



(Established under Galgotias University Uttar Pradesh Act No. 14 of 2011)

# **CHAT-BOT SYSTEM PROJECT BASED ON THE NATURAL LANGUAGE**

A Report for the Evaluation 3 of Project 2

*Submitted by*

**VISHVAKETAN GAUR**

**(1713104108 / 17SCSE104110)**

*in partial fulfillment for the award of the degree  
of*

**Bachelor of Computer  
Applications**

**IN**

**Computer Science and Engineering**

**SCHOOL OF COMPUTING SCIENCE AND ENGINEERING**

**Under the Supervision of  
Mr. Soumya R. Jena  
(Assistant Professor)**

**APRIL / MAY- 2020**

## **DECLARATION**

I **VISHVAKETAN GAUR** hereby declare that the Project work, which is presented in the report, entitled “**CHAT-BOT SYSTEM**” is duly prepared by me to be submitted to the department in partial fulfilment for the award of the degree of Bachelor of Computer Applications for the academic year 2019-2020.

**VISHVAKETAN GAUR**

**Date:**

**Place:**

**DEPARTMENT OF BACHELOR OF COMPUTER APPLICATION**  
**GALGOTIAS UNIVERSITY, GREATER NOIDA, 201310**

**BONAFIDE CERTIFICATE**

This is to certify that this dissertation entitled “**COLLEGE CHAT-BOT SYSTEM**” who carried out the work under my supervision. This is to further certify to the best of my knowledge that this Project Report has not been carried out earlier in this institute and university.

**Signature**  
Mr. Soumya R Jena

**Signature**  
Dr. Avneesh Kumar

**Signature**  
Mr.Himanshu Sharma

Certify that the above mention Project Report has been duly carried out as per the norms of the college and the statutes of the university.

**Signature**  
**Dr. Munish Sabharwal**

## **ACKNOWLEDGEMENT**

Every Project big or small is successful largely due to the effort of a number of wonderful people who have always given their valuable advice or lent a helping hand. I sincerely appreciate the inspiration, support and guidance of all those people who have been instrumental in making this project a success.

I wish to express sense of gratitude to my guide Mr. Saumya Ranjan, Dr. Avneesh Kumar(Project Coordinator), Mr. Himanshu Sharma(Panel In Charge) in Bachelor of Computer Application Department, Galgotias University, Greater Noida, to give me guidance at every moment during my entire report and giving valuable suggestions. They gives me unfailing inspirations and whole hearted co-operations in carried out my Project work. Their continuous encouragement at each work through our grateful acknowledged.

I am also very grateful to my classmates, for their huge co-operation and valuable suggestion from time to time during my entire Project work. I also extend my gratitude to all the members of Department , without theirs support at various stages this report will not be materialized.

**VISHVAKETAN GAUR**

## TABLE OF CONTENTS

<b>S.NO.</b>	<b>TITLE</b>	<b>PAGE NO.</b>
1.	Abstract	I
2.	Introduction	1-2
3.	Related Work	3
4.	System Design	4
5.	Implementation or architecture diagrams	5-6
6.	Proposed Method	7-8
7.	Hardware and Software Requirements	9
8.	Output of the Project	10
9.	Conclusion and Future Enhancement	11-12
10.	References	13

## FIGURE INDEX

<b>S.NO.</b>	<b>TITLE</b>	<b>PAGENO.</b>
1.	System Architecture for College Chat-Bot	
2.	Conversation With Chat-Bot	
3.	Chat-Bot History	

## **ABSTRACT**

There's a lots of format for an user interface application software i.e. Command Line, Graphical and traditional ones Web Pages as the revolution of technology underneath. We can consider even voice as the user interface application. As the requirement of an alternative need due to complexity, detailed execution Chat-Bot System basically a text-based user interface application, which allows an user to interact with the text-based commands as well as the speech responses. It's an integrated with the web-pages which helps to utilize by the larger engagements.

# CHAPTER-1

## INTRODUCTION

---

### 1.1 INTRODUCTION

Chat-bot, Is an artificial person or creature which holds the interaction with the humans. It could be a text-based conversation, Verbal or non-verbal conversation. It can be accessed through Desktop, Mobile Phones or other devices, It works on the active connection of an Internet. It appears everywhere from tradition web-pages to modern day social networking sites.

Works on the algorithm of NLP (Natural Language Processing) whose vary from poor to intelligent, Hard to distinguish the module so it is refers as the “Chat-Bot System”. With the help of the chat-bot system, We can talk or convey the complaint as well can give the feedback to the respective organization as well as to the institution. Basically, this paper is regarding to the College Information Chat- Bot System, Which can help the students to overcome from the helpdesk chaos.

