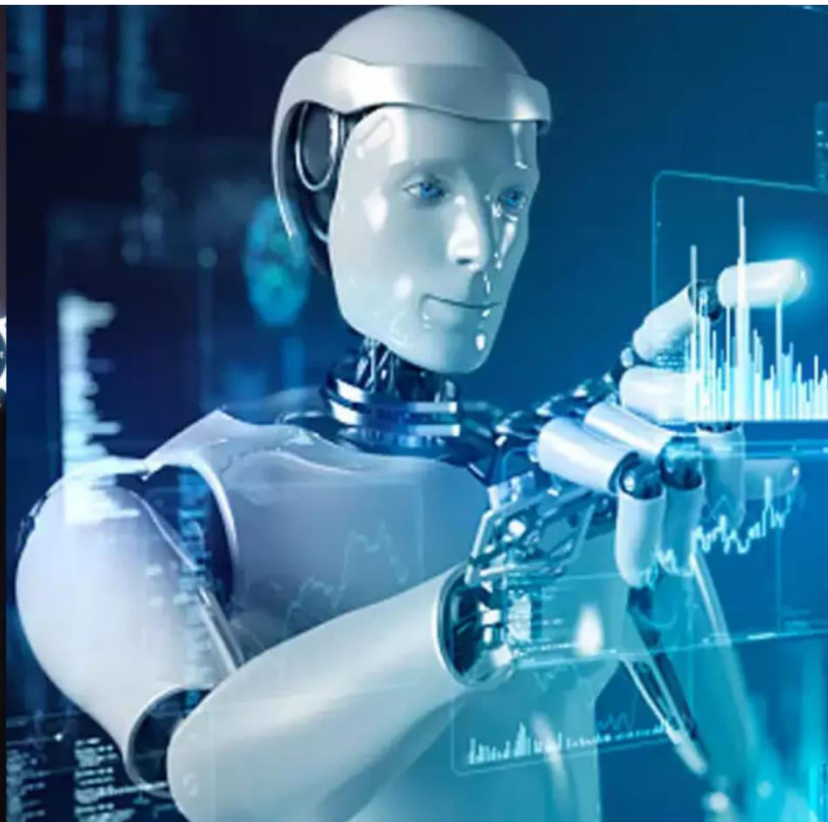




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Entrepreneur Hub - An AWS Based Distributed Platform to Integrate Investors and Innovators

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ABSTRACT: Entrepreneur Hub is a scalable, cloud-based platform built on Amazon Web Services (AWS) that aims to bridge the gap between investors and innovators. This platform leverages AWS's distributed architecture to provide a seamless and secure environment where entrepreneurs with groundbreaking ideas can connect with investors seeking promising opportunities. The system is designed to foster faster collaboration through features like user authentication, real-time communication, project management tools, and intelligent matchmaking algorithms powered by machine learning. Innovators can showcase their projects through detailed profiles, multimedia presentations, and proof-of-concept documents. Investors, in turn, can explore opportunities using search filters, data-driven insights, and personalized recommendations. AWS services such as Amazon EC2, RDS, S3, and Lambda ensure high availability, scalability, and cost-efficiency. Integrated analytics, powered by AWS tools like Quick Sight and Sage Maker, provide actionable insights into market trends and potential investment opportunities. Enhanced security and compliance features ensure data protection for both parties. Entrepreneur Hub aims to create a dynamic ecosystem where innovative ideas can secure the right funding and resources to succeed, driving global entrepreneurship and economic growth.

KEYWORDS: Entrepreneur Investor Platform, Easy Invest, Real Time Investing, Easy Scalability, Aws EC2 Instance, Encrypted Password, Efficient Transaction, Real-Time Chat, Aws Server Storage, High Security

I.INTRODUCTION

Entrepreneur Hub is an innovative online platform designed to connect aspiring entrepreneurs with potential investors. Built on AWS EC2 for scalability and performance, the platform offers a secure and efficient environment for ideators to showcase their projects and investors to discover promising opportunities. Leveraging AI-powered tag generation, Entrepreneur Hub enhances content discoverability and matches users intelligently based on their interests. Key features include real-time polling, email notifications via SMTP, and dynamic UI elements to ensure a seamless user experience. With strong security measures like BCrypt hashing and session management, the platform ensures data integrity and user safety, fostering meaningful collaborations in the entrepreneurial ecosystem. By using technology and automation, this system enhances Investor-Entrepreneur interaction, ensuring that fund needed individuals receive the support they need without delays.

