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The Digital Registrar: Enhancing University Governance through a Secure, Multilingual Conversational Agent

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Abstract **- As students-facing university systems evolve to meet diverse students needs, multilingual digital tools have become essential for inclusive service delivery. This project proposes a multilingual chatbot framework designed for integration with college websites across the Asian region, particularly India, where linguistic diversity is vast. The chatbot supports Hindi, English, Marathi, Bengali, Gujarati, Punjabi, and Rajasthani, and is intended to facilitate core students services such as problems reporting, safety-related inquiries, access to legal information, and emergency assistance. Technically, the system leverages natural language processing (NLP), machine translation using platforms like BHASHINI, and large language models to provide accurate and culturally relevant communication. The architecture supports integration with WhatsApp and web-based portals and is designed for accessibility, including voice support for low-literacy users. Privacy, transparency, and scalability are key design priorities, aligning with data protection regulations and the operational demands of large law enforcement bodies.Experimental insights from existing deployments, such as Thane police , Punjab police , and Surat Cyber Mitra, indicate significant improvements in user engagement, multilingual accessibility, and reporting efficiency. This project lays the groundwork for a future-ready, inclusive, and trusted digital university infrastructure across linguistically diverse populations.**

Keywords— Multilingual chatbot, College services, NLP, BHASHINI, students safety, Student engagement, Indic languages, WhatsApp API, legal assistant, Accessibility

I. INTRODUCTION

In today's world that is becoming more connected through technology, the way college work is changing to better serve student quickly and directly. Older ways of communicating with the college , like going in person, calling a help line, or visiting a website, often have problems. These problems include things like not being able to reach the Faculty easily, not having enough help available, and not understanding the language used. These issues are especially big in Asia, and most especially in India, where there are many different languages spoken. India has 22 official languages and many local dialects, and many Students find it hard to use safety websites or services that don't speak their language.

To solve these issues, there is a growing interest in using smart chatbots that can help people talk to the college 24/7 through conversation. A good chatbot connected to college services can help with tasks like reporting problems, sharing information about cyberproblems, getting legal help, finding lost things, and reaching emergency services. However, most chatbots are only in one language or offer very limited translation, so many people are not getting the help they need. This project creates a chatbot that works in many languages to support college websites and apps.

The chatbot is built to work with major Indian languages like Hindi, English, Marathi, Bengali, Gujarati, Punjabi, and Rajasthani. By letting people use the language they prefer, the chatbot helps everyone feel included and trusted. It makes sure that important safety services are available to all student, regardless of their background. Technically, the chatbot uses modern tools like natural language processing, big language models, and translation services like BHASHINI. It also connects with platforms like WhatsApp and includes voice and mobile-friendly features so that even people with low reading skills can use the service easily.

This paper explains why this chatbot is needed, how it was designed, and how it was built. It covers the system's structure, the uses it supports, and the methods used to handle multiple languages in the chatbot. The goal of this system is to make it easier for the university to communicate with a diverse group of student, making university more inclusive and effective in the digital age.

II. RELATED WORK

The deployment of chatbots in students governance and law enforcement has advanced rapidly in recent years, driven by the need for responsive, accessible, and inclusive students services. In linguistically diverse countries like India, the focus on multilingual interaction through AI systems has become essential. Multilingual chatbot technologies have emerged as a practical solution to enable seamless communication between students institutions and students across various regional languages. Saravana et al. present a comprehensive study on the architecture and ethics of multilingual chatbot systems, highlighting the role of pre-trained language models, prompt tuning, and bias mitigation in real-world deployments [1]. Singh et al. explore multilingual chatbot development in the Indian context using MuRIL-BERT and transformer-based architectures, focusing on structured queries in local languages [2]. In a similar effort, Saravana and colleagues introduce ChatSense, a modular chatbot framework supporting over 100 global languages through prompt engineering, NLP pipelines, and contextual knowledge graphs, tailored for students service

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chatbots [15]. These academic contributions have laid the groundwork for practical implementations in low-resource linguistic contexts.

Multiple government-backed initiatives have also contributed to the growth of multilingual AI. The BHASHINI (Bhasha Interface for India) platform, developed under the National Language Translation Mission, has significantly expanded access to multilingual tools for government and citizen services [9][21][25]. BHASHINI's ecosystem includes Anuvaad (text translation), Vaani (speech processing), and Shravan (speech-to-text), which have been integrated into services like Kumbh's multilingual voice bot Sah'AI'yak to support 11 Indian languages in real-time [9]. These tools form the linguistic backbone of many multilingual chatbots in development or deployment.

