

Chatbot based College Information System

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ABSTRACT

Chatbot allows us to have conversational chat to accomplish our tasks for instance, shopping for a shirt, book an appointment with doctor and order our meals. Some chatbots have artificial intelligence and machine learning behind them, and others have a database of information and automated responses. Most students spend time on messaging software for communication, such as SMS (texting), WeChat, SnapChat, Kik, Telegram, WhatsApp, Slack, and many more. The outdated systems are difficult to access by the students. Chatbots will allow professors to engage with students in a communication medium that is comfortable and convenient for everyone to use. The Chatbot technology can provide the ease and human like interaction to students, parents, and faculty. This paper highlights the applications of chatbots, platforms to design a chatbot and the areas where the chatbots can be implemented at colleges.

1. Introduction

A chatbot also referred to as bot is a pc system which converse via auditory or maybe textual methods. The word "ChatterBot" was initially coined by Michael Mauldin (creator of the very first Verbot, Julia) in 1994 to explain these conversational applications [nine]. Chatbots are not hard to develop as well as promote user interactions. Movable apps need being downloaded as well as make use of storage room but chatbots aren't necessary to be downloaded. It simply takes a message in a messaging app. Bots are able to find out from user's behavior and also give a lot more personalized replies. It's estimated that approximately 80 % of businesses are intending to incorporate chatbots by the entire year 2020. Pupils prefer their issues resolved quickly, duties to be accomplished readily and info to be found rapidly. The chatbot is able to provide them a human like conversation and address the issues of theirs. Several examples of chatbots are GupShup, RechargeBot, IxiBaba, Lawbot etc

2. Literature Review

In paper [1] an intelligent chatbot for banking system has been proposed. The system is based on artificial intelligence. It can answer the bank related queries. This system takes the input as text and voice format. Voice format input is converted to text format then Search is performed in database for the appropriate answer. It display result in Speech as well as in text and provide accurate and quick answers will be given to user. By AIML files, ICB system will take both the voice as well as text as an input. The chatbot also has the facility of voice based input.

In paper [3] an android based chatbot has been proposed. This system communicates with the users using a chatting application which provides intelligent answers and guidance to get the information required for bookings of hotel rooms. AIML, Java, Android, PHP, and SQLite are the technologies used for the bot implementation. The process starts with the authentication of the user. After user is authenticated the location of the user is obtained using the GPS tracking system. The user provides the requirement through chat-screen. The

chatbot has built-in knowledge-base, conversational abilities, real-time support, and human visual look. The tools used for design and development are Program AB, Postman and Android Studio.

In paper [5] a chatbot design for mental health counseling has been proposed. A demo chatbot has been created using interactive emoji's and GIFs to provide user with the mental health counseling. This chatbot has future scope to be incorporated into a full web based program for mental health in the workplace.

In paper [7] a college enquiry chatbot has been proposed. The college enquiry chatbot is built using artificial algorithms. The bot analyzes user queries and understand user message. The proposed System is a web application and has two types of user- admin user and normal user. The system will use the artificial intelligence algorithms to give appropriate answers to the user. Invalid answers can be modified and deleted by the admin. Student can use the chat bot to get the answers of their queries and at any time. This system has various modules like Online Notice Board, Online Chatbot and user modules.

3. Chatbot Application Areas

The first chatbot created by German professor at MIT LAB in 1966 was named Eliza [9]. Eliza used to provide answers to the questions based on pattern matching techniques. Bots uses the capabilities of artificial intelligence, natural language processing and self learning capabilities. Apple's Siri, Facebook Messenger apps, Amazon's Alexa are few examples of chatbots with artificial intelligence. These chatbots can assist human in every area from booking restaurants, ordering groceries, paying your bills, scheduling meetings and answering many questions. Some application areas of chatbots are following-

1. Flight Finder, hotels & travel: Travel portals are now implementing the chatbots to provide better customer service. People can communicate with the chatbot in natural language for their queries. These chatbots can assist in finding the hotels at best prices. Chatbots

can also provide personalized recommendations based on their nature of travel. Bots can also show the offers and discount for customers flights, hotels and travels. Example of Travel bot is Yatra Chatbot that helps customers search and book their flights directly from their Facebook Messenger. Other examples of travel chatbots are GoHero.ai, Ixibaba and Meru Cabs.

