

SIMULATION BASED LEARNING IN EDUCATION SYSTEM USING CHAT ROBOT

Akshay Pokharkar, Ashwin Acharya, Harish Kumbhar, Umesh Salve,

Prof. N. S. Shirsat

Information Technology

Pune Vidyarthi Griha's College of Engineering and Technology, Pune

Abstract—There are more creative ways to learn English since the twenty-first century, with the advent of high technology such as the Internet, laptops, and smartphones. People can use technology to send messages, propose thoughts, or exchange information at any time and from any place. In India, however, the majority of smartphone applications for English learning are developed and displayed in an English GUI. This is beneficial for high-level students, but it can be challenging and frustrating for low-level students. As a result, the paper proposes a pilot study with the aim of developing a web app to help college students learn English vocabulary, English speaking skills, Book Recommendation to improve English.

Keywords—English Improvement, English Learning, Book Recommendation, Self Learning

I. INTRODUCTION

Education is the method of acquiring new information and skills. Learning English is a skill-based process that necessitates a variety of methods and techniques. Technological advancements have a major impact on current schooling. Technology is the most recent approach to the problems of studying English. As a result of the globalization and internationalization movement, English is becoming increasingly relevant. With the introduction of mobile phones and the growth of cellular networks, about 478.8% of junior high school students now have their own cell phones, with an average use rate of 87.5 percent. Apart from computer-assisted instruction, multimedia teaching and online learning, App assisted teaching can be another new model of education. Considering that English vocabulary is the principal foundation of learning English and what students fear most is to recite vocabularies—students who do not know the methods often learn by rote and will soon forget the vocabs, this research hopes to discuss whether using App will help students learn vocabulary, promote learning efficiency and motivate students to study independently and develop an interest in language learning. It is also expected that using website will lead to lifelong learning. In simulation based learning in education system using chat robot, We have used Levenshtein distance and fuzzy string matching algorithm to check similarities between two sentences and used nearest neighbour algorithm for recommending books to the user for

improving English. We have developed the chatbot which is used to improve vocabulary and English speaking skills. The module that we have developed is used to improve communication skills as well as user could be ready to give any online communication assessment.

In order to enhance English, we've even introduced book recommendations. First, the user must choose a book that truly reflects his or her attention, after which our system would suggest books that are similar to the one chosen.

II. LITERATURE REVIEW

JungHuang, C., TaTsai, F., & ChiuChen, H. (2017). A Study on the App Assisted English Vocabulary Learning. Students' views and approval of using the mobile learning program were investigated using aided learning on English vocabulary learning. In this analysis, a quasi-experimental testing approach was used. Two seventh-grade classes were selected at random. The experimental group was in one grouping, while the regular group was in the other. In two classes, the instructor, instructional tools, and material were all the same. The biggest difference between the experimental and control groups was that the experimental students used the software to help them learn vocabulary. On weekdays, they used the service for 15-20 minutes in the morning. The experiment lasted twelve hours.

The Use of Duolingo Apps to Improve English Vocabulary Learning[2] <https://doi.org/10.3991/ijet.v15i07.13229> Pangkuh Ajjisoko. is to explore how Duolingo applications can help students at Borneo University of Tarakan improve their vocabulary. This study uses a pre-experimental testing method with a pre-test and post-test. This study will use ten students as a group, who will spend 30 days studying duolingo apps at a "regular" intensity. To address the research questions, measurements and questionnaires were used as research instruments. What role does Duolingo play in helping students improve their vocabulary? The students' score is raised as a result of the quantitative results. Teachers and students should be able to use the knowledge to get intensive language learning experience in a convenient way.

The paper “Designing Smartphone Apps for English Vocabulary Learning”[3] described a pilot study with the aim of developing a mobile app to help college students learn English vocabulary by including both English and Chinese definitions. The app's content is based on the NGSL list, and the researcher creates twenty-four vocabulary learning units for students to use over the course of a year. Per week, students are supposed to learn thirty new vocabulary. Furthermore, since the target audience is low-level pupils, the words are presented in both English and Chinese (CEF A2 level). In addition, the questionnaires were used to gather feedback from students on the app. Using a smartphone app, this pilot study was conducted.

