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AI Driven Intelligent Conversational Framework for Automated College Admission Assistance System

Touchscreen kiosk for admission information, CAP guidance and branch prediction

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Abstract—College admission can be difficult for students because information about the admission cell, required documents, Centralized Admission Process (CAP) registration and branch availability is often available in different places. This paper presents an AI-enabled interactive admission assistance kiosk designed for one specific college. The system uses a touchscreen interface and an ESP32-S3 controller to provide three main services. The first service shows the location and basic details of the admission cell. The second service provides CAP document information, important instructions and a video explaining the CAP registration process. The third service compares a student's MHT-CET percentile, category and CAP round with previous-year CAP cutoff data of the same college and displays branches that may be possible. The system is intended to give simple and quick guidance through a single interactive interface. The prediction is indicative only and does not guarantee current-year admission.

Index Terms—*AI admission assistance, touchscreen kiosk, ESP32-S3, CAP registration, MHT-CET, cutoff data, branch prediction.*

I. INTRODUCTION

College admission is an important process for students after completing higher secondary education or an entrance examination. During admission, students may need to find the admission cell, understand the required documents, complete CAP registration and decide which branch may be possible according to their entrance percentile. The project synopsis identifies these as common points of difficulty and proposes a single interactive system for a specific college. The Maharashtra State Common Entrance Test Cell provides official admission information and notices, but students still need a simple way to understand the information and use it during a college visit [1].

The proposed system is an AI-enabled touchscreen kiosk. Instead of requiring a student to ask staff for every basic enquiry, the kiosk presents frequently required information on the display. The user can select an option, read the information and return to the main menu. An AI-based conversational component is included to help with admission-related questions. The system is designed for a single college, so the location information and branch cutoff data can be maintained for that institution.

The branch prediction part does not predict which college a student will receive. It only provides an indicative branchlevel comparison for the selected college. Previous-year cutoff values are used as reference data. Since cutoffs, seat availability, merit and admission rules can change every year, the displayed prediction is not a guarantee of admission.

II. RELATED WORK AND LITERATURE REVIEW

Digital information systems and chatbots are increasingly used to provide quick answers to users. Studies reviewed in the project synopsis show that educational chatbots can support students by answering common questions and providing personalized assistance [2]–[8]. These studies indicate that conversational systems can reduce the effort required to search for basic educational information.

The admission process has several steps and students may have difficulty understanding registration instructions, required documents and category-specific requirements. A touchscreen kiosk can place these services in one interface. The project also takes the idea of an information kiosk used in service sectors such as hospitals and applies it to college admission. In such systems, users can obtain information about departments or services without depending completely on staff.

The synopsis also identifies previous-year CAP cutoff data as a useful source for an indicative branch comparison. A student's percentile can be compared with the recorded cutoff of each branch for a selected category and CAP round. This provides a simple way to understand admission trends. However, previous-year cutoff data cannot be treated as a guarantee of future admission [1].

III. PROBLEM IDENTIFICATION

The project addresses several practical problems in the existing admission enquiry process. Students visiting a college may not know the exact admission-cell location. Admission information may be scattered across notices, websites and different departments. First-time applicants may find CAP registration difficult to understand, and students may be uncertain about required or category-related documents. Written instructions may also be insufficient for students who need step-by-step guidance.

Another problem is the difficulty of understanding previous CAP cutoff tables. A student may ask which branches may be possible with a particular percentile. Reading several cutoff values manually can be confusing. The proposed system therefore combines information access and an indicative branch comparison in one touchscreen interface.

IV. OBJECTIVES

- Develop an AI-based admission assistance kiosk.
- Provide the location of the admission cell.
- Provide information about required CAP documents.
- Provide a CAP registration guidance video.
- Create a simple touchscreen interface.
- Store previous-year CAP cutoff information.
- Compare the student's percentile with previous cutoff data.
- Consider category and CAP round in the branch comparison.
- Display the result branch-by-branch.
- Make the admission information easier to access for students.

V. PROPOSED SYSTEM

The proposed system is a small touchscreen kiosk containing an ESP32-S3 main controller, touchscreen display, local storage, Wi-Fi connectivity and the software required for admission assistance. The home screen provides three main choices: Admission Cell Location; CAP Documents and Registration Video; and Branch Prediction. The system is intended to operate as an interactive information point inside the college.

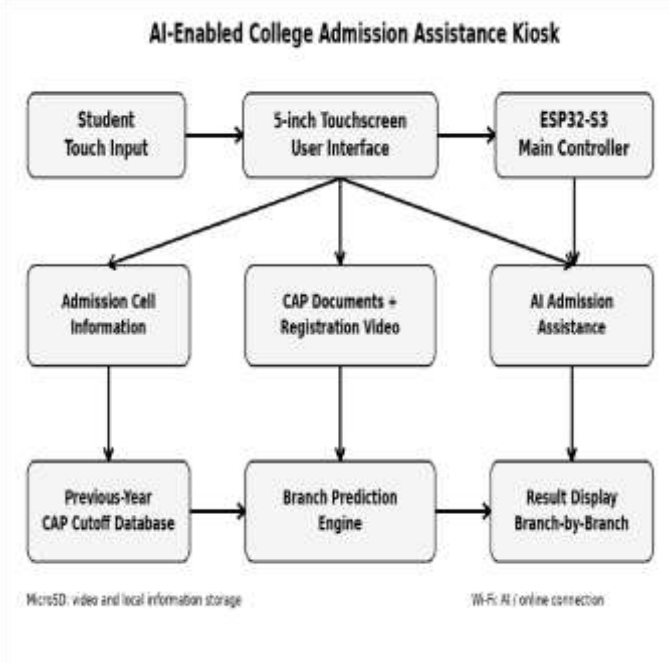


Fig. 1. Proposed block diagram of the AI-enabled college admission assistance kiosk.