Chat Bot is a computer program that can talk to humans in natural language, the way we interact with each other. It can replace a human for many tasks of answering queries. A Chat Bot is an agent interacts with users using natural language. It was built as an attempt to fool humans. Several applications of Chatbots such as customer service, call centers etc, uses Artificial Intelligence Markup Language to chat with user. One of the prime goals of chatbots is to resemble an intelligent human and make it difficult for the receiver of the conversation to understand the real working along with various architecture and capabilities for their usage has widely broadened.

Chat Bot makes use of machine learning to reach artificial Intelligence helping them to understand the user query and provide an appropriate response. The Chatbots are developed using the Artificial Intelligence and will help user to chat with machine.



## 1.2 MODULES ANDDESCRIPTION

- **ADMIN LOGIN:** User has to login with their credentials (i.e. User Id and Password) on the portal to access the various pages and to ask the queries or to complain with the help of these bot.
- **CHAT WITH BOT:** User can interact with the bot which implies to ask or to enquire about the college related activities rather than help from the college helpdesk/staff.
- **TEXT TO SPEECH:** This module describes that, it converts the text to the speech which helps to get the response in the verbal form. So it can be called as the verbal conversation.

# CHAPTER-2

## RELATED WORK

---

### 2.1 RELATEDWORK

Eliza [1] is considered as the first chatbot which works on the pattern-matching system. It is developed by the MIT Professor Joseph Weizenbaum in 1964. A.L.I.C.E [1] (Artificial Linguistic Internet Computer Entity), is developed in 1995, It is an universal language processing chat-bot that uses, Heuristic Pattern matching to carry conversations. It has in excess of 40,000 classifications, where every classification has blend of example and its reaction. Md. Shahriare Satu and Shamim-AI-Mamun [2] indicated the survey of utilizations of the Chatbot which are created utilizing the AIML contents. Thomas N. T. and, Amrita Vishwa [4] structured an AIML and LSA based chatbot to give the client care administration over the E-trade sites. Their methodology shows we can improve the chatbot capacity by adding different models to it. In android working framework, we can execute the chatbot utilizing the different methodologies. One of the approaches is appeared by Rushabh Jain and Burhanuddin Lokhandwal [4] in their Android based Chat-Bot paper. PARRY, constructed by Psychiatrist Kenneth Colby in 1972. It attempts to stimulate the disease. Jabberwacky , was created by developer in 1988 by Rollo Carpenter which is to stimulate a human conversation. MITSUKU [10] is in creative Labs for MS-DOS in the year 1992. Also, this was the first step towards the A.I. Siri, was created by the tech giant Apple Inc. in the year 2010. It was as the personal assistant inbuilt into the mobile phones(i-phones). OK Google, Was developed by the Google Inc. in the year 2012. It is also the personal assistant which answers the questions asked by the users as well as performs the action. Cortona, It is a personal assistant which was developed by the Microsoft into their desktop systems. Alexa, It is just like the personal assistant as like the OK Google And Cortona which was developed by the Amazon.

# CHAPTER-3

## SYSTEM DESIGN

---

### 3.1 SYSTEMFRAMEWORK

#### **SYSTEM DESIGN:**

It is defined as the process of defining the components i.e. architectures, modules, interface, and data for a given system to satisfy specified requirements. System design could be seen as the application of system theory to product development. It overlaps with the discipline of a system analysis, system architecture and system engineering.

#### **PRINCIPLES OF SYSTEM DESIGN:**

##### ***Don't Pretend to be a human:***

Playing bait-switch with a user can make them feel that they been duped, or that they don't understand how a system works; both are bad experiences. Avoid, Indicators or artificial delays to make the user interface seem more human, Interaction between the user and the bot system clearly labelled in a way that communicates more human.

##### ***Keep It Simple:***

Conversation should be bounded to very particular subjects and follow linear conversations flows and do avoid complicated branching paths. It's okay to expose and explain limitations. As users will tire of complicated passage of dialogue.

##### ***Provide an escape hatch:***

Always have a human fallback option, allowing the user to express i.e. "I'd rather wait and talk to a real human make this robot thing go away."

