

A Generative AI-Powered Intelligent Educational Support and Network Monitoring System

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Abstract

By facilitating intelligent automation, individualized support, and effective system administration, generative artificial intelligence (Gen AI) has profoundly changed contemporary digital platforms. Smart technologies that can support academic work while guaranteeing dependable network performance and system monitoring are becoming more and more in demand in the education industry. Conventional educational platforms frequently lack integrated solutions that include network optimization, performance analysis, and intelligent learning support.

This study suggests an intelligent web-based platform that uses generative AI technologies to combine network monitoring and instructional support. A course recommendation bot, question paper generator, event notification helper, network monitoring module, and performance analyzer are just a few of the AI-powered modules included in the system.

Together, these elements offer real-time system monitoring and automatic academic help inside a single framework. The Django web framework is used in the development of the platform, which has an interactive web interface and a database for tracking system data and user interactions.

By providing intelligent replies, automated academic material creation, and effective administrative support, the suggested solution improves user experience. Additionally, administrators may monitor system performance and spot possible platform problems using the included network monitoring module. The solution simultaneously optimizes system performance and operational efficiency while increasing accessibility to instructional resources, according to experimental data. The framework combines network optimization approaches with the capabilities of generative AI to offer a scalable and intelligent solution for contemporary educational environments.

Keywords

Generative Artificial Intelligence, Educational Chatbots, Intelligent Tutoring Systems, Network Optimization, AI-based Automation, Django Web Application, Smart Education Platforms

I.Introduction

In contemporary computing systems, artificial intelligence (AI) has emerged as one of the most revolutionary technologies. The quick development of Generative Artificial Intelligence (Gen AI) in recent years has made it possible for machines to support decision-making, automate difficult jobs, and provide human-like responses. These skills have opened up new possibilities in a number of fields, such as network optimization, system administration, and education. AI-driven technologies are being used more and more in the education sector to enhance student learning and offer intelligent support. Conventional educational institutions frequently rely on manual procedures to provide test materials, provide academic support, and disseminate critical updates. These approaches may not give students individualized support and can be time-consuming. By

providing intelligent recommendations, interactive support via chatbot-based interfaces, and automated academic assistance, AI-powered solutions can overcome these constraints.

Effective network administration and system monitoring are critical to the functionality and dependability of digital platforms, in addition to instructional support. In order to accommodate a large number of users, educational institutions that use online platforms must provide consistent network speed and appropriate system functionality. Nevertheless, a lot of current platforms don't have integrated solutions that combine network optimization, system monitoring, and educational support.

This study suggests an intelligent web-based platform that combines network monitoring and educational support utilizing generative AI technologies in order to address these issues. A number of AI-powered components are included in the proposed system, including a network monitoring tool, performance analyzer, event update assistant, question paper generation system, and course suggestion bot.

The Django web framework was used to create the platform, which has an intuitive user interface that makes it easy for administrators and students to engage with the system. This research's primary goal is to create a single platform that improves academic help while concurrently tracking system performance. The system seeks to increase educational resource accessibility, automate administrative activities, and guarantee effective platform operation by combining Generative AI with network optimization approaches. The suggested structure shows how intelligent automation can improve system administration and educational services in a single integrated environment.

II. Problem Statement

Institutions need intelligent systems that can offer academic support, automate repetitive operations, and ensure effective network performance due to the growing usage of digital platforms in education. Conventional educational platforms frequently lack intelligent support systems that can help students with course recommendations, question generation, and academic updates because they primarily concentrate on material delivery. Students may thus have trouble getting timely academic information and individualized learning support. Online learning platforms must also guarantee dependable network performance and effective system administration. Numerous current systems lack integrated mechanisms for tracking network activity, evaluating system performance, and identifying operational problems. To keep an eye on system behavior, administrators frequently use several tools, which adds complexity and lowers operational effectiveness.