A. Admission Cell Location

The first option provides the physical location of the admission section. The stored information can include the building name, floor, room number, admission section, working hours and contact information. This feature is intended to reduce the need for students to ask staff for basic directions.

B. CAP Documents and Registration Guidance

The second option displays the documents required for CAP registration, category-specific document information and important instructions. A registration video is also provided so that students can understand the process step by step. The video and local information can be stored on a MicroSD card as specified in the project synopsis.

C. AI Admission Assistance

The AI component is intended to answer admission-related questions in a simple conversational style. For example, a student can ask where the admission cell is located, and the system can provide the stored location information. The AI component is used for guidance and explanation; official admission rules and current notices remain the primary source for actual admission decisions.

D. Branch Prediction for One College

The branch prediction module accepts the student's MHTCET percentile, category and CAP round. The system then checks the previous-year cutoff data stored for the same college. Each branch is evaluated against the corresponding cutoff information, and the result is shown branch-bybranch. The output can use simple terms such as possible or difficult, but the final system must clearly display that the result is based on previous-year data.

VI. SYSTEM METHODOLOGY

The system development follows a sequence of data collection, interface development, AI integration, cutoffdata preparation and testing. First, college admission information is collected, including the admission-cell location and working details. Second, CAP information and the registration video are prepared. Third, previous-year cutoff records are organized using fields such as year, branch, category, CAP round and cutoff percentile.

After the information is prepared, the touchscreen home screen is developed. The ESP32-S3 controls the interface and connects the system components. The AI module is connected through the available network connection. The branch prediction module reads the student inputs and compares them with the stored cutoff records. Finally, the result is presented in a simple format.

VII. BRANCH PREDICTION LOGIC

The prediction logic is based on a direct comparison between the student's percentile and the previous cutoff for the selected college, branch, category and CAP round. The basic process is:

- Accept MHT-CET percentile from the student.
- Accept category and CAP round.
- Select the relevant previous-year cutoff records.
- Compare the student's percentile with each branch cutoff.
- Prepare a branch-by-branch result.
- Display a note that the result is indicative and based on previous-year data.

VIII. HARDWARE AND SOFTWARE REQUIREMENTS

Component	Purpose	Source specification
ESP32-S3 + PSRAM	Main controller	Project synopsis
5-inch touchscreen	User interface	Project synopsis
MicroSD card	Store videos and information	Project synopsis

Wi-Fi	Internet / AI connection	Project synopsis
Power supply	System power	Project synopsis
PCB, wires and connectors	Circuit connections	Project synopsis
Kiosk enclosure	Physical structure	Project synopsis
Arduino IDE / ESP32 programming	Embedded development	Project synopsis
Database / cutoff data	Store admission information	Project synopsis
AI software / API	Conversational assistance	Project synopsis
Video playback system	CAP registration video	Project synopsis

IX. EXPERIMENTAL SETUP AND DEVELOPMENT PLAN

The proposed prototype is designed as a small touchscreen kiosk. The development setup includes the ESP32-S3 controller, 5-inch touchscreen, MicroSD storage, power supply, PCB and wiring, and a physical kiosk enclosure. The software setup includes ESP32 programming, touchscreen interface development, database preparation, AI software or API integration and video playback.

The project synopsis gives the following development schedule: project study and data collection in August 2026; basic hardware development in September 2026; touchscreen and database development in October 2026; AI and branch prediction development in December 2026; and testing and final demonstration in February 2027. These stages provide the planned sequence for completing the prototype.

X. EXPECTED RESULTS AND DISCUSSION

The expected output of the project is a working AI-enabled admission kiosk that provides admission information through a simple touchscreen interface. In the first module, the student should be able to view the admission-cell location. In the second module, the student should be able to view CAP document requirements and watch the registration guidance video. In the third module, the student should be able to enter percentile, category and CAP round and receive a branch-by-branch comparison based on stored previous-year cutoff information.

The main benefit of the proposed design is that several common admission enquiries are brought together in one system. The system is also limited to one college, which makes the location information and branch database easier to maintain. The project does not claim that a previous-year comparison can determine current admission. Actual admission depends on the current year's merit, seat availability, category, CAP round and official rules, as stated in the synopsis.

XI. LIMITATIONS

- The system is designed for one specific college.
- The branch comparison depends on the accuracy and completeness of stored previous-year CAP data.
- Previous-year cutoffs cannot guarantee current-year admission.
- Current admission rules and official notices may change and must be checked separately.
- The quality of AI responses depends on the information provided to the AI system and the available network connection.

XII. CONCLUSION

This paper presents an AI-enabled intelligent conversational framework for college admission assistance using a touchscreen kiosk. The proposed system combines admission-cell location, CAP document and registration guidance, AI-based admission assistance and indicative branch prediction for one college. The use of an ESP32-S3 and a simple touchscreen interface supports a compact embedded implementation. By bringing common admission information into one interface, the system is intended to reduce confusion and make basic admission guidance easier to access. The branch prediction feature is designed only as a reference based on previous CAP cutoff data and not as a guarantee of admission.

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