2. **Job Search:** Searching jobs can be effortless with chatbots. The chatbots can be programmed with the task of job search to converse in natural language and handle the queries of job seekers like job profile, location and salary based queries. The chatbot can also apply job post with user consent and notify the user about the interview schedules and final selection. Examples of job chatbots are Newton, Woo, Stella and Mosaic etc. Newton is AI assistant that helps job-seekers find employment. When a user text the bot, it will search the webs for good job matches and send position recommendations.
3. **Ecommerce stores:** Ecommerce stores can create intelligent chatbots to address the queries of the customers. Bots can recommend customers products or services based on interaction. Bots are able to answer FAQs, Return policy or basic product information. Bots can also broadcast the price alerts, offers and personalized recommendations based user history of purchases, favorite purchase point. For example, 1-800-Flowers is a chatbot available on the FB Messenger Platform. Other examples are Slack, ChatShopper, Burberry and eBay ShopBot.
4. **Banking:** The bank can use chatbots to provide users with the service to transfer money with a simple message, make bill payments, get travel cards, Forex deals etc. The chatbot can also be used to provide personalized information to customers to provide them details of balance and transaction history. Bots can also be used to broadcast loan offers and insurance offers. The feedback, grievances of customers, and other customer issues can also be handled with the chatbots for faster resolutions. An example of bank chatbot is HDFC Bank OnChat, YESTAG, MO-Genie and FundsTiger. Yes mPower is a bot to provide information on loan products like Loan against Securities, Personal Loans, Auto Loans, Gold Loans, and products like Used Car Loans, Loan against Properties etc.
5. **Entertainment:** Chatbots can mimic human beings for conversations. They can be stress relievers for unhealthy and ill people. These entertainment chatbots can be programmed to entertain with jokes, movies and songs.
6. **Health:** Bots like HealthTap or Your.Md is chatbot that can help users to find the most common symptoms through AI. The chatbot can be programmed to book appointment of doctor and prescribe the medicine for the common diseases. It can also act as a virtual dietician and provide personalized recommendations of diet. Bots can also be a fitness advisor and suggest exercises to the user according to their queries. FitCircle is a health and fitness chatbot which offers

users personalized yoga guidance and personalized weight loss workouts. It also offers nutrition advice to users

7. **Education & Learning:** Chatbot can provide better learning experience. The chatbots can be used to teach languages and course content to users. The chatbot can be used to share contents on the technology, education, latest news and videos or white papers with its users.

4. Steps In Chatbot Working

Step1. The chatbot first acquire information or query from the user to be processed. Chatbot can be programmed to talk using conversational text or voice [8].

Step2. Chatbot process the information provided by user and convert into an understandable format and store it in a knowledge base. An AI chatbot makes a decision based on pre-existing knowledge base. Natural language and machine learning can be used to process the queries of the user. The knowledge base helps in identifying relevant information, learning faster, and providing a response that is relevant.

Step 3: Chatbot based on processing respond to a user. Now, the chatbot has to act. The response by a chatbot in text format is much easier than the output using audio or video capabilities.

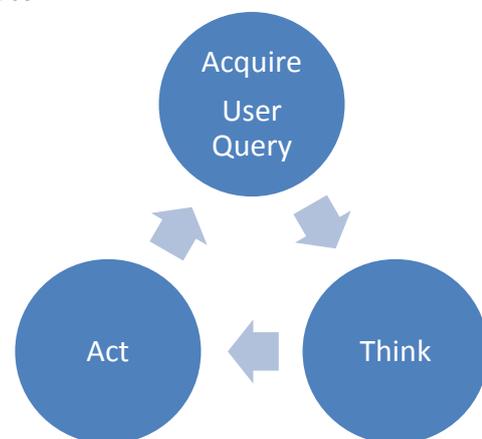


Fig 1. Chatbot Working

5. Chatbot Platforms

A) Bot Development Framework

The chatbot development framework consists of the Bot Connector, Bot Builder SDK, Developer Portal, and Bot Directory. It provides a set of tools that help to develop the code faster and better. Examples of chatbot frameworks are Motion.ai, Api.ai and Microsoft bot framework.

