



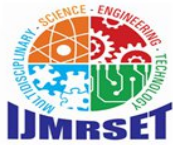
International Journal of Multidisciplinary Research in Science, Engineering and Technology

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)



Impact Factor: 8.206

Volume 9, Issue 4, April 2026



International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

AI-Powered Startup Collaboration and Investor Recommendation Hub

G David Raj¹ Mohamed Taha N² Mohammed Zain Valed TK³

Assistant Professor, Department of Computer Application, B.S.Abdur Rahman Crescent Institute of Science and
Technology Vandalur, Chennai, Tamil Nadu, India¹

Student of Crescent University, Department of Computer Application, B.S Abdur Rahman Crescent Institute of Science
and Technology, Vandalur, Chennai Tamil Nadu, India²

Student of Cresecent University, Department of Computer Application, B.S Abdur Rahman Crescent Institute of
Science and Technology, Vandalur, Chennai Tamil Nadu, India³

ABSTRACT: Startup ecosystems are growing rapidly, but connecting entrepreneurs with suitable investors and collaborators remains a challenging task. Traditional platforms lack intelligent recommendation systems and efficient collaboration tools, making the process time-consuming and less effective. This project proposes an AI-powered platform that enables smart startup collaboration and investment recommendations.

The system uses machine learning techniques such as SBERT for semantic matching, XGBoost for investment scoring, and LLaMA3 for idea evaluation. It allows entrepreneurs to submit startup ideas and receive recommendations for potential investors and collaborators based on relevance and compatibility. The platform also provides features like request management, real-time workspace communication, and file sharing.

The proposed system improves decision-making, enhances collaboration efficiency, and supports data-driven investment strategies. It provides a user-friendly interface along with intelligent backend processing, making it suitable for modern startup ecosystems.

KEYWORDS: Startup Recommendation, Machine Learning, SBERT, XGBoost, Collaboration System, Investment Prediction.

I. INTRODUCTION

In recent years, startups have become one of the most important drivers of innovation and economic growth. Entrepreneurs continuously develop new ideas, but they often struggle to find suitable investors and collaborators who can help bring their ideas to reality. The process of identifying the right partners is usually manual, time-consuming, and inefficient.

Traditional platforms mainly rely on basic filtering and manual search, which do not provide accurate or personalized recommendations. As a result, many promising startup ideas fail to get the right support at the right time. There is a need for an intelligent system that can analyze user profiles, startup ideas, and investment preferences to provide meaningful recommendations. This project introduces an AI-powered platform that connects entrepreneurs, investors, and collaborators in a smart and efficient way. The system uses advanced machine learning techniques to analyze ideas and match them with suitable users. It also provides collaborative workspaces that allow teams to communicate and share resources effectively.

The goal of this project is to create a scalable and intelligent solution that improves collaboration, enhances investment decisions, and supports the growth of startup ecosystems.



International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

II. LITERATURE REVIEW

Several research works have focused on recommendation systems and collaboration platforms using machine learning techniques. Traditional recommendation systems use algorithms such as K-Nearest Neighbors (KNN), Decision Trees, and Support Vector Machines (SVM) to provide suggestions based on user behavior and preferences.

Recent advancements have introduced more sophisticated models such as Natural Language Processing (NLP) techniques for analyzing textual data. Models like SBERT (Sentence-BERT) have been widely used for semantic similarity and matching tasks. These models help in understanding the meaning of text rather than just keywords, making recommendations more accurate.

Machine learning models like XGBoost have also been used for prediction tasks due to their high performance and efficiency. They are capable of handling large datasets and providing accurate predictions based on multiple features. However, many existing systems lack integration between idea evaluation, collaboration, and investment recommendation. They often focus on a single aspect and do not provide a complete solution. This project aims to combine multiple technologies into a unified platform to overcome these limitations.

