Research on a Natural Language Assistant for Student

¹Samrudhi Kuwar, ²Rohini Jadhav, ³Mayuri Nikam, ⁴Prasanna Shejawal

1,2,3,4UG Student, Department Of Computer Engineering, Late. G.N. Sapkal Collage of Engineering, Nashik, Maharashtra, India.

¹rohinijadhav714@gmail.com , ²mayurinikam95@gmail.com, ³samrudhikuwar123@gmail.com, ⁴shejwalprasanna198@gmail.com

Abstract: In the last years, we have seen how the technology has evolved to provide powerful capabilities for computation and connectivity. For this reason, the time has come for new services to help users to take advantage of technology and the independence of location and time schedule it offers. New mobile ecosystems (Android, I OS and Windows Phone) allow us using mobile services anytime and anywhere. This creates opportunities for new services, and among them, those related to e-learning. As "connected users", we may benefit from these mobile applications to obtain educational resources, and in particular, information related to in-person courses we are following in the classrooms. The system under development works as an assistant for students in their learning process. This assistant system has two main parts: an Android application and a server platform. The Android application is a chatter bot based on AIML .The chatter bot acts as an intermediation agent between a student and the server platform, which is an integral system for the assessment process of the students. The final objective of the assistant system is to make a student able to carry out several actions, such as: to consult exam questions from a repository in accordance to specific interests, to receive recommendations about learning material, to ask questions about a course, and to check his/her own assessed exams.

Keywords: Natural Language Processing, AIML (Artificial Intelligence Markup Language), XML, Web services (Ksoap2), MySQL, Chatterbot.

I. INTRODUCTION

A natural language assistant for students (NLAST) a system that works as an assistant for students in their learning process. The assistant system has two main parts, first an Android application and a server platform. The Android application is a chatter bot i.e. an agent intended to conduct a conversation in natural language with a human being based on AIML, one of the more successful languages for developing conversational agents. The chatter bot acts as an intermediation agent between a student and the server platform. The server platform contains four repositories and a recommender (which are part of a bigger professor assessment system). The final objective of the assistant system is to make a student able to carry out several actions related to his/her learning and assessment processes, such as: to consult exam questions from a repository, to receive recommendations about learning material, to ask questions

about a course, and to check his/her own assessed exams. These actions are carried out through and Android application using a natural language interface (by voice or typing).The purpose of this development is to facilitate the access to this information through a friendly interface.

NLAST, a system that works as an assistant for students in their learning processes. This assistant allows students to consult a repository of exam questions, To receive recommendations of learning material related to the exam questions. They are reviewing, to ask questions about content that belongs to a course, and to check their own assessed exams. The system works as an assistant for students in their learning process, which has two main parts: 1) an Android application and 2) a server platform. The final objective of the system is to make a student able to consult exam questions from a repository, to receive recommendations about learning material, to ask questions about a course, and to check his/her own assessed exams. When a student wants to carry out one

of these actions, he/she asks for it to the chatter bot in natural language (by voice or typing).

NLAST, a system that works as an assistant for students in their learning processes. This assistant allows students to consult a repository of exam questions, to receive recommendations of learning material related to the exam questions.

II. LITERATURE SURVEY

In previous project INES (Intelligent Educational System) is a functional prototype of an online learning platform, which combines three essential capabilities related to e-learning activities. These capabilities are those concerning to a LMS (learning management system), a LCMS (learning content management system), and an ITS (intelligent tutoring system). To carry out all this functionalities, our system, as a whole, comprises a set different tools and technologies, as follows: semantic managing users (administrators, teachers, students...) and contents tools, an intelligent chatter bot able to communicate with students in natural language, an intelligent agent based on BDI (believes, desires, intentions) technology that acts as the brain of the system, an inference engine based on JESS (a rule engine for the Java platform) and ontologies (to modelled the user, his/her activities, and the learning contents) that contribute with the semantics of the system, etc. At the present paper we will focus on the chatter bot, CHARLIE (Chatter Learning Interface Entity), developed and used in the platform, which is an AIML-based (artificial intelligence markup language) bot. We will specifically address its performance and its contribution to INES.
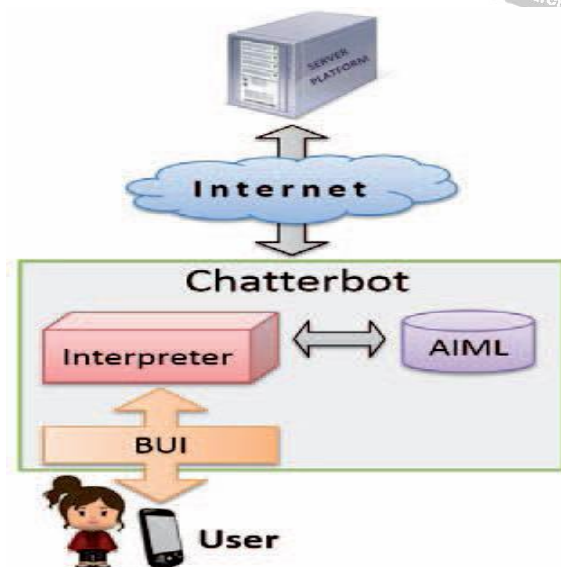
III. SYSTEM ARCHITECTURE