B) Bot Platform

Botnet platform can be used to develop chatbot by beginner or non-technical person. For example Chatfuel platform helps the non-programmer to develop the chatbot and publish it on Facebook Messenger. It also provides Artificial Intelligence technology for scripting interactive conversations. The companies like Adidas, Uber, TechCrunch, British Airways, Goal.com, Volkswagen, MTV etc have used Chatfuel for their Facebook Messenger chatbots.

6. Chatbot Design Techniques

The design techniques used by programmers for the chatbot are:

1. Parsing
2. AIML
3. Chat Script
4. Pattern Matching
5. SQL and relational Database
6. Markov Chain

7. Limitations of websites and apps in college information system

Text messaging is the best option to engage students in education. Emails might not get checked as compared to social media text messages. Students are also reluctant to respond to any unfamiliar call. Websites are loaded with the information and search query on search engine displays plenty of results to choose the right source of information. Students do not want long search and wait times, verbose FAQ lists, endless customer service menus, advertisements and spam emails. Other solution for information dissemination is through apps. But time and money requirements are involved for app development. The students should be first informed about the latest app of college for updated information.

8. Chatbot In College

1. Career Counselor
Chatbot can be a career counselor for the students. College with a chatbot can provide the facility of conversational counseling to the students. Students can query the bot about the courses they should opt based on their score card and interest. Chatbot can ask multiple questions to the student to collect data and analyze. After analysis, chatbot can advise the student with the course best for them and career opportunities offered by the college to pursue their interest.
2. Information system
Chatbot can play a role of the helpdesk. It can provide the information on the timetable of subjects. The bot can also answer the queries on results dates, faculty information required by student and holiday information and many more.
3. Course Admissions
The admission process is sometimes complicated for admission staff, parents and students. Students usually collect information through the college website, Phone call and by personal visit. Chatbots can assist students and parents to get information on admission dates, course cut-offs and eligibility for the course. Bots can send them a notification about the deadlines. Chatbot conversations are designed with a human touch and the users feel satisfied by the answers given by the bot. A chatbot can also help admission staff to reduce their work load of queries during admission session.
4. Campus Guide
A bot can introduce the fresher student with the campus life. Using GPS sensor, Chatbot can help the student to find particular classroom and any building within the campus. With the help of pictures, videos

and maps, it can also guide the student about the campus facilities. The bot can provide the information on various events and competitions organized to encourage teamwork and participation within the campus. It can assist students to register for curricular activities and collect the information on it.

5. Financial aid
Chatbots help students identify and apply for aid with the college. It can provide the information on scholarships offered by the college, at the state or national level.
6. Virtual Teaching Assistant
Many students are now connected to the internet and social media. They are learning new skills by watching videos and presentations on YouTube, SlideShare, and Lynda.com. They are adopting self-education through latest technologies. The students ask their query in the comment section and wait for their problem to be solved by the online teachers. But the online teachers are busy in creating more content. It is also difficult for the online teacher to answer the questions of online learning students. This is a problem that educational chatbots can solve. For example, IBMs artificial intelligence technology is currently being used to power a teaching assistant for an online course at the Georgia Institute of Technology. Jill Watson chatbot answers the routine questions from students and provides the teachers with time they need to work on other course activities. Robbie is teaching assistant chatbot designed to improve coding skills. It is Facebook Messenger chatbot which also provides personalized recommendations and reminders to learn. Other example of teaching assistant is Grammar Guru.
7. Job Placements
Chatbot can assist placement cell in managing their task of information dissemination. The student can interact with the chatbot to get information about the company visiting the campus for selection, details and salary offers of the company. It can also guide and help the students about interview and job placement preparations. The student can get information on enrollment in mock interview classes and placement preparation classes organized by placement cells of colleges.