The lack of intelligent automation is another significant drawback of traditional systems. Generating question papers, answering student questions, and making academic recommendations are examples of tasks that are often done by hand, which can be laborious and error-prone. Educational institutions that oversee a sizable student body and digital resources face difficulties as a result.

III. Proposed System

The suggested system is an intelligent web-based platform that uses generative artificial intelligence to combine network optimization and instructional support. In addition to giving students automated academic support, the technology allows administrators to keep an eye on network activity and system performance. The system enhances productivity, accessibility, and user experience by integrating several intelligent modules into a single platform. The platform has a number of AI-powered features that help users with various administrative and academic activities. The course recommendation bot, which makes recommendations for appropriate courses or educational materials based on user inquiries, is one of the primary modules. The question paper generating module, which automatically generates exam questions to help teachers and students prepare academically, is another crucial element.

Additionally, the system has an event update assistant that informs users about announcements, significant notices, and academic events. The suggested solution incorporates a network monitoring module that tracks system performance and detects any operational problems, in addition to providing educational support. Administrators can monitor network activities and ensure system dependability with this capability. To assess system effectiveness and offer insights into platform utilization, a performance analysis module is also incorporated.

The Django web framework, which offers a reliable backend for handling user authentication, data storage, and server-side processing, is used to create the system. To provide an interactive and user-friendly environment for administrators and students alike, HTML templates are used in the development of the frontend interface.

IV. Screenshots



Fig: Screenshot-1



Fig: Screenshot-2

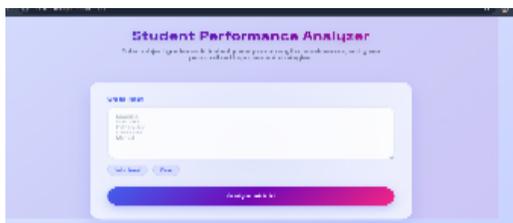


Fig: Screenshot-3

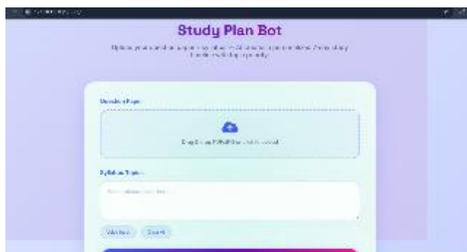


Fig: Screenshot-4



Fig: Screenshot-5

V. Network Monitor Bot Interface

The suggested system's Network Monitor Bot interface is depicted in the above figure. This module uses AI-based analysis to track network traffic and identify possible irregularities. Network logs or error traces can be entered by administrators or users for analysis in an intuitive environment provided by the interface. In order to detect unusual network activity, the system analyzes the supplied log data and conducts real-time threat scanning. In order to guarantee that the monitoring service is operational and prepared to examine incoming data, the interface shows that the system is currently online. The AI-based monitoring module can look for suspicious patterns or system faults in the data by having users enter network log information into the log input section.

Additional features of the interface include a clear logs option that lets users delete previously submitted data and voice input, which lets users give orders by speaking. The "Initiate AI Scan" button initiates the AI analysis process after the user provides the log data. After that, the system examines the network records to look for irregularities, possible dangers, or strange network activity. This feature aids administrators in promptly identifying problems and preserving the system's stability and security.

VI. Conclusion

This study introduced an intelligent web-based platform that uses generative artificial intelligence to combine network monitoring and educational support. The suggested system integrates several AI-driven components into a single framework, including course recommendation, automatic question paper creation, event update support, and network monitoring. For both administrators and students, the Django web framework implementation offers a scalable and user-friendly environment. The system's application of generative AI allows for effective response generation to user inquiries and automated academic support. Furthermore, by analyzing system logs and identifying any anomalies, the network monitoring module enhances system dependability and operational effectiveness. All things considered, the suggested platform shows how AI-driven automation can improve educational offerings while also assisting with system management and network optimization.

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