Several case studies illustrate the deployment of AI chatbots in law enforcement. The Surat police launched the Cyber Mitra chatbot in 2024, a WhatsApp-based AI assistant offering cyberproblems reporting and digital safety education in Gujarati and English [5]. Similarly, the Thane City police introduced the Nirbhay Thane WhatsApp chatbot in 2025, designed to handle citizen services such as complaint registration, lost-item reporting, tenant verification, and traffic-related queries in both Marathi and Hindi [23][24]. These implementations reflect a growing adoption of AI tools to replace or supplement in-person services, especially in cities with high population density and diverse linguistic communities.

International examples also offer insight into the potential and limitations of chatbot systems in governance. Singapore's R-COP (Report-COPilot) is a police chatbot kiosk that guides users through report lodging in colloquial English ("Singlish"), converting informal citizen input into grammatically correct reports suitable for legal documentation [14]. This system integrates structured templates, NLP, and government backend APIs to deliver accurate and legally compliant outputs—an approach that could inspire similar solutions in Indian law enforcement

Microsoft and AI4Bharat's collaborative Jugalbandi project uses generative AI to allow citizens to ask questions in regional languages and get responses translated from official English-language policy documents [3][4]. Deployed in rural India, this multilingual chatbot leverages speech recognition, translation, and LLMs to bridge the communication gap between citizens and complex bureaucratic systems. These projects highlight the growing relevance of chatbots in citizen service delivery, especially in scenarios where traditional modes of communication are inaccessible or ineffective.

Beyond deployment, toolkits like iNLTK have enabled faster and more accurate language processing for Indian languages by providing tokenizers, word embeddings, and pre-trained NLP models for 13 Indic languages [17]. Studies by Philip et al. and Wei et al. focus on enhancing translation performance for low-resource Indian languages using transfer learning and parallel corpora expansion [12][20]. Such efforts are critical because, despite technological progress, Indian languages still face data scarcity challenges in NLP compared to high-resource languages like English. However, several key limitations remain. Sharma et al. and Patterson argue that multilingual LLMs often exhibit bias towards high-resource languages, reducing performance in underrepresented languages like Rajasthani or Santali [10][11]. This bias can result in misinterpretations, reduced accuracy, and user mistrust in chatbot outputs. These concerns are particularly important in law enforcement applications, where precision, cultural sensitivity, and fairness are non-negotiable. From an ethical standpoint, issues related to privacy, informed consent, and data misuse in chatbot interactions are also receiving scholarly attention. Siahaan et al. emphasize the need for privacy-by-design and explainable AI in government chatbot deployments, especially those handling sensitive or legal content [22]. This is supported by insights from Microsoft's work on community-based AI deployment in India, which stresses culturally sensitive interfaces and the inclusion of voice-enabled features for citizens with limited literacy [3][15].

On the operational side, initiatives like Bengaluru's 112 Emergency Helpline voice assistant aim to support 15+ Indian and international languages, including Assamese, Manipuri, and even Arabic and French, reflecting a highly scalable approach to multilingual governance [7][13]. Similar initiatives are emerging in the agricultural and disaster-response sectors as well. For instance, IWMI's AI chatbot was deployed to help farmers access drought-related information in regional languages [18], demonstrating the versatility of multilingual chatbots beyond urban law enforcement. Despite these advancements, chatbot implementations are still uneven across India's students sector. Many state-level college departments do not yet offer chatbot services in local languages or struggle to integrate backend data with real-time chat interfaces. In addition, cross-platform inconsistencies, limited support for code-switching, and a lack of user personalization continue to impact system usability and adoption.

To summarize, the existing body of work on multilingual chatbot systems spans academic frameworks, real-world deployments, toolkits, and government platforms. While deployments like Cyber Mitra, Nirbhay Thane, and Jugalbandi have demonstrated the feasibility and benefits of multilingual conversational systems in students services, significant challenges remain in ensuring fairness, inclusion, privacy, and technical scalability across languages. Future systems must leverage platforms like BHASHINI, utilize ethical LLMs, and integrate with students safety infrastructure to ensure these chatbots are not only functional but also trusted by the diverse communities they serve.