9. Chatbot Implementation Using Bot Platform

A Chatbot named "College chatbot" has been proposed and designed using Chatfuel platform and integrated in Facebook page. The chatbot has been designed to provide students feel like talking to the staff from college and their queries are addressed through the conversational text. The bot has been designed using blocks provided by the Chatfuel platform. Responses can be provided to the user in text format, pictures, and with the many more features provided by the Chatfuel. The Set Up AI feature makes the bot smart and answers the queries of user. The blocks of the bot are

1. Fee detail Block
2. Course Detail Block
3. Student Help-Desk Block
4. Career Counselor Block

5. Subject-Faculty Detail Block
6. Placement Cell Block
7. Scholarship Detail Block and some other blocks are designed for providing students an ease of access to information.

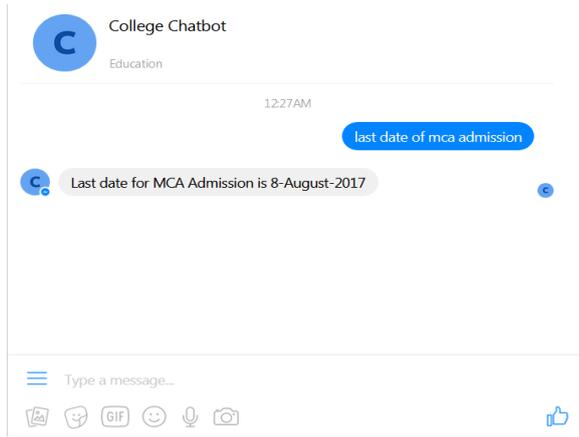


Fig 2. College Chatbot in Course Admission

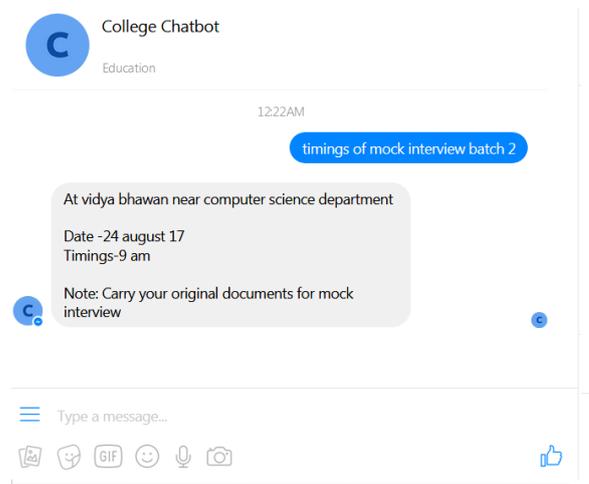


Fig 4. College Chatbot in Course Admission

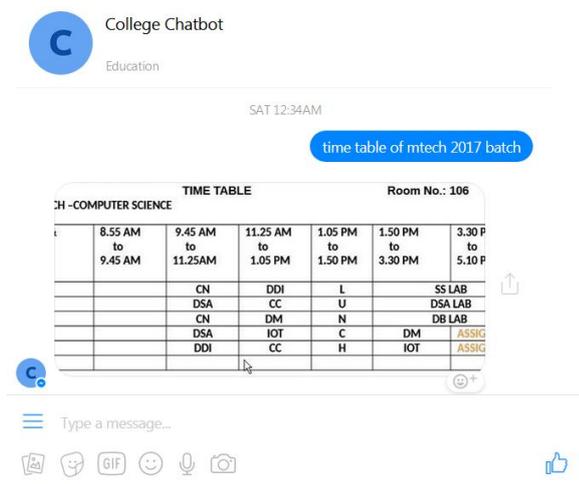


Fig 3. College Chatbot in information systems

10. Conclusion

Students spend their lot of time with the phones, social media and on messengers. Their messenger and apps should be provided with the additional capability rather than forcing them to register with the apps and websites for the required information. A chatbot is implemented with a human touch to feel exactly like a person-to-person communication. Information can be fetched so quickly without thinking about keywords or query. The future scope of chatbots lies in the implementation of chatbots in learning. Distance Education can be revolutionized with the use of artificial intelligence based chatbot tutor.

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