AI Meets Mental Health

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Abstract - *Mental health indicates the degree of psychological prosperity. When a person faces an unbalanced mental health, it results in mental disorder. In India, the number of cases regarding the mental disorder is increasing every year, and there is a shortage in the mental healthcare professionals, also still considered as taboo. In such situations, technologies like Artificial Intelligence helps to fill the gap. As Artificial intelligence is dedicated to developing systems that perform cognitive processes characteristics of humans, we can use this in Mental health related issues. As we are going through a tough time of COVID-19 where everything has been online, why not use this opportunity to help people online. Chatbots are expected to rise in popularity as the demand for mental health treatment grows in tandem with technological advancements. While an AI chatbot can provide a person with tools and a platform to address difficulties, as well as a mechanism to track moods and improve mental health literacy, it is not a substitute for a therapist or other mental health provider. Finally, if AI chatbots have a positive impact on mental health, they must be regulated, and society must resist techno-fundamentalism when it comes to AI. Many businesses have recently begun to use chatbots to answer user questions via chat interfaces. Although it has become easier to construct a chatbot application thanks to recent technological advancements, the application itself is a complex system. While designing a chatbot, it is difficult to attain efficiency, efficacy, and user satisfaction. Chatbots have usurped the role of people due to their popularity and user-friendly features.*

1.INTRODUCTION

Access In 2015, India's suicide rate of 15.7 per 100,000 people was higher than the regional average of 12.9 and the worldwide average of 10.6. In India, suicide is the biggest cause of mortality among those aged 15 to 29. In less-developed nations, the treatment gap, as defined by the absolute difference between the prevalence of mental diseases and the treated proportion, has been shown to be between 76 and 85 percent.to mental health care and treatment continues to be a problem in all countries and cultures. Major depression is the top cause of disability-adjusted life years (DALYs) and the fourth greatest cause of years lived with disability worldwide. Mental health is a huge concern around the world, and India is not far behind.

The problem of insufficient resources is one of the key reasons for such a large treatment gap. Infrastructure and human resources are both insufficient in India. More than one in every ten persons in the world suffers from mental health problems, and this number is predicted to, there are insufficient mental health experts to treat all of these folks. Is artificial intelligence (AI) a viable option? While many doctors rise in the wake of the Coronavirus disease 2019 (COVID-19) pandemic. Unfortunately, many psychiatrists hold differing ideas on this subject. However, recent advancements imply AI may alter the practice of psychiatry for both professionals and patients. Shortages of psychiatrists and therapists around the world may lead to an increase in ai-based mental health solutions.

2. MOTIVATION

As human-computer interfaces, chatbots are crucial. It's a piece of software that simulates typed communication with the aim of fooling the user into believing they're conversing with another person. Chatbots are conversational agents that can converse with any user in any area using Natural Language Processing. According to the World Health Organization (WHO), stress is the leading cause of mental disorders worldwide, threatening over 300 million people each year. With the growing demand for assistance, the bot aims to build a less programmed and more conversational atmosphere. As a result, the chatbot offers insights and positive reinforcement to help you overcome your stress.

3.LITERATURE SURVEY

A Dementia Patient's Companion: As dementia progresses, many people maintain a significant portion of their conversational skills. However, the guilt and anger that many dementia patients feel makes regular, daily conversations with even near family members difficult. That's why Endurance, a Russian technology firm, created a companion chatbot. Short-term memory loss is a common symptom of Alzheimer's disease. As a result, the chatbot attempts to detect anomalies in conversational branches that could suggest a problem with immediate recall – a technically challenging task for an NLP-based machine.

Furthermore, since the chatbot is a cloud-based solution, physicians and family members can access contact logs at any time. Surprisingly, the as-yet-unnamed conversational agent is currently an open-source project, which means that anyone may contribute to the bot's codebase's growth. While the project is still in its early stages, it has a lot of promise in terms of helping scientists, researchers, and

care teams better understand how Alzheimer's disease affects the brain.

What's New in Medicine: Making Medical Diagnoses Faster: If you're the kind who bookmarks WebMD, Med What might be worth a look.