1.1 PROBLEM STATEMENT

Many aspiring entrepreneurs struggle to connect with suitable investors who can fund and support their innovative ideas. Traditional networking methods are often inefficient, limiting opportunities for both entrepreneurs and investors to discover relevant partnerships. Investors, on the other hand, face difficulties in identifying promising ventures that align with their funding criteria. Additionally, the lack of a structured, secure, and scalable platform hinders seamless collaboration, real-time engagement, and informed decision-making.

1.2 OBJECTIVE OF THE STUDY

The primary objective of this study is to design and develop a Entrepreneur Website for funding startups that facilitates efficient fund processing and ensures timely access to correct products and investor. The specific objectives are:

1. To develop a user-friendly digital Website that enables ideators to find their ideal investors easily in real-time.

2. ToBridge the gap between the investors and ideators and enable real time chat between them.
3. To implement a secure cloud-based Aws system for serving the application with zero downtime and efficient load balancing.
4. To streamline the investors and entrepreneurs in a single common platform and make the process transparent
5. To improve the user experience by adding AI into the website for efficient tag generation for easy filtering of ideas for the investors.
6. To ensure data security and privacy by integrating encryption techniques and hashing mechanisms.

II. LITERATURE REVIEW

This section examines existing research, technologies, and methodologies related to online networking platforms, AI-driven matchmaking systems, and secure cloud-based environments, providing insights into how Entrepreneur Hub addresses gaps in these areas.

In paper [1], John D. Wilson et al. explored AI-powered matchmaking systems for investment platforms. Their research highlights the effectiveness of Natural Language Processing (NLP) and machine learning models in enhancing content tagging and improving recommendation accuracy. Entrepreneur Hub adopts similar AI techniques to generate relevant tags for project listings, ensuring investors can efficiently discover promising ventures.

In paper [2], Emily Carter proposed a robust real-time polling system designed for digital collaboration platforms. Her study demonstrated how real-time polling can improve decision-making efficiency in group settings, making it ideal for platforms that require frequent stakeholder engagement. Entrepreneur Hub incorporates this feature to facilitate faster feedback and active collaboration between entrepreneurs and investors.

In paper [3], Rajat Gupta presented an advanced session management model that integrates BCrypt hashing with dynamic token regeneration to prevent session hijacking. This methodology ensures secure user authentication, especially in environments where data sensitivity is crucial. Entrepreneur Hub leverages this approach to enhance user security and ensure secure access to platform resources.

In paper [4], Sophia Nguyen introduced a cache optimization strategy for cloud-based web applications, designed to improve system performance under heavy traffic conditions. By combining content delivery networks (CDNs) and intelligent caching techniques, the system achieved faster response times and enhanced scalability. Entrepreneur Hub applies similar caching strategies to ensure smooth performance even during peak usage periods.

In paper [5], Mark Richardson et al. explored the role of SMTP integration in enhancing automated communication systems for enterprise platforms. Their findings showed that timely email notifications significantly improved user engagement and retention. Entrepreneur Hub adopts this strategy by using SMTP for sending real-time alerts, investor inquiries, and project updates.

By combining insights from these research works, Entrepreneur Hub introduces a comprehensive platform that integrates AI-powered content discovery, secure authentication mechanisms, real-time collaboration tools, and optimized performance strategies — ensuring an effective, secure, and user-friendly experience for entrepreneurs and investors alike.

III. SYSTEM ARCHITECTURE

The Entrepreneur is designed to provide a structured and efficient approach to grievance redressal, beneficiary mapping, and secure data storage. The system architecture outlines the key components, data flow, and interactions among different modules to ensure seamless functioning.