##### ***Use Structured input when possible :***

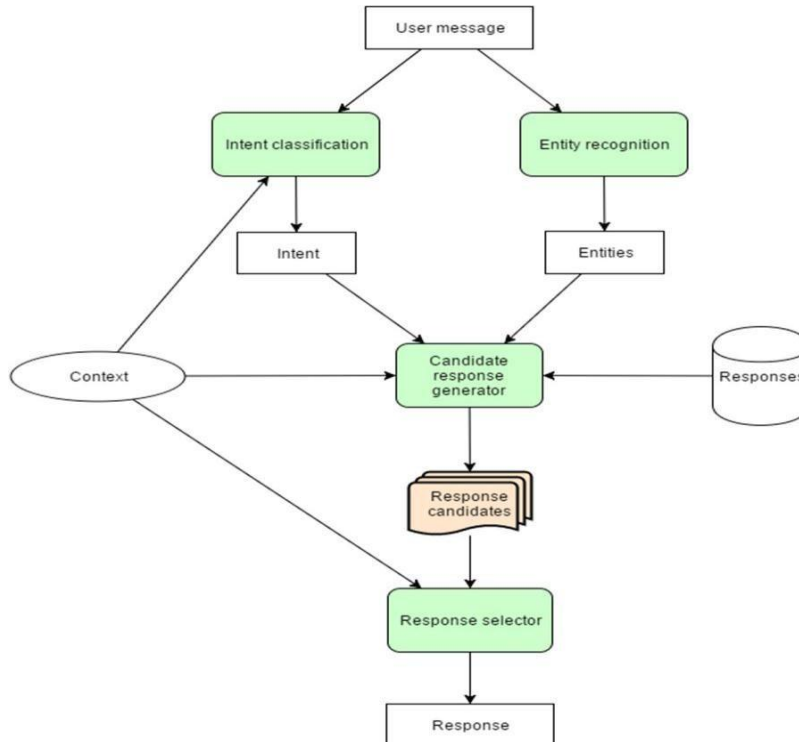
Don't place users in a situation where they need to guess the correct incantation required to proceed. Custom Soft keyboards permit a limited range of input and can save a bunch of typing. i.e. Rather than asking the end user to type, "YES" or "NO".

# CHAPTER-4

## ARCHITECTURE DIAGRAMS

---

### 4.1 SYSTEM ARCHITECTURE DESIGN



**Fig. 1** System Architecture for College Information Chat Bot

There are 7-Modules according to the system architecture for college information chat bot system which are explained below as follows:

#### **Add User:**

This module is responsible for adding user to the system. Each user is assigned a unique **ID** and **Password** to get into the system.

#### **Database Server:**

It contains record of all the users login credentials, like College Data, User Queries etc..

### **Manage Course:**

In this module the admin performs the various tasks to fetch into the database various college information like Placement Cell Information, Department Information, Class Schedule etc.

### **View Chat:**

In this, User asks the query and the bot replies to the user query accordingly. So, User can view the chat which the user had with the bot system.

### **Upload:**

In this module admin uploads the general notices like Schedule, Exam Dates, Fee Structure, Events and Fests, Seminar-Conference Notice etc.

### **Forum:**

In this module, If the user finds that answer does not satisfy regarding the user query then he can mark that answer as invalid. Later, It can be viewed by the admin, And can delete or add or modify specific answer.

### **Exit:**

This is the phase where user after finishing his work signs out from the system.

# CHAPTER-5

## PROPOSED METHOD

---

### ALGORITHMUSED:

#### *Porter Stemmer Algorithm:*

This algorithm is used for fixing or removing the suffixes automatically from words in English.

- Get rid off plurals and -ed and -ing suffixes
- Turns Terminal y to i when there is another vowel in the system
- Maps double suffixes to single ones : -ization , - ational, etc..
- Deals with suffixes, -full, -ness, -etc. Take off – ant, - ence, etc. Removes a final-e.

Chat Bot Algorithm which is been utilized in this project has been developed by the by Micahel Maudlin in 1994.

So when user submits its Questions, We store that in a variable “Query”.

- After that we bring all the main keywords from question table of the “**Database**”, And check if “**Query**” through 4 keyword init.

- If “**No**” then we say no answer found.

- If “**Yes**” then we bring all the sub-keyword with its answer of that matching main-keyword.

- Then, We pass “**Query**” through 4-Keywords check procedure \*\*4Keyword check is checking all the 4 Sub-Keywords are in “**Query**”.

- **Code:** if(strops(\$query.\$k1)!=false&&strops(\$query.\$k2)!=false &&strops(\$query.\$k3)!=false &&strops(\$query.\$k4)!=false)

- If any of the entry matches the keyword then we take its answer and then submit it to the user.

- if it does not match then we pass “**Query**” through 3-Keyword match algorithm.

- If it and so on for 2 and 1 keyword match.

- And if we still don’t get the output we say “**No**” Answer Found.

## **ADVANTAGES**

- Students don't have to go personally to college office for the enquiry.
- It helps to enable the students to be updated with College and Cultural activities.
- This helps to save time for the students as well as teaching and non-teaching staff.
- Helps to save time from the crowd outside the enquiry office.

## **DISADVANTAGES**

- Need an active internet connection.
- Language Error may come.

## **APPLICATIONS**

- AI based chat bot system helps students of colleges around the country and also can be used in various firms.
- This chat bot can also be embedded on the website of the corporate sectors, hotel and management industries etc.

## CHAPTER-6

# HARDWARE AND SOFTWARE REQUIREMENTS

---

### **HARDWARE REQUIREMENTS:**

- i3 Processor(Or More) required.
- 4GB(Or More) required.
- Monitor.