This chatbot aims to make medical diagnoses for both patients and doctors quicker, simpler, and more straightforward – think of it as a more sophisticated version of WebMD that you can speak to. MedWhat is operated by a sophisticated machine learning system that provides increasingly accurate answers to user questions based on behaviours it "learns" from communicating with people. MedWhat not only answers an increasing number of medical questions, but it also consults huge amounts of medical literature and peer-reviewed scientific articles to supplement its already extensive knowledge. ,the bot also consults a large body of medical literature and peer-reviewed science articles to supplement its already extensive medical knowledge. MedWhat is more like a virtual assistant (like Google Now) than a conversational agent in several respects. It also represents a new area of chatbot creation that combines intelligent natural language processing systems with machine learning technology.

ALICE: The Bot Who Started a Thousand Others:

ALICE, one of the very first bots to go online – and one that has held up remarkably well despite being created and released more than 20 years ago – will be missing from any list of groundbreaking Chatbots. ALICE (Artificial Linguistic Internet Computer Entity) is an acronym for Artificial Linguistic Internet Computer Entity, an acronym that sounds like something out of an episode of The XFiles, was created and launched by Dr. Richard Wallace in the early days of the Internet in 1995. Despite the fact that ALICE is based on an outdated codebase, the bot provides a surprisingly accurate conversational experience to its users.

UNICEF: Making a Difference in the Lives of Marginalized People: The chatbots we've looked at so far, with the exception of Endurance's dementia companion bot, have mostly been fun novelty items. Chatbots, on the other hand, are being used by UNICEF, an international child advocacy organization, to assist people in developing countries in speaking out about the most pressing needs in their communities. The bot, called U-Report, focuses on large-scale data collection through surveys – this isn't a chatty bot. U-Report sends out prepared polls on a variety of pressing social issues on a regular basis, and users can answer with their thoughts. UNICEF then uses this information to formulate policy recommendations. Approximately 86 percent of the 13,000 Liberian children surveyed by U-Report said their teachers were engaging in this heinous activity, prompting UNICEF and Liberia's

Minister of Education to collaborate on a project to put an end to it.

4.PERFORMANCE OF CHATBOT

The chatbot's efficacy can differ depending on how the conversation is conducted. In dialogue systems, there are text-based chatbots and chatbots that use natural-language, speech-based interfaces. From a technological standpoint, speech-based chatbots are text-based chatbots with speech recognition and synthesis capabilities (machine reading aloud). The more basic chatbots rely on understanding specific key words in order to direct a conversation. More efficient chatbots can evaluate user feedback and contact patterns in greater depth, allowing for more accurate responses and the extraction of contextual data such as users' emotions.

Relational chatbots, also known as contextual chatbots, mimic human abilities such as social, cognitive, and relational aspects of natural conversations. In the creation of a chatbot identity, computer-generated characters, or avatars, are frequently used; these imitate the main characteristics of human conversations and are frequently studied under the name embodied conversational agent.

The greater the chatbot's resemblance to humans, the more mental qualities it has (anthropomorphism). Anthropomorphism is the ability of a chatbot to mimic the behavioural characteristics of a therapist. Social qualities and the chatbot's ability to convey empathy tend to be significant factors in cultivating a viable foundation for mental wellbeing promotion in the psychotherapeutic sense.
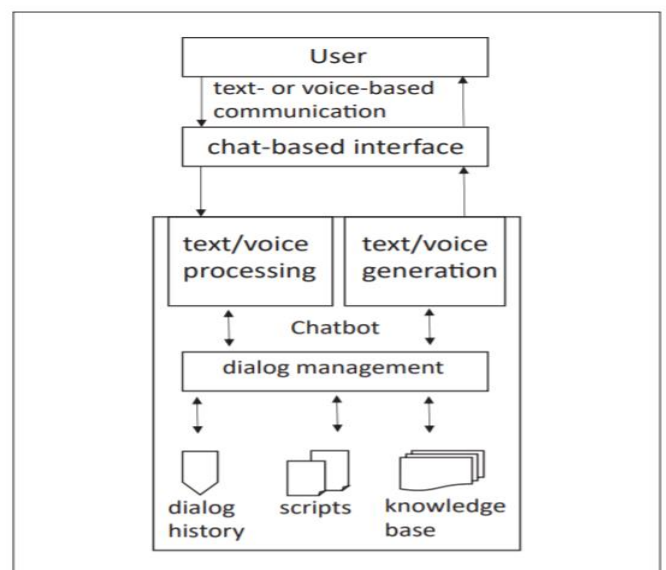

Fig. 1. Graphical Representation of Technical Implementation of Chatbot.