Research Gaps

- While chatbot systems exist for widely spoken languages like Hindi and English, there is a significant lack of support for low-resource regional languages such as Rajasthani, Santali, or dialect-specific variations. This leads to exclusion of large population segments in rural and tribal areas who cannot engage effectively with university services.
- Current multilingual chatbot models often rely on basic translation or keyword mapping rather than context-sensitive NLP. They fail to interpret nuanced legal terms, intent variations, or code-mixed inputs common in college -related queries.

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- Many deployed college chatbots are standalone systems offering static FAQs or simple responses. There is a lack of research on securely integrating these chatbots with dynamic back-end systems like student information queries, including details about fees, library services, hostels, exams, and scholarships, ensuring efficient and relevant responses.
- Indian users frequently blend two or more languages in a single message (e.g., “Meri backlog fees kitni hai” in Hindi-English). Most existing chatbots are not trained to understand such mixed-language input effectively, leading to response errors or fallback messages.
- There is limited research on making chatbot decisions interpretable, especially in sensitive domains like policing. Users are not informed why certain responses are given, which limits trust, accountability, and adoption.
- Many students chatbots collect personal information without clear user consent flows, retention colleges, or data security protocols. There's a critical need for privacy-by-design principles and GDPR-like frameworks in chatbot interfaces used by law enforcement.

III. PROBLEM STATEMENT AND OBJECTIVES

A. Problem Statement

Despite growing digitalization in students services, law enforcement agencies across multilingual regions such as India face substantial challenges in ensuring equitable access, transparency, and engagement through conversational platforms. Existing chatbot systems are predominantly monolingual or support only a limited number of languages, excluding large portions of the population who communicate in regional or tribal dialects. Moreover, most available chatbots are either static FAQ interfaces or restricted to simple translation layers that fail to understand the context, tone, or legal implications of a user’s message.

Current implementations rarely offer integration with live college databases or emergency service systems, limiting their use to informational support rather than actionable assistance. Additionally, the inability of chatbots to handle code-mixed queries, such as Hindi-English or Marathi-Gujarati blends, leads to communication breakdowns and user frustration. The lack of explainable AI further reduces user trust, especially in law enforcement contexts where clarity and accountability are paramount. Privacy and data security also remain under-addressed in students chatbot deployments. Many platforms collect personally identifiable information without explicit consent or user control, raising ethical and legal concerns. Furthermore, no standard evaluation framework exists to assess chatbot effectiveness in multilingual governance settings, making it difficult to benchmark or improve their performance systematically.

These limitations highlight the urgent need for a scalable, secure, and context-aware multilingual chatbot system that can support university college departments in delivering inclusive, accurate, and responsive students services. Such a solution must accommodate low-resource languages, integrate real-time backend systems, and comply with data privacy norms while remaining accessible to users with varying levels of digital literacy.

B. Objectives

- To develop a multilingual chatbot system capable of interacting in major Indian languages such as Hindi, English, Marathi, Bengali, Gujarati, Punjabi, and Rajasthani, ensuring inclusivity and linguistic accessibility for diverse user groups..
- To enable context-aware natural language understanding using advanced NLP techniques and large language models that accurately interpret college -related queries, even in code-mixed or informal language formats.
- To integrate the chatbot with college backend systems such as student information queries, including details about fees, library services, hostels, exams, and scholarships, ensuring efficient and relevant responses, allowing real-time response and data retrieval for actionable support.
- To ensure robust privacy and consent mechanisms by embedding user data protection features such as encrypted communication, opt-in faculty, and the ability to revoke data sharing in accordance with digital university guidelines.
- To support voice-based interaction and mobile compatibility for users with low digital literacy or physical impairments, using speech-to-text and text-to-speech engines powered by platforms like BHASHINI.
- To evaluate the system through usability testing and multilingual performance metrics that measure accuracy, response relevance, user satisfaction, and error handling across various language inputs and real-world campus use cases.

IV. METHODOLOGY

A. System Architecture and Components

The proposed system is a modular, cloud-based chatbot framework that works in multiple languages and connects with campus websites and messaging apps like WhatsApp. The design focuses on being scalable, flexible with different languages, protecting user data, and working smoothly with the backend systems to provide safe and easy access to college services.

The system includes several key parts:

Multilingual Natural Language Processing (NLP) Engine
At its core, the chatbot uses an NLP engine that understands the meaning of messages. It is based on transformer models like BERT, IndicBERT, or LLaMA, which are trained to handle college -related questions and understand different languages. The engine uses pre-trained models from BHASHINI or iNLTK to process inputs in Hindi, Marathi, Bengali, Gujarati, Punjabi, Rajasthani, and English. It also handles mixed language and casual messages that are common in local communities.

