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MODERN GUEST INTERACTION AND FEEDBACK MANAGEMENT

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ABSTRACT

The Gesture-Controlled Virtual Mouse project enables users to control computer operations without a physical mouse using simple hand gestures. The system captures real-time video input through a webcam and processes it using OpenCV for image analysis.MediaPipe is employed to accurately detect and track hand landmarks and finger movements.Specific gestures are mapped to mouse actions, such as a thumb–index finger pinch for left-click and a thumb–middle finger pinch for right-click.Cursor movement is achieved by recognizing a victory sign gesture and translating it into screen coordinates. PyAutoGUI is used to convert recognized gestures into actual mouse events on the system.The project provides a contactless and intuitive human–computer interaction mechanism. It is especially beneficial for accessibility support and hygienic environments where touch-based devices are unsuitable.

KEYWORDS

Guest Interaction, Feedback Management System, Full-Stack Development, Sentiment Analysis

INTRODUCTION

In today's competitive digital environment, effective guest interaction and feedback management have become essential for organizations in the hospitality and event management sectors. Guest feedback plays a vital role in understanding customer expectations, improving service quality, and building long-term relationships.

Traditional feedback collection methods such as manual guest books and paper surveys are often inefficient, difficult to manage, and lack real-time analysis capabilities.With the rapid growth of web technologies, modern digital systems offer efficient solutions for managing guest interactions through automated platforms. A Modern Guest Interaction and Feedback Management System enables guests to submit feedback conveniently through web-based interfaces, while organizations can store, process, and analyze this data securely. Such systems reduce manual effort, improve accuracy, and allow instant access to guest insights.

LITERATURE SURVEY

A literature review is a study of existing research related to a project. It helps to understand previous work, identify their drawbacks, and show how the current project provides a better solution. Several researchers have worked on gesture-based computer control systems. Y. Onodera et al. (2013) developed a fingertip detection system for mouse control but faced issues with lighting and accuracy. D. S. Tran et al. (2018) proposed an RGB-D camera-based mouse that improved precision but required costly sensors. S. Gupta et al. (2020) designed a contour-based gesture interface but struggled with background noise. Dhinesh Kumar and Priya Anand (2022) built a MediaPipe-based virtual mouse that worked well under controlled conditions. These studies showed problems like high cost, lighting dependency, and limited performance.

RELATED WORK:

Earlier guest interaction and feedback systems mainly depended on manual methods such as physical guest books and paper-based surveys, which were inefficient and difficult to manage. With the evolution of web technologies, basic digital feedback systems were introduced, enabling users to submit feedback through online forms; however, these systems lacked real-time processing and intelligent analysis. Recent studies have focused on developing full-stack web applications that integrate dynamic user interfaces witsecure backend processing and scalable databases. The application of sentiment analysis and natural language processing techniques has further enhanced the ability to interpret guest feedback accurately. Research also highlights the importance of user-friendly interfaces and real-time data handling to improve guest engagement and service quality. These advancements have laid the groundwork for modern guest interaction and feedback management systems that provide actionable insights and improved decision-making capabilities. These advancements have modern guest

interaction and feedback management systems . Research also highlights the importance of user-friendly interfaces and real-time data handling to improve guest engagement and service quality.

EXISTING SYSTEM

Existing methods for managing guest interactions and feedback largely rely on traditional approaches such as physical guest books, paper-based surveys, and manual feedback forms. Some organizations use basic digital systems like static web forms or email-based feedback collection, which offer limited functionality and require manual data handling. These methods often lack real-time data processing, making it difficult for businesses to respond promptly to guest concerns. Additionally, traditional systems do not provide automated analysis of feedback, forcing staff to manually review and interpret guest responses. Many existing digital solutions also suffer from poor user interfaces and limited scalability, restricting their effectiveness in handling large volumes of feedback. Security and data management issues further reduce reliability, as sensitive guest information may not be adequately protected. Overall, existing methods are inefficient, time-consuming, and fail to deliver actionable insights required for improving guest experience and service quality.

PROPOSED SYSTEM

The Modern Guest Interaction and Feedback Management System represents a significant advancement over traditional, manual feedback collection methods by introducing a fully digital, automated, and data-driven approach. Unlike existing systems that rely on paper-based records or basic online forms, the proposed system utilizes full-stack web technologies to enable real-time guest interaction and feedback processing. The frontend is developed using HTML and CSS to provide an intuitive and responsive user interface, while the backend is implemented using Python with the Flask framework to handle server-side logic efficiently. Guest feedback is securely stored and managed using MongoDB, a scalable NoSQL database that supports high-volume data handling. Sentiment analysis techniques are integrated to automatically analyze guest opinions and categorize feedback, enabling organizations to derive meaningful insights without manual effort

SYSTEMARCHITECTURE

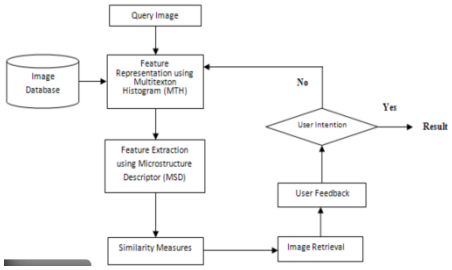

Fig.1: Architecture of MODERN GUEST INTERACTION AND FEEDBACK MANAGEMENT

METHODOLOGY DESCRIPTION:

Guest/User Interface: Provides a web-based interface through which guests can submit their feedback and interaction details easily.

Web Application: Handles real-time user requests and ensures smooth communication between the frontend and backend components.

Feedback Submission: Collects guest inputs such as comments, ratings, and suggestions through structured forms.

Backend Processing:Processes and validates the submitted feedback using Python with the Flask framework.Sentiment Analysis: Analyzes the feedback text to determine guest sentiment such as positive, negative, or neutral opinions.Data Storage & Reporting: Stores processed feedback securely in MongoDB and generates insights and reports for administrators.

RESULTS AND DISCUSSION:

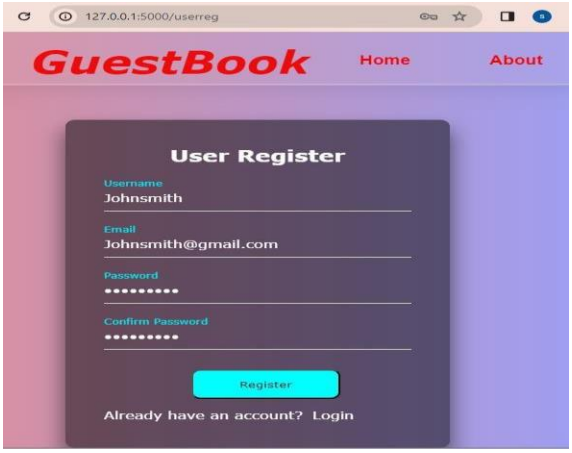

Fig 3: Hotel Registration Successfully

CONCLUSION AND FUTURE ENHANCEMENT:

The Modern Guest Interaction and Feedback Management System provides an efficient digital platform for collecting, analyzing, and managing guest feedback in real time. By utilizing full-stack technologies such as HTML, CSS, Python (Flask), and MongoDB, the system ensures secure data handling, intuitive user

interaction, and actionable insights through sentiment analysis. This approach improves service quality, decision-making, and overall guest experience while reducing manual effort and operational delays. Future enhancements may include AI-driven sentiment analysis, personalized feedback recommendations, and predictive analytics.

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