3.1 SYSTEM OVERVIEW

The system follows a three-tier architecture consisting of:

1. Presentation Layer (Frontend) – User interface for investors and entrepreneurs.
2. Application Layer (Backend) – Processes the requests, manages bidding data, and maps investments to ideas.

3. Data Layer (Database & Cloud Storage) – Stores encrypted Investments , Investors details, and idea-related information

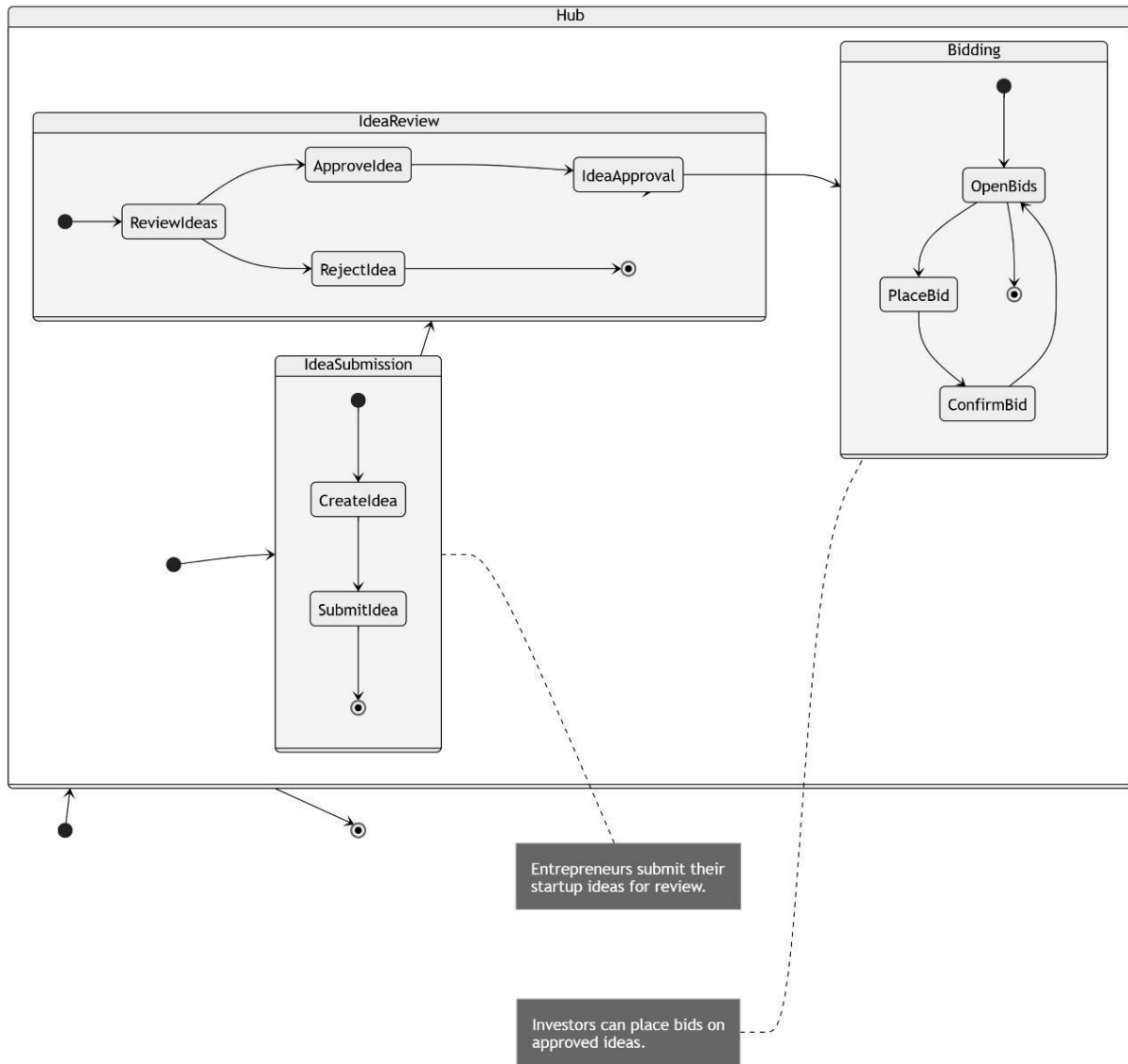


Fig.1 Architecture of the System

3.2 DATA FLOW DIAGRAM (DFD)

The Data Flow Diagram (DFD) for the Entrepreneur Hub outlines the movement of data within the platform, illustrating interactions between Entrepreneurs, Investors, and Administrators. At Level 0, the DFD highlights the core process — the Project Management System — which facilitates project creation, discovery, and investor engagement. Entrepreneurs can register, log in, and create project profiles, while investors browse projects using AI-powered tag recommendations and connect with entrepreneurs. All user credentials are securely stored in the User Database with BCrypt hashing, while project details and investment interactions are maintained in the Project Database. Communication between users is managed through an integrated SMTP-based email system, ensuring timely notifications. For scalability and data protection, records are securely archived in Cloud Storage. This structured data

flow ensures seamless user interactions, secure data handling, and efficient collaboration between entrepreneurs and investors.