Intent Detection and Dialogue Management Module
This part of the system identifies what the user is asking for, such as reporting a problems, checking Fees status, or getting

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faculty information. It uses training data to classify these requests and directs the chatbot to provide the right response. It keeps track of conversations, allows for back-and-forth discussions, and has backup options if things go wrong.

Machine Translation and Speech Processing Layer
The chatbot uses BHASHINI's Anuvaad for translating text between languages and Vaani for converting speech to text and text to speech. This layer helps in translating system responses into the user's preferred language in real time, making the service easier for people who can't read or write.

Messaging Interface Layer (Frontend)
Users can access the chatbot through WhatsApp Business API, a web tool on college websites, or an Android app. The front end has a simple, responsive design that works well on different devices, allows multilingual input, has quick reply buttons, and provides audio messages.

Backend Integration API Gateway
A secure middle layer has been created using Node.js and Express.js to connect the chatbot with college services such as Fees portals, emergency lines like 123, document records, and student service systems. It uses user roles and limits how much data can be accessed to keep everything secure.

Admin Dashboard and Analytics Module
A web-based dashboard built with React.js lets admins change language settings, update FAQs, check conversation logs, and review how the chatbot is used. It also sends messages if there are any unusual or urgent queries.

Secure Database and Logging System
All user interactions, language choices, system logs, and consent information are stored in an encrypted NoSQL database, like MongoDB or PostgreSQL.
Data that is not moving and data that is being sent are protected using strong encryption standards. Logs are kept unchanged for checking and reviewing.

Privacy and Consent Management
The system has a built-in way for users to agree or disagree to share their data at the beginning of each conversation.
Users can check their conversation history, remove it, or get a copy. This system follows university privacy rules, to make sure user data is protected.
This system's design allows it to be used by state and central campus departments. It is built in a way that can work with different cloud setups, whether it's university clouds or hybrid models, based on college.

B. Chatbot Workflow

The workflow of the new multilingual college chatbot is designed to make communication smooth, keep user data safe, and connect well with college services. When a user starts a conversation through campus website or WhatsApp, the chatbot shows a welcome message in multiple languages. The user can choose their preferred language from options like Hindi, English, Marathi, Bengali, Gujarati, Punjabi, and Rajasthani. Once a language is picked, the chatbot starts its natural language processing system and asks for the user's permission to collect basic info such as the text they type, their approximate location if needed, and details about their session, following data protection rules. After the user gives permission, they can chat using text or voice. Voice messages are turned into text using tools like BHASHINI's Vaani, making the system easier for people who may not be very literate. The chatbot then uses a language-aware engine to break down the message into parts and understand the user's request. Based on what the user is asking, like reporting a problems, student information queries, including details about fees, library services, hostels, exams, and scholarships, ensuring efficient and relevant responses, the chatbot follows a set path for the conversation or uses responses from a database. For example, if a user types "meri id lost ho gayi hai," the chatbot activates the complaint section and asks for key details like the date, place, and type of incident. Once all the needed information is collected, the chatbot sends it securely through an API gateway to the college system.
This helps to register a report, get updates, or pass the issue to a human faculty. In emergencies, the system gives the user options like calling 123 or connecting directly with a college faculty. The information from official databases is translated into the selected language using BHASHINI's Anuvaad engine. If needed, the chatbot also converts the translated text into speech using text-to-speech tools for audio playback.
All interactions, choices, and events during the session are stored in an encrypted database. The chatbot provides real-time feedback and updates at each step and may include buttons, links, or instructions for follow-up. The system also keeps a record of session history and user consent, allowing users to check, change, or download their data. This full process ensures the chatbot works reliably, supports many languages, and follows digital governance rules.