Fig. 1 System Architecture

As we said before, the system works as an assistant for students in their learning process, which has two main parts: i) an Android application and ii) a server platform. The final objective of the system is to make a student able to consult exam questions from a repository, to receive recommendations about learning material, to ask questions about a course, and to check his/her own assessed exams. When a student wants to carry out one of these actions, he/she asks for it to the chatterbot in natural language (by voice or typing). Several scenarios to be supported are considered. If the student asks for exam questions related to specific concepts of the matter he/she is learning, the chatterbot will send to the server a query to search into a repository of exam questions (which is in the server platform) those ones related to the concepts specified by the student. That relationship is established through a set of tags that each exam question owns for its categorization. Once the platform find the suitable questions, the chatterbot will show them to the student as a list.

When the student is viewing an exam question, he/she can asks the chatterbot for a recommendation about educational contents related to the concepts of the question. To do that, the chatterbot will send a query to the platform to search into a repository of educational content recommendation cards, those ones related to the exam question the student is viewing. The recommendation is carrying out by an algorithm that relate the recommendation cards to the exam questions by the sets of tags that both (the cards and the questions) owns for their categorization.

The student can also ask to the chatterbot for searching previous exams that he/she made previously. These exams are presented with the assessment made by the professor, i.e., with the possible mistakes made by the students, the right solutions of the exam questions, and with educational content recommended by the professor. To do that, the chatterbot will send to the platform a query to find in a repository of previous assessed exams those ones made by such specific student.

Finally, the student can ask the chatterbot questions about the matter he/she is learning. These questions will can be answered directly by the chatterbot searching into its knowledge base for suitable educational contents previously loaded within it.

IV. COMPARISON OF SYSTEM

A. Existing System

In previous System INES (Intelligent Educational System) is a functional prototype of an online learning platform, which combines three essential capabilities related to e-learning

activities. These capabilities are those concerning to a LMS (learning management system), a LCMS (learning content management system), and an ITS (intelligent tutoring system).

B. Proposed System

NLAST, a system that works as an assistant for students in their learning processes. This assistant allows students to consult a repository of exam questions, to receive recommendations of learning material related to the exam questions.
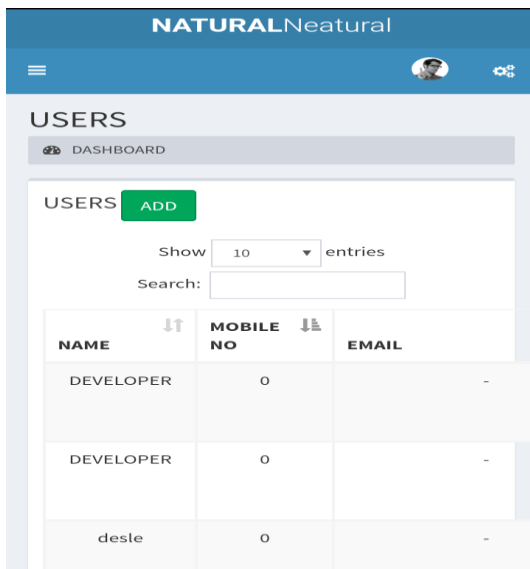
V. RESULT ANALYSIS

A. Admin Panel

Fig. 2 Admin Panel

This is the starting Process of our project at admin side. This is the admin blog.

B. Table Entry

Fig. 3 Table Entry

This is the entry table in this table, we can see the data entries which is added by Client side.

