TASHA - A Digital Human Chatbot

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Abstract - *This paper gives a detailed analysis of chatbots and applications providing digital human chat-bot. Communicating with humans through live chat interfaces has become an increasingly popular means to provide real-time user interaction in many e-commerce applications. Today, In this paper, we present a new way of communicating with humans utilizing the natural language often based on Artificial intelligence (AI). Though cost- and time-saving opportunities triggered a widespread implementation of AI-based chatbots, they still frequently fail to meet customer expectations, potentially resulting in users being less inclined to comply with requests made by the chatbot. But With the help of Digital Human Chatbot, the interaction with the user would be much better than the normal chatbot, this provides the more natural ways of communicating with the chatbot as like the user is directly talking with humans.*

Keywords: **Chatbot, Digital Human bot, Speech-to-text conversion, Artificial Intelligence Text-to-Speech.**

1. INTRODUCTION

Human Machine conversation is still a relatively developing area of artificial intelligence, even since the invention of chat-bot. Chat-bot was presented as a computer program that could perform natural language communication with a human. Since then, artificial intelligent conversational systems, called chat robots or chatbots have been used for a range of applications and topic areas including customer service, entertainment, religion, and intelligent tutoring. Education is an important area in which chat-bots have and can make significant contributions to learning.
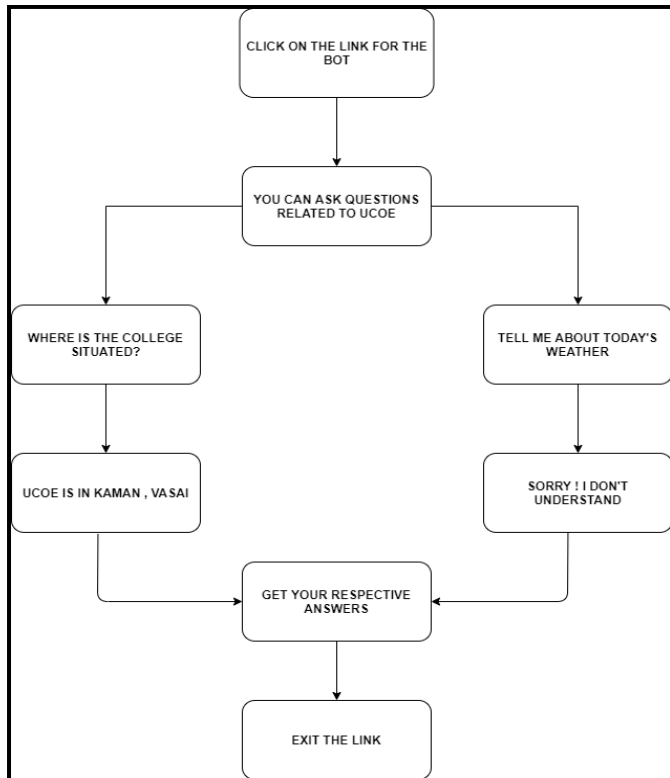
Following this notion, TASHA is proposed as an intelligent chatbot that can hold conversations with people for the purpose of effective, natural language learning. Unlike the other types of chatbot, this is a prototype with limited interaction capabilities and knowledge areas, TASHA is presented as a very capable, interaction, and engaging chatbot.

A key aspect of TASHA is that this is a digital human chat-bot, with speech-to-text capabilities to interact with people easily.

2. PROBLEM STATEMENT

1.Discovering bots is still an issue for potential users. The discovery of chatbots on many messaging platforms is still very limited at the moment. Without massive marketing efforts, it is very difficult for bot developers to get in front of massive audiences on messaging platforms, which can be quite frustrating for developers. 2.No established business models. chatbot developers have no way to make money from their chatbots, unless they develop these bots for a third party. That is not to say that one of the major platforms will not deploy a compelling monetization method in the coming years. This will be similar to how users currently have to pay a small fee for premium apps on the app store. Chatbots may not provide direct value to developers, but may be useful for large companies who hope to engage with more users and hence get more sales. 3. Most chatbots aren't that great at having normal conversations. The relatively low barrier to entry for chatbot makers, means a lot of chatbots have been published since messenger had announced that it was allowing chatbots on its messenger platform. A lot of the chatbots on messenger are frustrating to use and not helpful at all. It is important to note, however, that chatbots on these messenger platforms are still relatively new, so as natural language processing technologies improve the ability for chatbots to hold longer deeper and more meaningful interactions will also significantly improve with time.