Gafni, R., Achituv, D. B., & Rachmani, G. J. (2017). Learning foreign languages using mobile applications. *Journal of Information Technology Education: Research*, 16, 301-317. [4]People who took a foreign language course while still using the Duolingo software on a mobile computer were included in the population in [8]. One community consisted of high school students who were required to use the program and complete pre- and post-surveys. People who took face-to-face lessons and opted to use the same Duolingo program willingly to aid their studies made up the other category. The second group completed a questionnaire designed for more seasoned consumers. IBM SPSS version 22 was used to evaluate the data, and Partial Least Squares Structural Equation Modeling was used to test.

III. METHODOLOGY

A. Perceptron Using Levenshtein distance algorithm

The perceptron is a supervised learning technique for binary classifiers in machine learning. A binary classifier is a function that can determine whether or not a vector of numbers representing an input belongs to a given class. It's a form of linear classifier, or a classification technique that uses a linear predictor function to combine a set of weights with the feature vector to create predictions.

The Levenshtein interval is a string metric that is used to compare two sequences. It's the smallest amount of single-character changes required to transform one phrase into another. Edit distance is another name for Levenshtein distance, but the definition may also apply to a broader group of distance metrics known as edit distance. It has a lot in common with pairwise string alignments. The Levenshtein algorithm determines the smallest number of edit operations needed to change one string into another. The method of dynamic programming is the most popular means of estimating this. Random forest This classifier classifies a collection of decision trees to a subset of randomly generated training sets. Then it augments the likes from decision sub trees to known subclasses of handling objects for tests. Random forest will generate NA missing values for attributes to increase accuracy for larger sets of data. If more number of trees, it doesn't allow to trees to fit model.

B. Nearest Neighbour

The nearest neighbour algorithm is simple to introduce and perform fast, but it can often skip shorter routes that are readily noticed with human insight. As a general rule, if the last few stages of a tour are equal in duration to the first few stages, the tour is

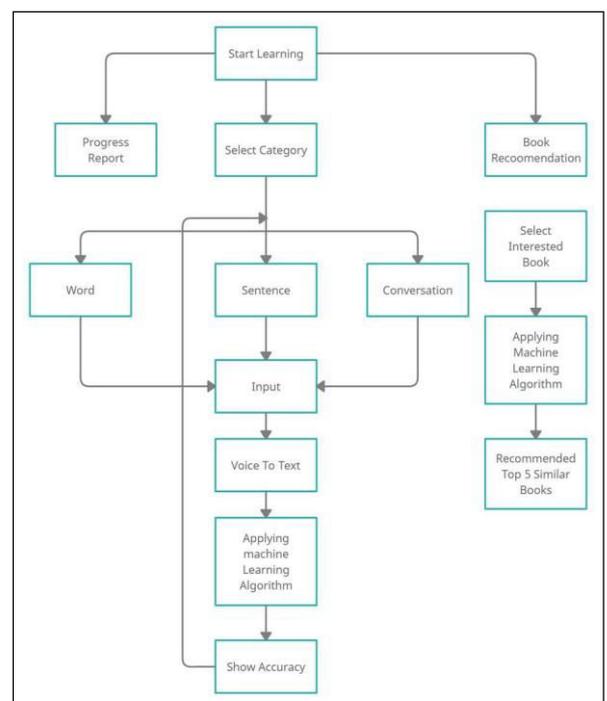
reasonable; if they are significantly longer, there are likely to be much better tours available. Another way to see if this tour is strong enough is to use an algorithm like the lower bound algorithm.

C. Proposed System

In this project, We have proposed a Web Application for learning English vocabulary that will be a "simulation-based learning in education system using chat robot." [1]“Duolingo Apps to Improve English Vocabulary Learning” was used as inspiration for the planned design and implementation of the English Improvement System. We used Levenshtein distance and fuzzy string matching algorithms to check similarity between two sentences in a simulation-based learning system using a chat robot, and we used nearest neighbour algorithm to recommend books to the user for improving English. We created a chatbot to help people enhance their vocabulary and English speaking skills. The curriculum that we created is used to enhance communication skills and to prepare users to take every online communication exam. We have also provided book recommendations to help you improve your English. After the user selects a book that truly reflects his or her interest, our system would recommend books that are related to the one selected.