5. RESULT AND DISCUSSIONS

This project's outcome is as follows: the user must engage in text-to-text contact with the chatbot in order to receive the specific illness, and users can also access their previous chat history by entering their information into the database.
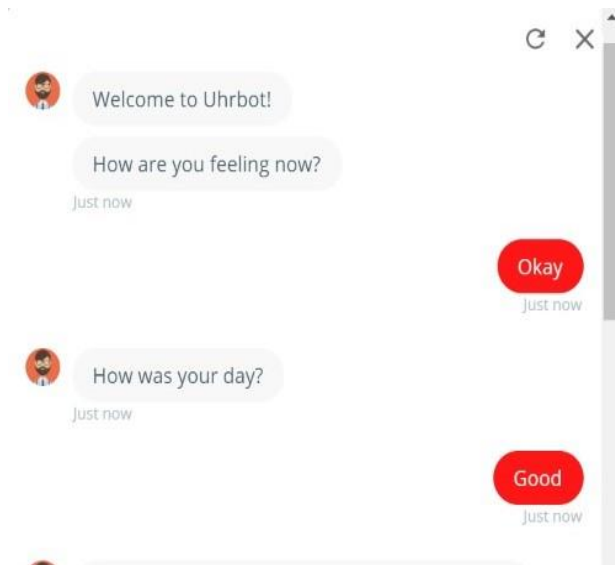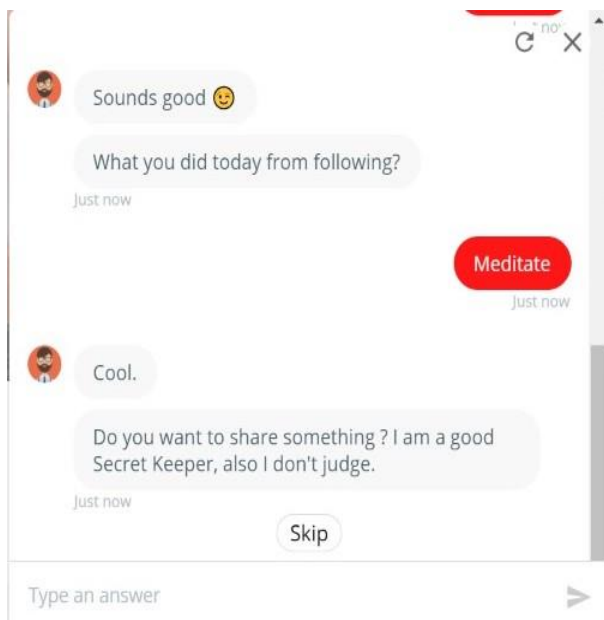

Fig .2(a). GUI of Working Chatbot

Fig. 2(b). GUI of Working Chatbot

6. CONCLUSION

Mental health wellbeing refers to a person's psychological, emotional, and social well-being. It is important at all stages of life because it influences how one thinks, feels, and behaves. It is considered safe to see a therapist on a regular basis to keep one's mental health in check. Many people suffer from mental illness but are unaware of it because they are too preoccupied to see a therapist. Monitoring Chatbot Public health is mostly designed to keep track of people's mental health. The user can use this once or twice a week, depending on their needs. The chatbot will begin by asking a series of questions. The program then analyses the responses and advances the user to the next step, where he or she can record responses to a new set of questions about his or her daily routine. As a result, anyone can use the built chatbot. Answering those questions, which will then be processed by the chatbot, takes just 5-10 minutes. If the user's mental wellbeing is serious or very serious, the chatbot would recommend that they see a doctor as soon as possible. If the outcome is mild or moderate, the chatbot will recommend any things for the user to do in order to maintain his or her mental health. This saves the user time while also assisting them in keeping track of their mental health.

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