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Final Production Project Report

On

Sentiment-based Chatbot using Machine Learning for mental health

**Submitted to:**

**The British College**

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**ABSTRACT**

It is crucial to maintain good mental health for the sake of one's overall wellbeing. Self care is important so this project explores the possibilites of the chatbot in self care. The intention behind this project is to introduce a study on a sentiment-analyzed chatbot that aims to provide solutions to mental health issues and to address the stigma, taboo surrounding it. It would be done by creating a chatbot that can analyze the sentiment of the user and provide non-judgmental responses. The study uses NLP and the NLTK toolkit to analyze the sentiment of the user's input and provide appropriate responses. The study aims to benefit individuals who may be hesitant to discuss their mental health issues due to stigma or fear of judgment. The report also discusses future development possibilities in this area, which could benefit those interested in chatbot development or mental health technology.

keywords

Natural Language Processing(NLP), Natural Language Toolkit(NLP), chatbot, mental health

**LETTER OF DECLARATION**

I hearby decleare that the work presented in this project report has been done by myself under the supervision of Sukant Kumar Sahu Sir and has not been submitted elsewhere for any examination.

All sources of information have been specifically acknowledged by refrences to authors or institutions.

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**Introduction**

Mental Health is growing concern in Nepal (Asim, M., van Teijlingen, E. and Sathian, B., 2020). Due to the prevelances of different stigma and taboo around mental health indivudals who experience anxeity, stress and depression are not able to seek help. Since, there are various Technologies evolving in other health sectors, This sentiment based chatbot is the technology that will analyse their problems through text which would be using the natural language Processsing(Abdellatif, A. et al., 2022) and Machine learning algorithms(Naufaldi, M. et al., 2021) to provide the valid responses.

The focus of this project is to create a chatbot using Machine Learning that can provide emotional support and guidance to the users. By making resources and information more available it also aims at improving mental health awareness and reducing stigma around it. This project will include chatbot development, it’s testing and effectiveness evaluation in promoting the positive mental health outcomes.

This project can help those who lack access to conventional mental health resources or who are reluctant to seek assistance because of the stigma associated with it by offering them useful materials. This also can be considered as a form of self-care. In general, the term "self-care" refers to the actions and practices that individuals undertake to take care of their own well-being or to manage a mental health condition without professional assistance, using sources like online resources or guidance from caregivers (Moilanen J, et al.,2023). This project will add to the existing research on the relationship between mental health and technology, which has previously been done. It also may encourage more research and development in this field.

**Review of Literature**

**Effectiveness of chatbot in mental health**

**Use of sentiment analysis in the chabot**

**Machine learning techniques used in sentiment analysis**

**Ethical Considerations for sentiment-based chabots(trust aspect)**

Bibliography

1. Asim, M., van Teijlingen, E. and Sathian, B., 2020. *Coronavirus Disease (covid-19) and the Risk of Post-Traumatic Stress Disorder: A Mental Health Concern in Nepal,* Nepal journal of epidemiology*,* 10(2), pp. 841–844. doi: 10.3126/nje.v10i2.29761
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3. Naufaldi, M. et al. (2021) “2021 International Conference on Ict for Smart Society (iciss),” in Coby: Covid-19 Telegram Chatbot by Employing Machine Learning Algorithms. IEEE, pp. 1–7. doi: 10.1109/ICISS53185.2021.9533198.
4. Moilanen J, van Berkel N, Visuri A, Gadiraju U,van der Maden W and Hosio S (2023) "Supporting mental health self-care discovery through a chatbot." Front. Digit. Health 5:1034724. doi: 10.3389/fdgth.2023.1034724

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