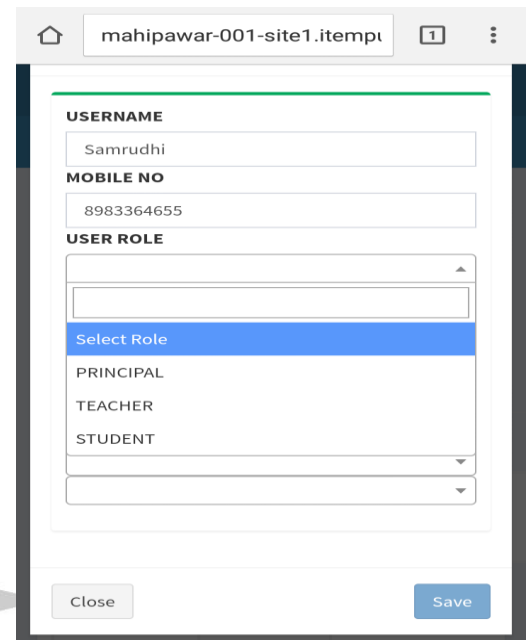### C. Information List

Fig. 4 Information List

We enter the information select Authority from this list.
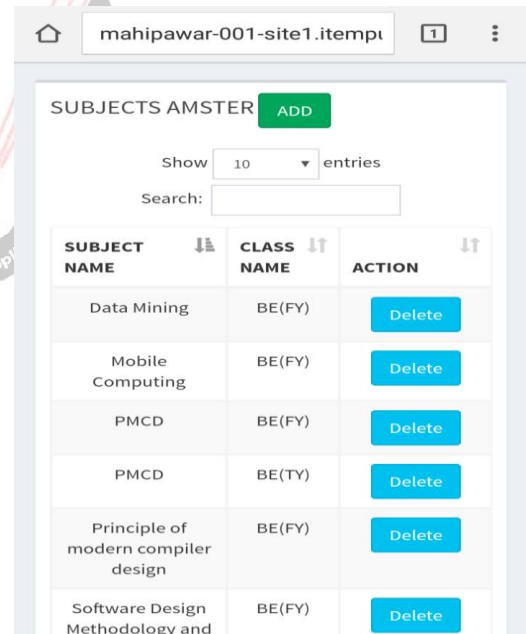
D. Subject Amster Page

Fig. 5 Subject Amster Page

Show the entries and search the subject. Principled assign the subject to the particular teacher.

Here, subject teacher add the questions with their answers.

E.   Output: Client side

Fig. 6 Output Client Side

This is the flash activity. When we start our app then this activity will show the name of our collage.
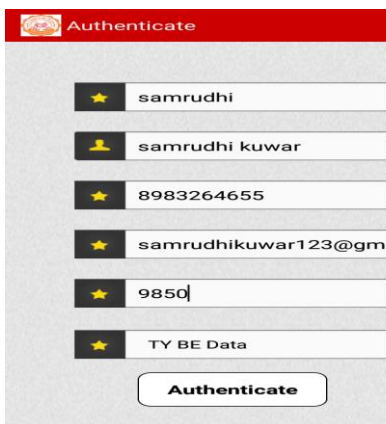
F.   Authenticate Window

Fig. 7 Authenticate Window

This the authentication window to fill the information of user. This is the Authentication window.

G.   Login Window

Fig. 8 Login Page

This is the login window for login activity. Login successfully and display the dropdown list of the subject
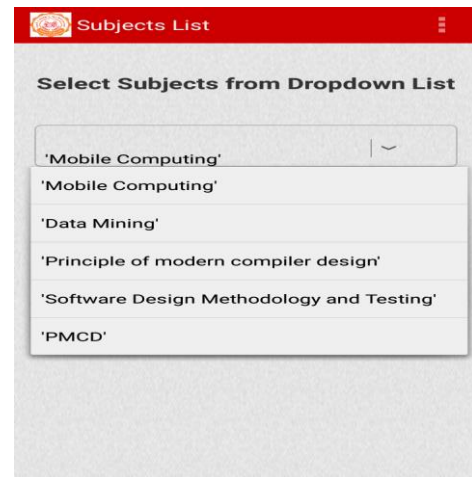
H.   Subject List Window

Fig. 9 Subject List Page

Subject list will display. We choose the subject which we want.
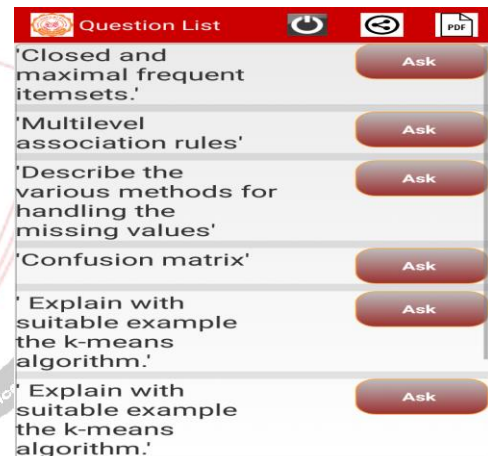
I.   Question List Window