### **SOFTWARE REQUIREMENTS:**

- Windows7(Or Higher Config.) required.
- Kernel Version 3.0.16 or Higher
- Active Internet Connection.



# CHAPTER-7

## OUTPUT OF THE PROJECT

---

Here is the output result of the following chat-bot system.

```
File Edit View Terminal Tabs Help
299/299 [=====] - 0s 87us/step - loss: 0.7119 - acc: 0.7793
Epoch 198/200
299/299 [=====] - 0s 90us/step - loss: 0.7490 - acc: 0.7659
Epoch 199/200
299/299 [=====] - 0s 88us/step - loss: 0.7060 - acc: 0.7893
Epoch 200/200
299/299 [=====] - 0s 87us/step - loss: 0.6843 - acc: 0.7692
Bot loaded. Type a message and press enter (use '/stop' to exit):
Your input -> hii
Hello how can i help you
127.0.0.1 - - [2020-03-05 19:18:20]
Your input -> Today's Date?
03-May
127.0.0.1 - - [2020-03-05 19:19:00]
Your input -> Who is the current dean of computer science?
Dr. Munish Sabharwal
127.0.0.1 - - [2020-03-05 19:19:58]
Your input -> How many sections in bca?
Total sections 3
127.0.0.1 - - [2020-03-05 19:21:18]
Your input -> When will the exams will start?
May be from the third week of May
And result will be declared on last week of june
127.0.01 - - [2020-03-05 19:22:30]
Your input -> Who are you?
I am chat bot to answer your queries regarding college
127.0.01 - - [2020-03-05 19:23:48]
Your input -> Ok bye
Bye and have a nice day
```

Fig.2 Conversation with Chat-Bot

```

Warning: you are using the root account, you may harm your system.
Chat History
# Bot
1 action_listen
2 hi
   intent: greet 0.28
3 utter_greet
   Hello how can i help you
   action_listen 1.00
4 how are you
   intent: health 0.09
5 utter_health
   I am fine
   action_listen 1.00
6 who are you?
   intent: intro 0.22
7 utter_intro
   I am a chatbot to answer your queries
   related to college

```

Fig. 3 Chat-Bot Chat History

## **CHAPTER-8**

# **FUTURE PROSPECTS OF THE PROJECT**

---

### **8. FUTURE PROSPECTS**

After having a lot of chatting with different users and receiving feedbacks, it will be able to answer quite reasonably. Also its database will continue to grow in size automatically. Equipping it with face-recognition techniques will give it the ability of recognizing its usual users. Moreover, integration of speech-recognition software will give relief to a user from the pain of typing.

## **CONCLUSION**

The main objective of the project is to develop an algorithm that will be used to identify answers related to user submitted questions. The need is to develop a database where all the related data will be stored and to develop a web interface, which consists of two parts: One for simple user and other for the administrator. The need is to build up a database, which stores information about college activities. A co-ordinate framework will be created and conveyed to the web server.

## REFERENCES

- [1] Emanuela Haller and Traian Rebedea, "Designing a Chat-bot that Simulates an Historical Figure", IEEE Conference Publications, July2013.
- [2] Maja Pantic, Reinier Zwitterloot, and Robbert Jan Grootjans, "Teaching Introductory Artificial Intelligence Using A simple Agent Framework", IEEE Transactions On Education, Vol. 48, No. 3, August2005.
- [3] Augello, G. Pilato, A. Machi, and S. Gaglio, "An Approach to Enhance Chatbot Semantic Power and Maintainability: Experiences Within the FRASI Project," Proc. of 2012 IEEE Sixth International Conference on Semantic Computing, 2012, pp. 186-193, doi:10.1109/ICSC.2012.26.
- [4] H. Al-Zubaide and A. A. Issa, "OntBot: Ontology Based Chatbot, Proc. IEEE of 2011 Fourth International Symposium on Innovation in Information & Communication Technology (ISIICT), 2011,pp.7-12,doi:10.1109/ISIICT.2011.614954.
- [5] Y. Chen, W. Wang and Z. Liu, "Keyword-based search and exploration on databases," 2011 IEEE 27th International Conference on Data Engineering,Hannover.
- [6] S. J. du Preez, M. Lall and S. Sinha, "An intelligent web-based voice chat bot," EUROCON 2009, EUROCON '09. IEEE, St.- Petersburg,2009.
- [7] E. Haller and T. Rebedea, "Designing a Chat-bot that Simulates an Historical Figure," 2013 19th International Conference on Control Systems and Computer Science, Bucharest,2013.
- [8] Conference on Big Data and Smart Computing (BIGCOMP), Jeju,2015.
- [9] J. Bang, H. Noh, Y. Kim and G. G.Lee, "Example-based chat- oriented dialogue system with personalized long-term memory," 2015International