3. DIAGRAMS

Fig. 1. Overview of technology architecture for TASHA

4. IDEA OF IMPLEMENTATION

4.1 TASHA

To anytime the user wants. At the interface, TASHA is presented as a life-like 3D Digital human that blinks, talks and moves his head in a natural way, imitating human form. Below the digital human interface there is the text box, that shows the speech-to-text conversation that TASHA takes as input from the user.

TASHA is an artificial intelligence Digital human chat-bot that has the ability to hold human-like conversations with people, via a Speech-to-text user interface, for the main purpose of holding human-like conversations with people with help of Digital-human.

TASHA was created using adobe Maya and Unity technology platform. Maya provides tools to make a human avatar of real humans and animation to give human-like expressions integrated with the unity software application you can use on any platform like Linux, Windows, IOS, etc.

4.2 USER INTERACTION

Users can chat to TASHA via a speech-to-text interface, sending him vocal input messages and receiving voice audio responses. TASHA has the ability to understand the user input and give the response accordingly to the users.
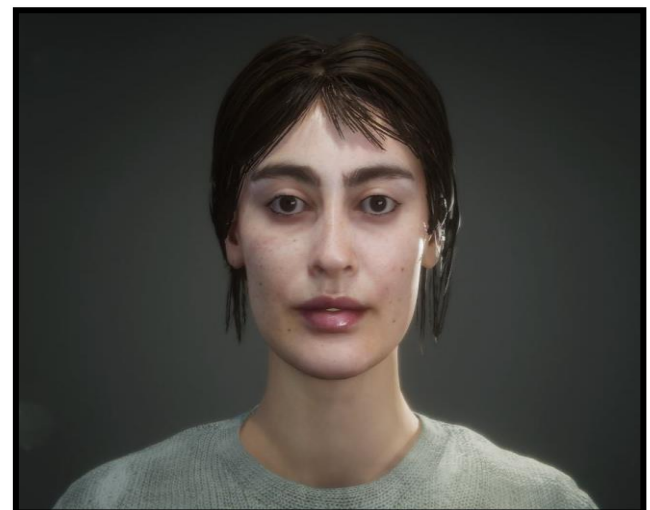

Fig. 2. The user interface to Tasha Digital Human Chat-bot

While TASHA can be configured to handle any inputs, the remainder of this section describes the user interface for TASHA gives customer-facing AI a human face, making interactions feel more intuitive and natural. With the help of IBM Watson Assistant, we create "artificial human" advisors that help some of the world's leading companies providing next-generation customer service in a highly scalable, cost-efficient way. Figure 2 shows how the user interface to TASHA looks to a user who can talk

In Figure 2, TASHA is set up to Customer service message to respond to customers to the given user input. This means that a user can send TASHA a message anytime the user feels the necessary user can start the conversation. The IBM Watson assistant does all the hard work for conversation between customer user and
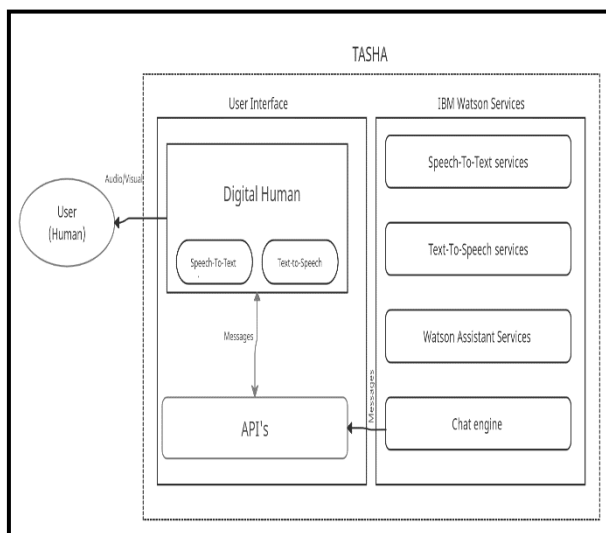
the bot and other services like Speech-to-text are used to take input from the customer and Text-to-speech is to give response to the customer. Customers can have a Conversation with TASHA about anything and everything. If at any stage TASHA is not confident is responding with a specific relevant response, she will respond with a general comment and try to keep the customer engaging and prolong the conversation.