Fig.10 Question List Window

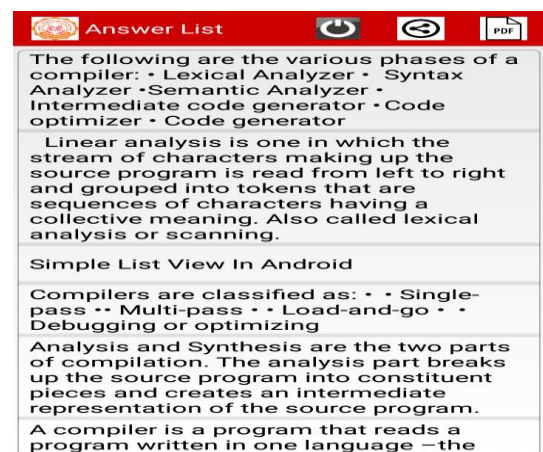Display the question list and click the ask button.

J.   Answer List Window

Fig. 11 Answer List Page

Display the answer which we choose the question

VI. CONCLUSION

We have presented NLAST, a system that works as an assistant for students in their learning processes. This assistant allows students to consult a repository of exam questions, to receive recommendations of learning material related to the exam questions they are reviewing, to ask questions about content that belongs to a course, and to check their own assessed exams. The assistant system has two main parts: an Android application and a server platform. The Android application is a chatterbot based on AIML, and so, the students can interact with the system in natural language (voice or text). The functioning of the application is like a chat room, i.e., a window where the conversation between the user and the chatterbot can be seen (just like in popular instant messaging programs). The chatterbot acts as an intermediation agent between a student and the server platform.

ACKNOWLEDGMENTS

It gives us great pleasure in presenting the "Research on a Natural Language assistant for student" I would like to take this opportunity to thank my internal guide Prof. N. K. Zalte for giving me all the help and guidance I needed. I am really grateful to them for their kind support. Their Valuable suggestion were very helpful

REFERENCES

[1] J. Jyothy, and K. Shinto Kurian, "Mobile OS – Comparative study. Journal of engineering," Computers & Applied Sciences (JEC&AS), vol. 2 (10), 2013.

[2] M. Butler, "Android: Changing the mobile landscape," IEEE Pervasive Computing, vol. 10 (1), pp. 4-7, 2011.

[3] A. M. M. Neves, I. Diniz, and F. A. Barros, "Natural language communication via aiml plus chatterbots," V Symposium on Human Factors in Computers Systems (IHC 2002), pp. 329-346, 2002.

[4] M. Llamas-Nistal, M. J. Fernández-Iglesias, J. González-Tato, and F. A. Mikic-Fonte, "Blended e-assessment: Migrating classical exams to the digital world," Computers & Education, vol. 62, pp. 72-87, 2013.

[5] F. A. Mikic, J. C. Burguillo, A. Peleteiro, M. Rey-López, "Using tags in an AIML-based chatterbot to improve its knowledge," Computer Science Journal, vol. 13 (2), 2012.

[6] F. A. Mikic, J. C. Burguillo, M. Llamas, D. A. Rodríguez, E. Rodríguez, "CHARLIE: An AIML-based chatterbot which works as an interface among INES and humans," 20th European Association for Education in Electrical and Information Engineering Conference (EAEEIE 2009).

AUTHORS PROFILE

1 st Author Name :- Samrudhi Kuwar **Qualification** :- Diploma in Computer Engg from Mumbai University, B.E Appear of computer Engineering department from Late G. N. College Of Engineering Savitribai Phule Pune University.

2 nd Author Name:- Mayuri Nikam **Qualification**:- Diploma in Computer Engg from Government Polytechnic Nasik, B.E Appear of computer Engineering department from Late G. N. College Of Engineering Savitribai Phule Pune University.

3 rd st Author Name :- Rohini Jadhav **Qualification** :- Diploma in Computer Engg from Mumbai University, B.E Appear of computer Engineering department from Late G. N. College Of Engineering Savitribai Phule Pune University.

4 th Author Name: Prasanna Shejawal **Qualification: -** Diploma in Computer Engg from Mumbai University, B.E Appear of computer Engineering department from Late G. N. College Of Engineering Savitribai Phule Pune University.