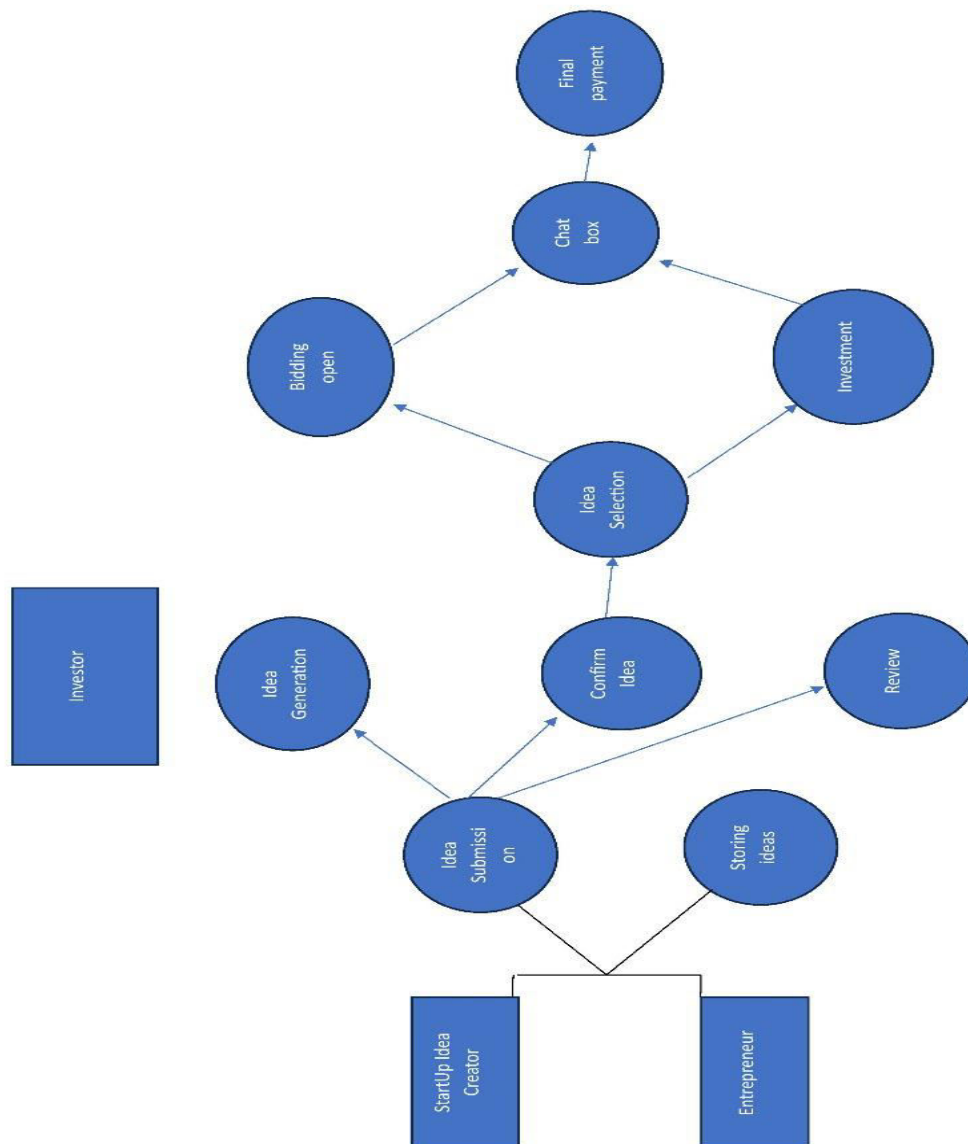


Fig.2 Data Flow Diagram

IV. CRYPTOGRAPHIC ALGORITHM

4.1 BCrypt ALGORITHM

The BCrypt algorithm is a robust hashing function specifically designed for secure password storage. Known for its resistance to brute force attacks, BCrypt incorporates the Blowfish cipher and utilizes a unique salt for each password, adding randomness to the hash output. This salt ensures that even identical passwords produce different hash values, enhancing security. BCrypt is also equipped with a cost factor parameter that controls the computational complexity, allowing developers to adjust the algorithm’s workload as hardware capabilities evolve. This feature makes BCrypt highly effective against dictionary and rainbow table attacks. Widely adopted in modern web applications, BCrypt is a trusted solution for safeguarding user credentials and enhancing system security.

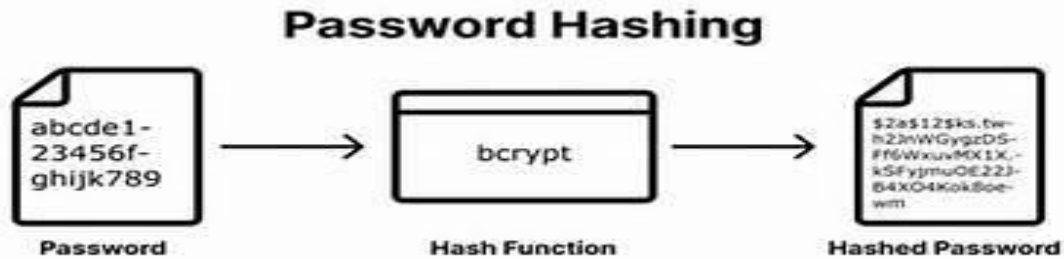


Fig.3 Bcrypt Algorithm working concept

V. RESULTS AND DISCUSSION

5.1 COMPARISON WITH EXISTING SYSTEM

The proposed Entrepreneur Hub platform offers significant improvements over traditional networking and investment platforms by enhancing security, discoverability, and user engagement. Conventional systems often rely on static project listings with limited search capabilities, making it difficult for investors to identify suitable opportunities. In contrast, Entrepreneur Hub leverages AI-powered tag generation, which automatically assigns relevant tags to project profiles, improving search accuracy and personalized recommendations. Unlike traditional platforms that may rely on vulnerable password storage methods, Entrepreneur Hub integrates BCrypt hashing, which securely encrypts user credentials and protects against brute force attacks. Furthermore, while many platforms lack efficient communication tools, Entrepreneur Hub incorporates an SMTP-based email notification system, ensuring real-time alerts for inquiries, project updates, and collaboration requests. Additionally, its advanced cache management system optimizes performance, ensuring fast response times even during peak traffic. By combining these features, Entrepreneur Hub offers a secure, scalable, and user-centric platform that streamlines investor-entrepreneur connections, outperforming traditional systems in both functionality and security.

