mentioned above. We express our gratitude to respected Dr. ANUP BHANGE, Head of Department of Master Of Computer Application (MCA) and other staff members for guiding us and giving their valuable suggestions.

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DOI: 10.48175/IJARSCT-25843