III. SYSTEM DESCRIPTION

The proposed system focuses on developing an intelligent platform that connects entrepreneurs, investors, and collaborators using advanced machine learning techniques. The system is designed to simplify the process of startup collaboration and investment decision-making by providing automated recommendations and structured workflows.

The system consists of three main user roles. Entrepreneurs can submit their startup ideas along with relevant details such as description, required skills, and objectives. Investors can browse ideas and evaluate them based on AI-generated scores and insights. Collaborators can explore projects and join teams based on their skills and interests.

The platform integrates multiple modules such as authentication, request management, workspace management, and AI-based recommendation engine. Each module works together to provide a seamless user experience. The backend is responsible for processing requests, managing sessions, and interacting with the database, while the frontend provides an interactive interface for users.

The system also ensures efficient communication by creating dedicated workspaces where users can chat and share files after successful collaboration or investment approval. This approach enhances productivity and improves coordination among team members.

IV. METHODOLOGY

The methodology of the system is divided into several stages to ensure accurate processing and meaningful recommendations.

A. Data Collection

The system collects data from user inputs such as profiles, startup ideas, skills, and preferences. Entrepreneurs provide idea descriptions, while investors and collaborators provide their areas of interest and expertise.

B. Data preprocessing

The collected data is cleaned and structured to remove inconsistencies. Text data is processed using natural language processing techniques to make it suitable for machine learning models.

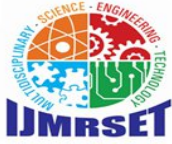
C. DATA ANALYSIS

The processed data is analyzed to extract meaningful features. This includes identifying important keywords, understanding user intent, and mapping relationships between users and ideas.

D Ai-Based processing

The system uses multiple machine learning models:

- SBERT for semantic similarity



International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

- XGBoost for investment scoring
- LLaMA3 for idea evaluation

These models work together to generate recommendations and insights.

E Recommendation Generation

This website provides various forms in which the data can be visualized such as heat map, pie chart, bar graph, etc. It helps in understanding large datasets.

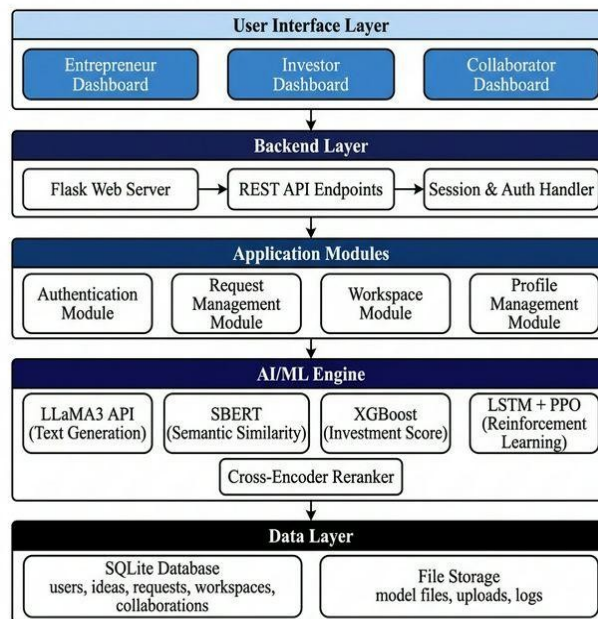


Figure 3.1: System Architecture Diagram

V. FRAMEWORK

The system is developed using Flask, a lightweight Python web framework that enables rapid development and easy integration with machine learning models. Flask provides flexibility in designing the backend and handling HTTP requests efficiently. The frontend is developed using HTML, CSS, and JavaScript, which ensures a responsive and user-friendly interface. Jinja2 templating is used to dynamically render web pages based on user data.

The backend handles core functionalities such as authentication, request processing, and communication with the AI models. RESTful APIs are used to exchange data between the frontend and backend. The system also uses SQLite as the database for storing user information, startup ideas, requests, and workspace details. This ensures efficient data management and retrieval.

