AI-Driven Mental Health Chatbot

Prashant Patel[1], Om Bhagat[2], Rishikesh Nath[3], Vaibhav Mote[4]

Department of School of Computing[1,2,3,4]

MIT ADT University Pune, India

patelprashant907@gmail.com, ombhagat5759@gmail.com

rishikeshnath369@gmail.com, motevaibhav62@gmail.com

Abstract: *Mental illness has emerged as a rapidly growing problem across the world, affecting millions of people regardless of background. Prevalent disorders such as depression, anxiety, and emotional distress frequently remain undiagnosed, mostly because of stigma, ignorance, or inadequate access to professional services. This research presents a new AI-driven virtual mental health chatbot that uses NLP and machine learning to identify emotional and psychological challenges through user interactions and behaviors in real time. The system classifies user input into different classes, i.e., Depression and Anxiety, with the help of classifiers such as Support Vector Machines (SVM) and Multinomial Naive Bayes, trained on a well-curated set of mental health-related texts. The chatbot interacts with users using empathetic responses from a pre-defined set, leading them to seek professional help. Impressively, the model had an accuracy rate of 87% using the SVM classifier, making it a viable candidate for scalable, first-line mental health care. Although it does not substitute for therapy, it serves as a useful first step in increasing awareness and enabling intervention in mental health.*

Keywords: Artificial Intelligence (AI), Mental Health, Chatbot, Natural Language Processing (NLP), Support Vector Machine (SVM), Multinomial Naive Bayes