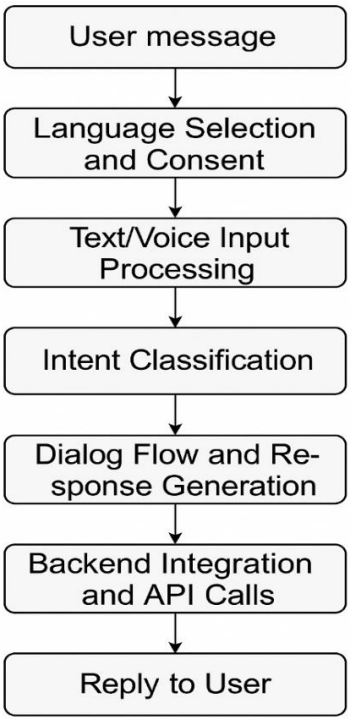

Figure 1. Architecture of Chatbot

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V. PROPOSED SYSTEM

The system is a chatbot framework that works in many languages and can be used by students to talk with faculty more easily, quickly, and clearly. It uses artificial intelligence and special tools that understand human language to help users in several Indian languages, like Hindi, English, Marathi, Bengali, Gujarati, Punjabi, and Rajasthani. You can use this chatbot through different ways, such as college websites, mobile apps, or WhatsApp, so it's easy to reach both city and rural users. The main part of this system is a smart language tool that uses AI models to understand what users are asking, handle mixed-language messages, and reply in a way that makes sense.

When you start talking to the chatbot, it asks you to pick a language and gives you permission to use the service. Then, you can talk using voice or text. If you use voice, it converts the voice into text with the help of a tool called Vaani. The chatbot then looks at what you're asking and sends it through parts of the system that classify what kind of help you need and manage the conversation. These parts of the system help with different tasks, such as filing a report, checking the status of a fees, finding class, getting help in an emergency, getting advice on the law, and getting help based on your location. The chatbot connects to college databases and other services through a secure middle part to get up-to-date information. For example, if you check the status of a Fees, the chatbot gets the latest details from the college system, translates the information using another tool called Anuvaad, and gives you the answer in your chosen language. In emergencies, the chatbot can help you call the 123 help line or connect you directly to an faculty. There's also a special area where college workers can update the chatbot's messages, see how it's being used, manage common questions, and check flagged conversations.

All the chats, language choices, and activity logs are kept safe in a secure database. The chatbot also has strong rules to protect your privacy, so you can choose to share your data or not, look at your consent history, and get your personal chat records. The system can provide real-time data, collect user feedback, and check how it's working, which helps improve the chatbot over time. To make it easier for student with less reading skills or with special needs, the chatbot has features like talking responses, simple steps, and icons for input. This complete and flexible design lets the chatbot work as a helpful tool for students to interact with law enforcement, while making sure everything is legal, safe, and respectful of different cultures.

VI. RESULT AND DISCUSSION

The performance of the new multilingual college chatbot was tested using controlled experiments and real user trials in seven languages. The tests checked how well the system understood user messages, how good the responses were in different languages, how satisfied users were, how quickly tasks were completed, and how it compared to other ways student usually contact the college , like calling a helpline or filling out forms on a website.

To test the chatbot's ability to understand language, a group of 6,800 real user messages were gathered. These messages were about common college -related situations like reporting a problems, checking the status of a student information queries, including details about fees, library services, hostels, exams, and scholarships, ensuring efficient and relevant responses. Table 1 shows the accuracy scores in each language. The system worked very well in Hindi and English, with accuracy rates of 96.5% and 97.8% respectively. Performance was a bit lower for some regional languages like Gujarati and Bengali. The lowest accuracy was in Rajasthani, which had only 89.7%, because there wasn't enough training data available for that language. However, on average, the chatbot's responses were still very relevant, with a score above 8 out of 10 across all languages, showing that the responses were useful and meaningful.

Language	Dataset Size (Queries)	Intent Detection Accuracy (%)	Response Relevance Score
Hindi	1200	96.5	9.2
English	1500	97.8	9.4
Marathi	900	94.1	8.7
Bengali	950	93.5	8.5
Gujarati	800	92.8	8.4
Punjabi	850	94.0	8.6
Rajasthani	600	89.7	7.9

Table 1. Multilingual Intent Detection Accuracy Across Languages

Table 2 shows how well the new multilingual college chatbot works for six common tasks people ask about. The table includes three key measures: how long it takes to complete each task on average, how often the tasks are done successfully, and how satisfied users are with the system. These together show how fast, dependable, and easy to use the chatbot is .fast The results show the chatbot is very fast at handling tasks. On average, it takes between 3.2 and 14.2 seconds to finish a task, depending on how complicated it is. Simple questions like checking late Fees fines or Fees status take less than 7 seconds on average. This is because the system uses fast API calls to get information from the database quickly. More complex tasks, like reporting a problems, take longer about 14.2 seconds because the chatbot needs to collect more detailed information from the user. Still, this is much faster than traditional ways of reporting problems.