VI. LIBRARIES

A. pandas

Pandas is used for handling structured data and performing data analysis operations efficiently.

B. Numpy

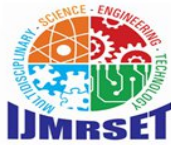
NumPy provides support for numerical computations and helps in handling large datasets.

C. Scikit-learn

Scikit-learn is used for implementing machine learning algorithms and preprocessing techniques.

D. Transformers

This library is used for implementing NLP models such as SBERT and LLaMA3 for text analysis and semantic understanding.



International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

VII. ALGORITHM

A. Supervised machine learning

The system uses supervised learning techniques to analyze startup ideas and predict outcomes. The model is trained using structured data to improve accuracy.

B. XGBOOST Algorithm

XGBoost is used for predicting investment scores based on multiple features such as idea quality, market demand, and risk factors. It provides high accuracy and efficiency.

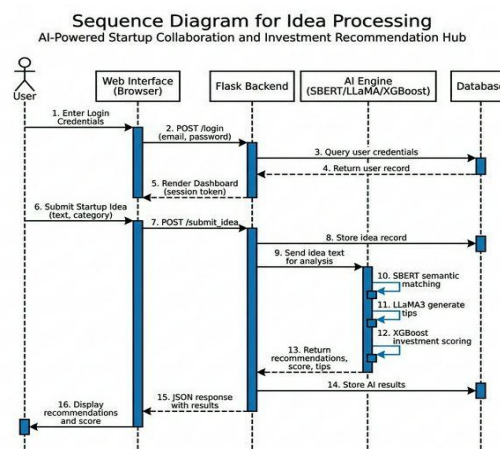


Figure 3.10: Sequence Diagram for Idea Processing

C. Semantic Matching

SBERT is used to compute similarity between text inputs, enabling better matching between users and startup ideas.

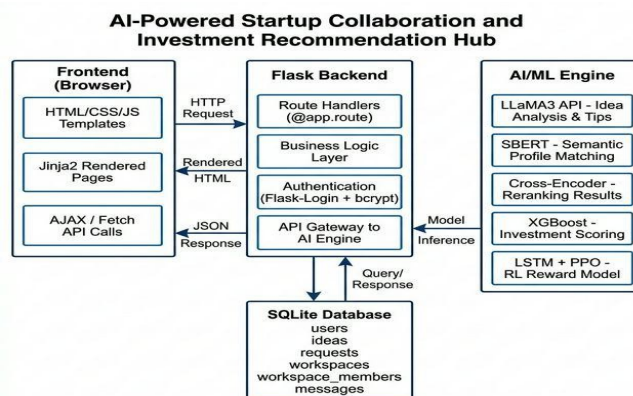


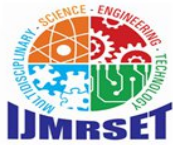
Figure 3.2: Detailed System Architecture Diagram

VIII. PROPOSED SYSTEM

The proposed system integrates machine learning and web technologies to provide an intelligent platform for startup collaboration and investment recommendations. It overcomes the limitations of traditional systems by offering automated analysis, real-time interaction, and data-driven insights.

A. Features:

- User registration and authentication



International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

- Startup idea submission and evaluation
- AI-based recommendation system
- Collaboration and investment request handling
- Real-time workspace communication
- Data visualization dashboards

B. Advantages:

- Improved decision-making accuracy
- Faster and automated analysis
- Efficient collaboration between users
- Scalable and user-friendly system

IX. RESULT

The system successfully generates recommendations for collaborators and investors based on startup ideas. It evaluates ideas using AI models and provides scores that help users make informed decisions. The platform also supports real-time communication through workspaces, enabling efficient collaboration among users.