- Collect the data
- Pre-process the collected data
- Reduction of the feature
- Training the data
- Apply the machine learning algorithm
- Evaluate the classification result into fake and real

D. Architecture



IV. RESULTS

A. Practice new words expand your vocabulary

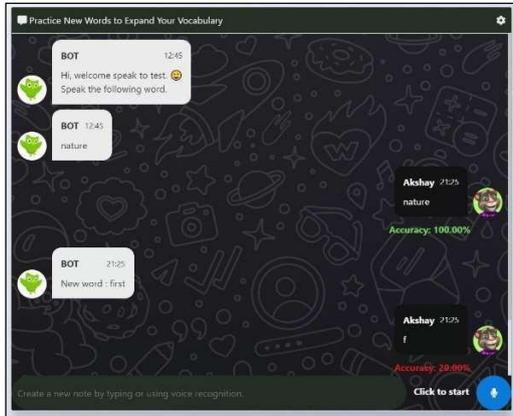


Fig.2 Practicing of word

User has to speak the word appeared on the screen. When user speaks the word then our system will convert spoken word to text and then appeared word will get checked to spoken word and ML module will check the accuracy and we will display the accuracy. If accuracy is very less then user has to speak that particular word again, this process will be happening repeatedly until user speaks the accurate word.

B. Speaking sentences

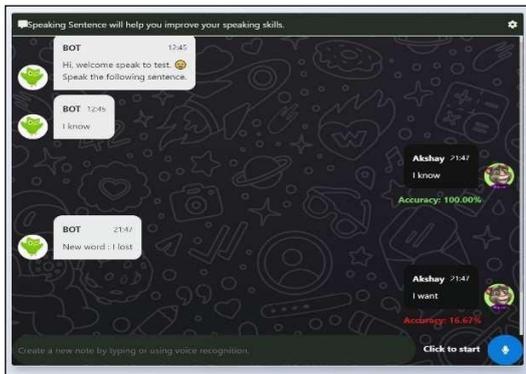


Fig.3 Practicing the sentences

The user is required to utter the sentence that appears on the screen. When a user speaks a sentence, our machine converts it to text, and is then tested against the spoken sentence by the ML module, which then displays the accuracy. If the precision is low, the user must repeat the sentence; this procedure will be repeated before the user says the correct sentence.

C. Book Recommendation

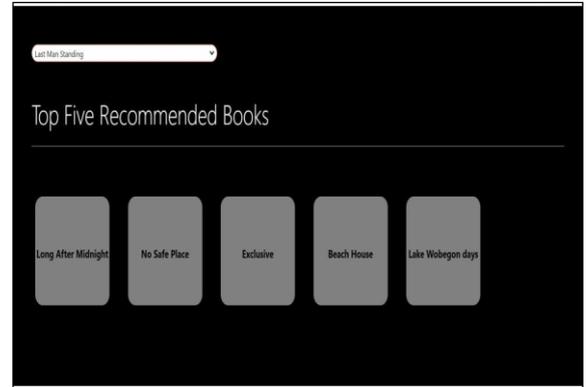


Fig.4 Book Recommendation

User has to select the type of book from dropdown list, then our system will check for the similar books and recommend it to the user depending on user's selection.

V. CONCLUSION

Thus, we can conclude that Smartphones, iPads, iPods, and computers have all become commonplace in our everyday lives. By changing how these devices are used to learn the language, self-regulated learning can be created. The suggested framework provides a web page with a self-access learning viewpoint. The learner selects what they will study and determines how they will measure their own progress. The system assists users with developing their language and speech abilities, as well as recommending books for improving English skills based on the user's interests.

VI. FUTURE WORK

We would further try to extend the system by making it more independent by providing flexibility for android, IOS, MAC .

VII. REFERENCES

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