SAUL: AI-Enabled Chatbot for AASTMT-Alamein Campus

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Abstract*—Chatbots, or machine-based conversational systems, have been popular in recent years for a variety of purposes. Chatbots are intelligent technologies that employ Artificial Intelligence (AI) to converse with humans in their native languages. Chatbots' primary function is to interpret users' questions and intelligently and organically respond with the most appropriate responses. In some of the most widely spoken languages, chatbots have been a huge success; nonetheless, Arabic chatbots have yet to reach their full potential. This paper also includes basic guidelines for developing an effective Arabic chatbot in the Egyptian dialect for academic purposes. In conclusion, there is a scarcity of Arabic chatbot literature, implying that more research is needed in this area.

Keywords—Artificial intelligence; ArabChat; Arabic chatbot; human-machine interaction; conversational agent;

I. INTRODUCTION

The learning processes are the focus of Artificial Intelligence (AI). The idea of communicating with machines using human language has potential, according to AI. A chatbot, also known as a chat agent, is an intelligent conversation agent that communicates with humans using natural language and mimics human interaction. A chatbot is a widely used technology that allows people to communicate with machines using natural language. As a result, chatbots have grown almost ubiquitous. Chatbots have recently been shown to be valuable assistance tools for a variety of applications. Chatbots are excellent software for teaching, learning, and helping academia in education. They can also be used in the medical field to counsel and aid patients. Chatbots have improved the e-commerce experience by acting as customer service employees 24 hours a day, seven days a week. Chatbots have proven to be beneficial in advising and consulting and addressing frequently requested questions. Furthermore, chatbots have aided in the direct and rapid access to web information utilizing natural language. Furthermore, Chatbots are projected to play an increasingly important role in our daily lives in the future.

II. PROPOSED MODEL

Informational Chatbots: They aim to help users find information and guidance related to their questions. SAUL was designed and implemented to provide students with academic information and act as a student advisor. In addition, a university chatbot was developed to conduct dialogues for answering frequently asked questions.

1) Pattern: One or more words intended to match users' potential questions.

2) Template: The reply that the chatbot will return to the user and natural language.

3) That: It keeps responses continue in the same context.

The artificial intelligence-based approach, on the other hand, uses Natural Language Processing (NLP) and linguistics. NLP is a branch of artificial intelligence that handles the interaction between machines and humans using natural language. NLP is classified into (1) Natural Language Understanding and (2) Natural Language Generation. Natural language processing has various techniques such as pattern matching, parsing, keyword matching, semantic network, semantic interpretation, knowledge-based structures, and other generative methods. Additionally, natural language processing has several levels of processing including phonology, morphology, lexis, syntax, semantics, discourse, and pragmatics. Natural language processing is utilized in different applications such as machine translation, text recognition, categorizing and classification, filtering, information extraction and summarizing, etc. ELIZA chatbots apply natural language processing in their dialogues.

To deal with the Arabic Language, Farasa Lemmatizter is used and handled smoothly.

III. EVALUATION

The chatbot replies on many trails, however, it needs more data. the quality of chatbots; they identified several quality issues and attributes that aid in the quality assessment of chatbots based on ISO 9241. We evaluated

SAUL using these attributes. ISO 9241 is a set of international standards for HCI and usability. ISO 9241 defines usability as “Software is functional when it enables the user to perform his task effectively, efficiently, and satisfactorily in the specified context of use.” [18]. Thus, the three most important characteristics are effectiveness, efficiency, and satisfaction. Effectiveness refers to how well the system achieves the user's expectations, i.e., quality and completeness. Efficiency refers to how well resources are used to meet the user's goals. Satisfaction refers to customer satisfaction: how they feel about using the program. To ensure the usability of the SAUL, we asked 14 people to use it and provide feedback through a questionnaire. We attempted to ask questions in the questionnaire that reflected effectiveness, efficiency, and satisfaction categories, as well as quality attributes. We concentrated on performance to assess effectiveness. There are several quality attributes related to it such as robustness to unexpected input. To assess efficiency, we focused on functionality and humanity, as well as quality attributes such as linguistic accuracy of outputs and the ability to react to specific questions. To assess satisfaction, we focused on effect, ethics, behavior, and accessibility, as well as quality attributes such as greetings. Thus, we divided our questions into three several as shown in

An excellent style manual for science writers is [7].

IV. CONCLUSION

Recently, there has been a tremendous rise in Chatbots technology and its usage in many different applications, especially for educational purposes. The emergence of Arabic chatbots, on the other hand, is limited due to the complexity of the Arabic language. This research explored the current status of chatbot utilization in any university. The results revealed that currently chatbots are not implemented in any university. Although it is known that chatbots can act as a round-the-clock virtual assistants, universities still rely on human-distance assistants. The problem behind the absence of chatbots in universities lies in the complexity of the Arabic language and its morphological features. Previous research has attempted to resolve the problem though these solutions are not comprehensive. Therefore, experimental tests were performed on one real Arabic chatbot. The experiment showed that a slight change to a single Arabic word form can confuse the chatbot easily. However, this chatbot implements a guiding method that helps the user to sequentially reach convenience.

REFERENCES

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```
print("GO! SAUL is running!")

while True:
    message = input("")
    ints = predict_class(message)
    res = get_response(ints, intents)
    print(res)
```

```
GO! SAUL is running!
هاي
هاي أساعدك ازاي؟
ايه الورق المطلوب فالكلية عشان اقدم ؟
استمارة النجاح في الثانوية العامة أو مستخرج رسمي منها, شهادة الميلاد أو مستخرج رسمي منها , صورة البطاقة الشخصية أو جواز السفر, عدد 4 صور شخصية (46) , سداد رسوم التقديم واختبارات القبول(غير مستردة) 200 دولار , 1000 دولار من المصروفات الدراسية (تسترد بالكامل قبل 27/8/2020 ويسترد 50% فقط بعد هذا التاريخ وحتى الاسبوع الثالث من الدراسة ولا يسترد اى مصروفات بعد ذلك)
خطوط الباص في فرع العلمين ؟
كل الباصات بتتحرك الساعة 3 من فرع العلمين وموجود 4 خطوط مختلفه ( خط الحريه , خط الساحل الشمالي , خط الكورنيش , خط سموحه)
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