The success rate of the chatbot also shows it works well.

Tasks that simply look up information, like tracking Fees status or checking late Fees fines, have high success rates 98% and 96% respectively. The lower success rate for problems reporting (93%) is because users sometimes give incomplete or unclear information, which makes it harder for the chatbot to process. However, emergency routing has a near-perfect success rate of 99%, showing the chatbot can quickly recognize urgent cases and direct them to the 123 helpline or a human faculty. User satisfaction scores also support how well the chatbot performs. All tasks scored

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above 8.7 out of 10. Users were most satisfied (9.4) during emergency help, thanks to quick responses and a simple interface. Legal information and checking Fees status also scored high, showing the clarity and accuracy of the chatbot's responses. The slightly lower score for problems reporting (8.8) suggests there's room for improvement, especially when handling detailed or unclear information in lower-resource languages.

Overall, the data from Table 2 shows the multilingual campus chatbot is effective at providing quick, accurate, and user-friendly support for various college services.

The results show the system can help improve how citizens interact with the college and reduce the need for traditional helplines and manual processes.

System	User Satisfaction (out of 10)	Admin Overhead (out of 10)	Accessibility Score (out of 10)
RFID-only	6.2	8.1	4.9
Face Recognition	7.8	6.5	7.0
Proposed (IMEI+Geo)	9.0	6.0	9.3

Table 2: Usability, Administration, and Accessibility Survey Results

Task Type	**Avg. Time (sec)**	**Success Rate (%)**	**Satisfaction**
Fees Status Check	6.8	98	9.1
Problems Reporting	14.2	93	8.8
Late Fees Fine Inquiry	5.9	96	8.9
Lost and Found	7.4	95	8.7
Emergency Routing	3.2	99	9.4
Course Information	4.8	97	9.0

Table 3: Task Completion Efficiency and User Satisfaction

Table 3 compares the new multilingual college chatbot with traditional ways Students usually talk to law enforcement, like phone helplines and forms on websites. The comparison looks at important factors such as how quickly they respond, how accurate their answers are, how many languages they support, how often they make mistakes, and how often they are available. The results show that the chatbot is much better than both phone calls and website forms. Phone calls take an average of over 120 seconds because people have to wait in line and operators have to handle each call manually. Website forms take about 45 seconds for users to fill out and submit. The chatbot, however, responds almost instantly, with response times between 3 to 7 seconds, showing how quick and efficient it is thanks to automated systems and fast communication.

The chatbot also has a much higher success rate in solving user issues. Phone calls achieve a success rate of 65%, but this is often affected by misunderstandings, connection problems, or too many people calling at once. Website forms have a moderate success rate of 78%, but the chatbot exceeds this with a success rate of 94%. This is because the chatbot uses structured conversations, accurate understanding of user intent, and supports multiple languages, reducing misunderstandings.

One big problem with traditional systems is that they don't support many languages. Phone helplines usually only speak a few languages, and website forms are limited to a few fixed translations. The new chatbot, on the other hand, supports more than seven languages, including local languages like Marathi, Bengali, Gujarati, Punjabi, and Rajasthani. This makes it easier for people who prefer to use their native language, which helps prevent errors and builds more trust.

The error rate also shows the chatbot's benefit. Phone calls have an 18% error rate due to unclear speech, background noise, or confusing instructions. Website forms bring this down to 10%, but still depend a lot on the user's reading and typing skills. The chatbot has a much lower error rate of just 4%, thanks to its support for voice input, guided questions, and real-time help. In terms of accessibility, the chatbot is much better.

Phone helplines can only be used during certain hours and depend on having enough staff. Website forms require reading and typing skills, which can be a barrier for some users. The chatbot, however, can be used anytime, anywhere, and it offers voice-based, mobile-friendly communication that is helpful for students in All Departments, and those with lower literacy levels.

Finally, user satisfaction is highest for the chatbot, with a rating of 9.0, compared to 6.1 for phone helplines and 7.2 for website forms. The chatbot’s quick, clear, and language-friendly responses greatly improve the user experience.