4.3 IBM WATSON

Watson is AI for business. IBM's portfolio of enterprise-ready pre-built applications, tools and runtimes are designed to reduce the costs and hurdles of AI adoption while maximizing outcomes and responsible use of AI. Powered by the latest innovations in machine learning, Watson is the open, multi cloud platform that lets you automate the AI lifecycle. Build powerful models from scratch, or speed time-to-value with pre-built enterprise apps. Manage the full lifecycle of your AI to ensure trusted outcomes. Prepare your data, build your models, and deploy into production – all in one, open environment. Get deep insights from your data, interact with customers and employees on their terms, and train your AI systems on the language of your industry. Watson assistant build conversation interfaces into any application, device, or channel- on any cloud. Watson APIs infuse powerful AI capabilities into your enterprise apps and build with Watson's full suite of language, speech, vision, and empathy APIs. IBM Watson Text to Speech gives your brand a voice, enabling you to improve customer experience and engagement by interacting with users in their own languages using any written text. Increase accessibility for users with different abilities, provide audio options to avoid distracted driving, or automate customer service interactions to increase efficiencies. Natural Language Classifier returns the best matching classes for a sentence or phrase. For example, you submit a question and it returns keys to the best matching answers or next actions for your app. The IBM Watson™ Speech to Text service provides APIs that use IBM's speech-recognition capabilities to produce transcripts of spoken audio. The service can transcribe speech from various languages and audio formats. In addition to basic transcription, the service can produce detailed information about many different aspects of the audio. It returns all JSON response content in the UTF-8 character set.

5. IMPLEMENTATION

IBM Watson was used to create a life-like speaking digital human character. Her base personality was set to be warm hearted and intellectual in nature. Content was added to her content profile in the form of questions and answers, statements and utterances on a range of topics. The chat flow design was created to make TASHA more responsive in nature rather than controlling. The main aim of implementation was to: 1) Ascertain whether TASHA could hold a decent conversation when input messages are given properly. 2) Ascertain whether TASHA cloud holds a decent conversation when input messages are given correctly. 3) To gain an initial insight from the user as to whether TASHA would make a useful Conversational tool.

TASHA would be available to all businesses to create conversation more efficiently to their customers via a URL that pointed to a web page that could be accessed with an internet browser. Customers would be told that TASHA is a digital human character created for conversation and asked to engage in natural conversation with her. Just as if they were talking to a real human.

6. RESULTS

In most conversations, TASHA performed exceptionally well, holding a fairly intelligent, thoughtful and natural conversation. These conversations were considered to be the baseline to assess the quality of the conversation. In the conversation TASHA also performed quite well, understanding the human and responding relevantly in the majority of cases. Overall, TASHA performed exceedingly well. Responding relevantly and accurately throughout the majority of conversations. In the conversations TASHA responds accurately to messages over 95% of the time. Sometimes, obviously, users input obscure and complicated messages during conversations and TASHA is unable to comprehend the meaning.

In IBM Watson any developer can create any type of assistant required by the businesses and API integration with unity is must simpler, as the Watson is used as a chatting application, but by using IBM Watson services like speech-to-text and text-to-speech will help to make conversation much better. TASHA is a useful system as a reliable tool for human like conversations purposes.

7. CONCLUSION

In this paper, an Artificial Intelligent Digital human chat-bot called TASHA has been presented. TASHA can talk to people and ultimately be provided as an alternative application for conversational purposes. Implementation shows that TASHA has the ability to hold conversations to a good level of accuracy and prove to be a useful and accepted tool for customer service. Future research will be focused on more formal user testing to test TASHA's applicability and suitability across multiple platforms like IOS, Android, Web. More IBM Watson assistant knowledge dictionaries will be developed so that the system relies less on the API to make conversational more efficient. This should improve the quality of the conversations and the overall new customer experience in chat-bot services.

8. ACKNOWLEDGMENT

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