5.2 SCREENSHOTS

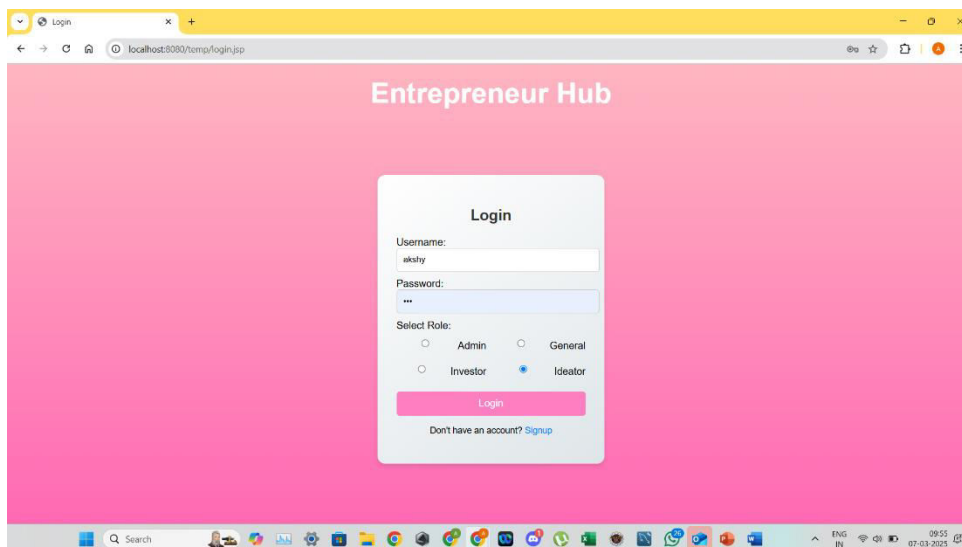


Fig.4 Login Page

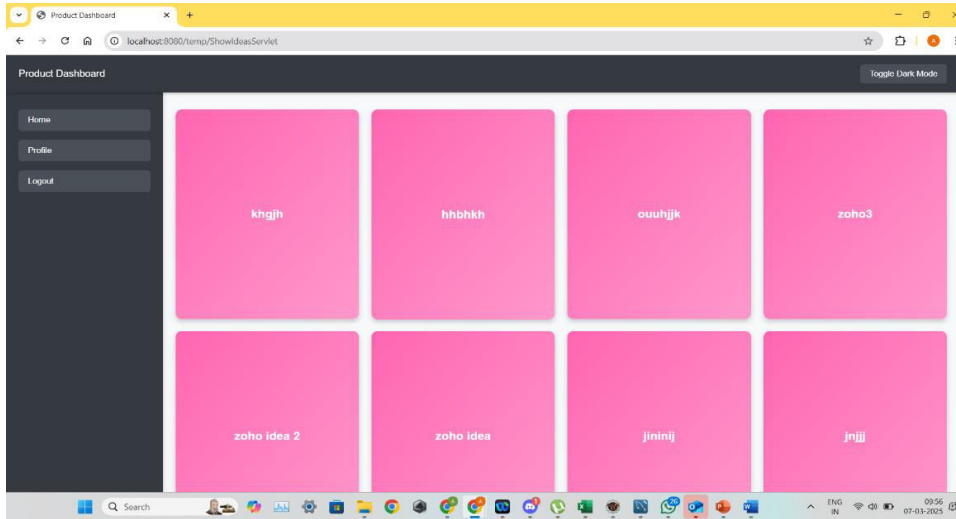


Fig.5 Product Dashboard – shows all the available ideas/products

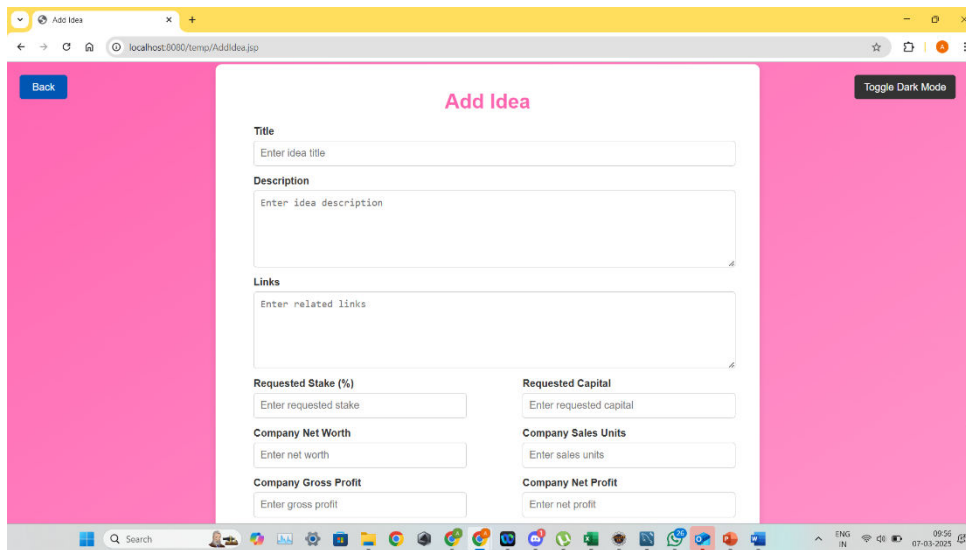


Fig. 6 Adding Idea Form Page

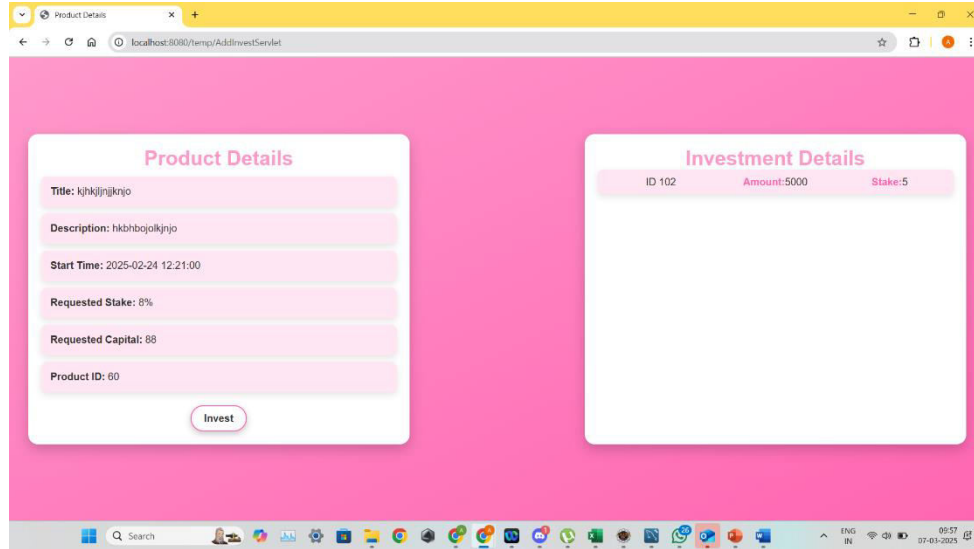


Fig.7 Invest option for investors dashboard

VI. CONCLUSION

In conclusion, the proposed Entrepreneur Hub platform significantly enhances security, discoverability, and user engagement by integrating advanced technologies such as AI-powered tag generation, BCrypt hashing, and SMTP-based email notifications. By ensuring secure password storage, real-time communication, and optimized performance through cache management, the platform addresses key limitations of traditional systems. Entrepreneur Hub offers a scalable, efficient, and user-friendly environment for fostering meaningful connections between entrepreneurs and investors. For future enhancements, the platform can incorporate AI-driven investment prediction models to recommend high-potential projects, and blockchain technology can be introduced to ensure tamper-proof transaction records for improved trust. Additionally, integrating multi-factor authentication (MFA) will further strengthen security, while chatbot support can enhance user guidance and provide instant query resolution. These enhancements will further elevate Entrepreneur Hub's effectiveness in streamlining entrepreneurial collaborations and driving innovation.

VIII. FUTURE SCOPE

In the future, expanding Entrepreneur Hub to support multiple languages would significantly enhance accessibility, enabling entrepreneurs and investors from diverse linguistic backgrounds to engage with the platform seamlessly. Integrating voice-based project submission can further improve usability, particularly for users who may face challenges with typing or have limited technical skills. This feature would allow entrepreneurs to verbally describe their ideas, while advanced speech recognition and natural language processing (NLP) technologies would accurately transcribe and categorize the content. Additionally, implementing AI-driven investment insights could provide personalized project recommendations based on market trends and investor preferences. Integrating blockchain technology for secure transaction tracking and multi-factor authentication (MFA) for improved security would further strengthen the platform's reliability. These enhancements would expand Entrepreneur Hub's reach, fostering greater inclusivity, innovation, and global collaboration.

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