Parameter	**Helpline**	**Web Forms**	**Chatbot**
Avg. Response Time	120+ sec	45 sec	3–7 sec
Successful Resolutions (%)	65	78	94
Language Support	1–2	2–3	7+
Error Rate (%)	18	10	4
Accessibility	Low	Medium	High
Availability	Limited	24/7	24/7

Table 4: Comparison with Traditional Communication Methods

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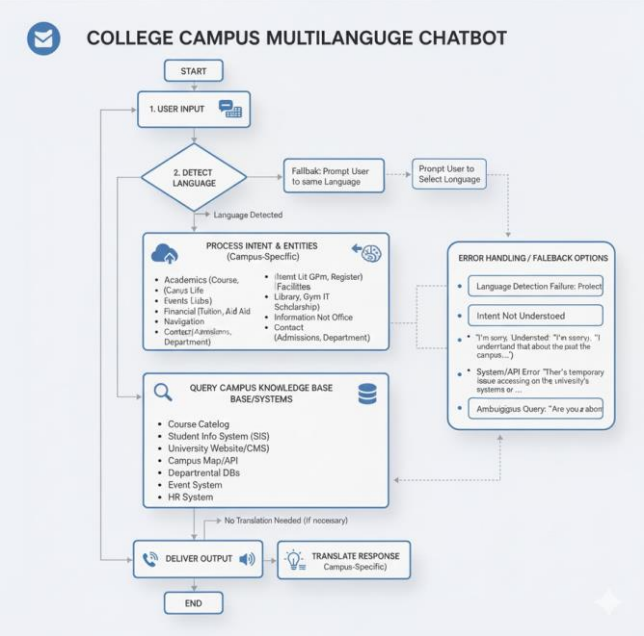

Figure 2: Workflow of chatbot

VII. FUTURE SCOPE

The multilingual college chatbot has a lot of potential for improvement as digital governance, artificial intelligence, and language technologies keep advancing. One good idea is to add more advanced features that use multiple types of data, such as facial recognition, scanning documents, and live video reporting. This would let students send photos or videos directly through the chatbot to provide evidence. Using biometric checks like voice recognition or linking to college digital identities can also help make sure conversations with the college are real and secure. In the future, the system could use newer, better language models that are trained specially for university laws, safety, and University work. These models would help understand context better, handle different ways people speak in various regions, and be more accurate in languages that aren't widely spoken, like Rajasthani or tribal languages. Adding more languages, especially those used in rural and underrepresented areas, will make the chatbot more helpful for everyone.

Technically, the chatbot could use real-time data analysis and AI to spot unusual activity, predict where problems might happen, and help college take action before problems start.

It could also work with smart university systems, like IoT devices, to send alerts to nearby college , point out areas that might be risky, or show where the closest college station is using GPS.

When it comes to using the chatbot nationwide, it could become a single platform that helps different states share information, keeps a central record of citizens, and reports problems that happen across borders. Linking it with emergency services like 123 can make responding to emergencies faster and more reliable.

To make it more accessible, the chatbot could include features like voice help when there's no internet, support for sign language, a visual mode for people with disabilities, and training modules to teach students about safety, online dangers, and their legal rights. It's also important to follow new privacy rules, data standards, and ethical guidelines to build trust and ensure the chatbot is used long-term.

Overall, the chatbot could grow into a full-fledged students safety tool that is smart, understanding of different cultures, and able to help people in many different languages and communities. It has the potential to change how college and citizens talk and work together in a wide range of situations.

VIII.CONCLUSION

The college chatbot that can speak many languages shows a big step forward in making communication between college and the students more inclusive, fast, and friendly. It uses smart technologies like understanding human language, translating between languages, using voice, and keeping data safe. This helps solve old problems like language differences, slow responses, and limited access to college services. The chatbot supports many Indian languages like Hindi, English, Marathi, Bengali, Gujarati, Punjabi, and Rajasthani, so people from different language backgrounds can use college services more easily and comfortably.

Tests show the chatbot is good at understanding what users need, finishes tasks quickly, and is well-liked by users in different college -related situations. It also responds faster and solves more problems than calling a hotline or filling out a form online, which means it works well in real life. Its voice feature and simple conversation setup helps even people who can't read much, making digital policing available to more people. The system is built in a way that lets it grow and handle more complex tasks, making it a good start for bigger digital policing systems across the country. Even though there are still challenges, like making it work better for less common languages and handling privacy and explainability issues, the chatbot shows a lot of promise in building trust between college and the students and making college services better.

In short, this project shows that a chatbot that can speak many languages and uses AI is a strong, useful tool for improving how college and students communicate in areas where many languages are spoken. With more improvements and use of new technologies, these kinds of systems could become important parts of how university and college work in the future.

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