AI-Powered Startup Collaboration and Investment Recommendation Hub

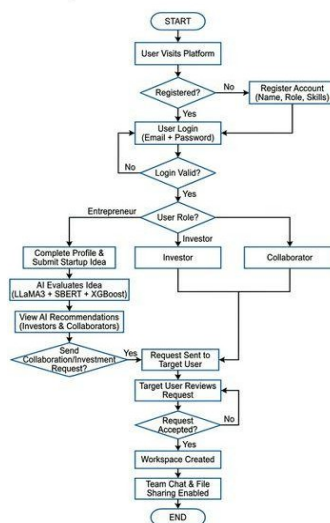


Figure 3.3: System Workflow Diagram

Activity Diagram

AI-Powered Startup Collaboration and Investment Recommendation Hub

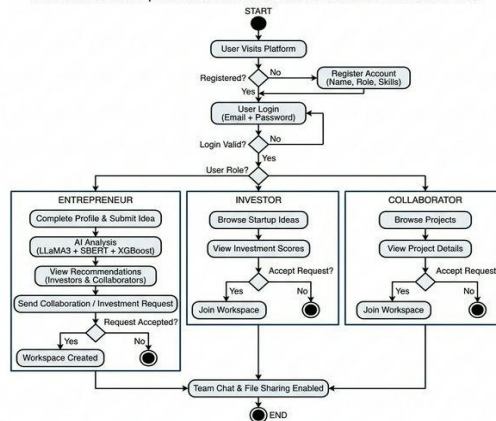
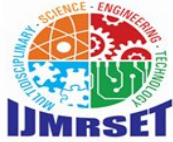


Figure 3.11: Activity Diagram



International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

X. APPLICATION

The proposed AI-powered startup collaboration and investment recommendation system has a wide range of practical applications across multiple domains. By integrating machine learning, data analysis, and intelligent recommendation techniques, the system enhances decision-making and improves collaboration efficiency.

- **Startup Ecosystem :**

Entrepreneurs can use the platform to present their ideas, receive AI-based feedback, and connect with potential collaborators and investors. This helps in transforming innovative ideas into successful ventures.

- **Investor :**

Investors can analyze startup ideas using prediction scores and recommendations generated by the system. This assists in identifying high-potential startups and making informed investment decisions.

- **Collaborators and Developers :**

Individuals with technical skills can find suitable projects based on their expertise. The system enables efficient team formation and collaboration through workspace features.

- **Educational institute :**

Students and researchers can use the platform to explore real-world applications of machine learning and startup development, enhancing their practical knowledge.

- **Business Analysts :**

The system provides insights into trends, performance metrics, and recommendations, which can be used for strategic planning and analysis.

XI. CONCLUSION

The proposed AI-powered startup collaboration and investment recommendation hub successfully integrates machine learning techniques with a web-based platform to improve decision-making and collaboration in the startup ecosystem. The system leverages advanced models such as SBERT for semantic matching, XGBoost for investment prediction, and LLaMA for idea evaluation and recommendations. These technologies enable accurate analysis of startup ideas and provide meaningful insights to users.

By offering features such as collaboration requests, workspace communication, and intelligent recommendations, the platform enhances user interaction and productivity. The system addresses limitations of traditional methods by providing automated, scalable, and data-driven solutions.

Overall, the project demonstrates the effectiveness of combining artificial intelligence with modern web technologies to solve real-world problems. Future enhancements can include real-time data integration, improved model accuracy, and deployment on cloud platforms for scalability.

REFERENCES

- [1] "Developer Recommendation and Team Formation in Collaborative Crowdsourcing Platforms," IEEE Transactions, 2021
- [2] "Team Formation in Software Engineering: A Systematic Mapping Study," IEEE Access, 2022.
- [2] "A Systematic Literature Review on AI-Based Recommendation Systems and Their Ethical Considerations," Journal of AI Research, 2023



INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH IN SCIENCE, ENGINEERING AND TECHNOLOGY

| Mobile No: +91-6381907438 | Whatsapp: +91-6381907438 | ijmrset@gmail.com |

www.ijmrset.com